Distribution
Category
UC-523

SAND--88-7111

DE90 000525

SAND88-7111
Unlimited Release
June 1989

OPERATIONAL DATA COLLECTION AND ANALYSIS FOR NUCLEAR PLANT LIFE EXTENSION

Raymond M. Berg
Jeffrey E. Lewis
Susan A. Skay
MULTIPLE DYNAMICS CORPORATION
Southfield, Michigan 48076

Timothy L. Bailey

NORTHERN STATES POWER COMPANY
Minneapolis, Minnesota 55401

Sandia Project Monitor: A. R. DuCharme

Work Performed Under Sandia Contract No.: 57-4905

Prepared for
Sandia National Laboratories
Albuquerque, NM 87185
Operated by
Sandia Corporation
for the
U.S. Department of Energy

ABSTRACT

This report defines the nuclear plant operational data required to support plant life extension (PLEX) evaluations. The purpose of this report is to assist utilities in assessing how well their plant data capture and preservation methods match up with data needs for a PLEX program. The report also examines the adequacy of existing industry data bases for PLEX purposes, and provides an in-depth review of PLEX-critical plant chemistry data. Recommendations are provided for future evaluation of "aging indicators," data base improvements and data collection methods, based on the project findings.

CONTENTS

LIST OF TABLES

1.0 INTRODUCTION

This report defines the nuclear plant operational data required to be captured and preserved to support a plant life extension (PLEX) program. Operational data is defined to include information from plant process parameter recordings, testing and surveillance results, maintenance records, material sampling, plant chemistry, and other data routinely collected following initial plant startup. The basic purpose of this report is to assist utilities with assessing how well they are capturing and preserving this data for future PLEX use. Hence, a utility wishing to preserve the option for PLEX, without making a total commitment to a full-scale PLEX program at this time, can utilize this report to identify weaknesses in current plant data gathering practices which may diminish the probability for a future successful PLEX justification. As a secondary purpose, this report examines plant chemistry data gathering programs in depth for their applicability to PLEX technical analyses.

1.1 Synopsis of PLEX Industry Experience

Under joint co-funding of the Electric Power Research Institute, the U.S. Department of Energy via Sandia National Laboratories, and two host utilities (Northern States Power Co. and Virginia Electric Power Co.), two plant life extension pilot programs have been conducted at the Monticello BWR and Surry 1 PWR plants in the period 1985-1988. These pilot programs included detailed technical evaluations of critical components and structures for operating history, aging and degradation mechanisms, and potential for service life extension. These pilot studies identified several hundred pieces of data required to support the technical evaluations, most of which were available in varying degrees of detail and retrievability. Several new data points, or revised forms of collecting and preserving existing data, were identified in the summary reports of these projects.[1,2]

On a parallel path, the NUMARC NUPLEX Working Group was formed to coordinate and direct utility efforts in nuclear plant life extension. The Working Group has focused its activities through Technical, Licensing and Codes and Standards Subcommittees, composed of utility, vendor and contractor representatives. With a 5-year Program Plan having been defined, the Working Group sponsors and coordinates activities which will lead to a successful license renewal process. The Technical Subcommittee identified operational data requirements definition as a high priority item, and recommended a 1988 research project in this area, to be supported by the United States Department of Energy through Sandia National Laboratories.

In defining and supporting this project, the sponsors seek to accomplish three objectives:

1. To define the specific operational data required to support ongoing PLEX technical analyses in the two pilot programs and at other utilities which have commenced PLEX planning, and for input to related R&D projects which have commenced under the auspices of the Technical Subcommittee.

2. To assist utilities in ensuring that they properly preserve the PLEX option, while pilot plant work is conducted to resolve the large-scale technical and licensing issues.

3. To prepare for the LWR License Renewal Lead Plant Program, by providing a sound foundation for data gathering practices.

1.2 Definition of Project Goals

As defined by Sandia National Laboratories' project management, this project focused on the following goals:

Short-Term Goals

1. Assist utilities with identifying their PLEX "readiness" with respect to operational data capture, preservation, retrievability and technical adequacy.

2. Assist utilities with preserving the PLEX option by allowing them to identify needed improvements in data capture without major capital expenditure.

3. Contribute to component availability and reliability improvement, by identifying data important for trending of equipment performance over the long term.

4. Support the collection of equipment history data for continuous service life evaluation in a structured PLEX program.

Long-Term Goals

1. Development of "aging indicators" by which plant components and structures can be periodically assessed for service life.

2. Establishment of better and/or centralized data bases for PLEX operational data, via recommended

improvements to commercial/NSSS vendor data bases, NPRDS, or a new PLEX central data base yet to be established.

3. Development of specific data base products and guides for utility use in PLEX programs.

1.3 Report Contributors and Organization

The project was funded by the U.S. Department of Energy through Sandia National Laboratories, who provided technical program management, and coordination with other utilities, the NUMARC NUPLEX Working Group and the Institute of Nuclear Power Operations (INPO).

Northern States Power Company, Minneapolis, Minnesota, served as the "host" utility, by providing the benefit of its PLEX experience and a utility perspective on the technical results of the project. NSP also made available access to the chemistry groups at the Monticello BWR and Prairie Island PWR plants for project input, and facilitated discussions with INPO.

The Institute of Nuclear Power Operations assisted the project by critiquing project objectives, providing input and suggestions, identifying utilities with effective chemistry programs, and reviewing the final report.

One other utility (a Southern PWR) contributed to the project by making available access to chemistry personnel and data gathering practices, to supplement and confirm the findings generated by review of NSP chemistry practices.

Project technical work and preparation of this report were performed by Multiple Dynamics Corporation, Southfield, Michigan.

The remainder of this report discusses the specific project approach (Section 2.0), the definition of operational data requirements (Section 3.0), the examination of plant chemistry data (Section 4.0), and a summary of recommendations for improvements in operational data collection to support PLEX (Section 5.0). Appendix A of this report encloses the Operational Data Requirements Matrix, and Appendix B encloses the detailed Chemistry Data Plant Survey Matrix. Appendix C encloses the data base questionnaire used in surveying existing data bases.

2.0 APPROACH TO PROJECT

The definition of operational data required to support a plant life extension program began in the pilot PLEX programs at Monticello and Surry 1. Based on the detailed technical studies performed for critical components and structures, and after reviewing available plant records and data gathering practices, both pilot study programs identified specific data required during the program tasks, and made recommendations for improved data gathering and records storage.

This project commenced by reviewing in detail all Monticello and Surry pilot study results to extract the operational data requirements. This project was also supplemented by data requirements identified in other domestic and international PLEX programs with which the contractor was involved, including Northern States Power's Prairie Island PWR PLEX program. This accumulated data was then classified by type of data (e.g., maintenance, transient, cycle, chemistry, etc.), plant type, component/structure group, and other attributes. A computerized PC-compatible data base utilizing ENABLE was developed to matrix the data against several attributes, as discussed in Section 3.0. The data collected and reviewed was limited to the fifteen most significant component/structure groups, those which would most likely contribute to the potential for successful life extension. From this raw data, several analyses were then done to define areas of recommended improvements in plant data gathering to support PLEX.

A limited review was then performed of industry data bases available through commercial firms, NSSS vendors, and nuclear industry organizations. The purpose was to assess how well these industry data bases cover the defined PLEX operational data needs. Recommendations were developed for follow-on investigations in more depth.

To examine a particular data type in depth, chemistry data was chosen as an example, to determine how well three specific nuclear plants were collecting, preserving and trending the chemistry data found to be important to PLEX in the pilot programs. The project also examined how this data was disseminated internal and external to the utility, and what use was made of commercial data bases and the requisite reporting associated with them. Finally, an analysis was made of what additional chemistry data collection may be needed to support plant life extension analyses.

The project results were summarized in a series of recommendations, contained in Section 5.0 of this report. The involvement of Northern States Power personnel and INPO representatives provided additional perspectives on utility operations and practices relative to data gathering and reporting. This

project phase was designed only to define the specific operational data points required for PLEX, to provide the first look at industry data bases' ability to support PLEX, and to provide recommendations. It is anticipated that later phases of the work will better define how industry data bases, or even a centralized PLEX data base, can be improved or implemented to support nuclear plant life extension.

3.0 DEFINITION OF OPERATIONAL DATA REQUIREMENTS

This section of the report summarizes the selection process for PLEX operational data requirements, organization of the data matrix, and selected analyses of the data for significant near-term action. A review of industry data bases' ability to support PLEX analyses is also provided.

3.1 Bases for Determination of Operational Data Requirements

Various sources were used in defining the operational data requirements to support a PLEX evaluation. The primary sources were reports prepared for PLEX pilot plant programs at Northern States Power's (NSP) Monticello BWR plant and Virginia Power's Surry Unit 1 PWR Plant.[1,2] There have also been independent PLEX evaluations performed for NSP's Prairie Island plant and NUCLENOR's Santa Maria de Garona plant in Spain[3]. Results of these evaluations, and applicable reports published by EPRI and the NRC, were used as secondary sources of information for operational data requirements.

Results of the Monticello PLEX pilot program are presented in various documents, including individual component data evaluation sheets, component topical and mini-topical reports, and component workbooks used for trending of aging mechanisms. For Surry and Prairie Island power plants, the available informational sources are the published component topical reports. Santa Maria de Garona (SMG) PLEX analysis results are documented in a life extension feasibility and management plan report. This report is an initial look at life extension for SMG and is therefore limited in detail and content. The EPRI, NRC and other reports[4-12] utilized for this project have been generated as a result of industry research programs.

To ensure that the defined operational data is applicable for all commercial light water reactors, this project excluded those components/structures unique to the pilot plants. Additionally, critical debilitating causes identified in the various documents have been considered, and, where appropriate, inspections, surveillance, testing and data collection methods for those areas of concern are noted.

3.2 Definition of Operational Data

"Operational data", as it pertains to this project, encompasses a variety of information, results, and records generated by the plant subsequent to initial startup. This includes such records as corrective, preventive and predictive maintenance results, inspection/test results, transient data, ambient environmental data, and other information, which will either

directly or indirectly provide an indication of aging/degradation of the plant components and structures, or the effects of activities designed to mitigate such aging.

The PLEX operational data needs identified in this report pertain to fifteen selected plant component or structure groups. During the PLEX pilot plant programs, a screening methodology was developed, and used to determine plant components and structures most critical to the overall plant life extension effort. This methodology "scored" components considering economic, safety, technical, outage, licensing and parts availability factors on roughly equal terms, with the highest scoring component considered most critical. The fifteen component and structure groups of focus in this report encompass the BWR and PWR components receiving the highest scores. Based on plant differences and screening methodology scores, the PWR steam generators and main coolant pumps were included in the evaluation. These fifteen component/structure groups represent a small percentage of total plant components. However, the operational data associated with these components will represent a large percentage of that required for PLEX, considering the economic and safety significance of these components. The screening methodology discussed above places a substantial emphasis on economics. The actual "relicensing" effort, as envisioned by the PLEX lead plant program, will emphasize safety and licensing basis components, which may result in expansion of the list of data requirements.

The fifteen critical component and structure groups selected for evaluation of PLEX operational data requirements are listed below:

1) Reactor pressure vessel, including supports and safe ends
2) Reactor pressure vessel internals, including control rods
3) Primary containment
4) Reactor coolant pressure boundary piping
5) Emergency diesel generators
6) Critical concrete structures
7) Cables
8) Motor/generator (large motors and main generator)
9) Active electrical components
10) Main turbine
11) Main condenser
12) Steam generator (PWR only)
13) Control rod drive mechanism (PWR only)
14) Control rod drive - hydraulic control unit (BWR only)
15) Main coolant pumps (PWR only)

Each defined operational data parameter is associated with at least one of eleven operational data types (e.g., transient, cycle, chemistry, inspection, etc.). Table 1 contains a listing of the defined data types, and provides examples of each. Where appropriate, there may be more than one type of data associated with a given parameter. Additionally, as a result of design differences between a BWR and a PWR, a particular data parameter may not be relevant for both types of plants. Therefore, each operational data parameter is identified as being either applicable to a BWR, PWR or both.

3.3 Organization of Data Matrix

A matrix format using a commercially available data base manager was chosen to present the large quantity of attributes for each data parameter, to allow sorting and classification by different attributes.

The composite listing of the operational data is included as Appendix A. A total of 291 data parameters have been identified. Each entry of the matrix includes eleven attribute categories, the first category being the parameter definition itself. For this report, Appendix A presents the data by sequence number (assigned at time of data entry). Three of the categories are those previously discussed in Section 3.2, i.e., the reactor type, data type, and affected component(s). In addition, a relative ranking (high, medium, low), based on the perceived importance of that data parameter for PLEX evaluation, and a brief description of the actual use of this data with regard to PLEX technical analyses, are provided. An indication of whether the data parameter was collected at the pilot plants prior to the PLEX program, and the corresponding data collection method, are included. Other pertinent information, such as an explanation of the related degradation mechanism, or specific locations to be monitored, is included as necessary. The significance of the data parameter to safety aspects is also identified. Appendix A includes a text synopsis of the attribute fields and their coding.

The PLEX operational data needs have been recorded in Enable (The Software Group), Version 2.0, Database Management System (DBMS). Each data entry constitutes an individual record with eleven associated fields. The objective of the computerized data base manager is to have a flexible and efficient means of sorting, selecting, and presenting the recorded data. Multiple level sorts can also be structured in Enable as the user may require.

Table 1

Operational Data Types

Data Types	Examples
Transient	Temperature, pressure, flow, humidity during plant transients
Cycle	Plant and individual component cyclic data
Ambient	Temperature, humidity, radiation data during normal plant operation
Abnormal	Earthquake data, flood levels
Chemistry	Primary, secondary, service and circulating water, groundwater, torus water, fuel pool water analyses
Sampling	Lube oil, radwaste, diesel fuel oil sampling and analyses
Surveillance	Change in equipment performance, pump and valve testing, motor meggering, vibration data
Material	RPV beltline material specimens, concrete testing, boat sample testing
Test	Leak and hydrostatic testing, wall thickness testing, eddy current testing
Inspections	ISI results, visual inspections, condition surveys, concrete crack mapping
Maintenance	Corrective and predictive maintenance records, repair and replacement records (including failure records)

3.4 Review Process Used to Validate Data Entries

Subsequent to entry in the matrix, the operational data was reviewed to ensure its validity for performing PLEX technical evaluations, and to provide insight and further clarification as necessary. Independent technical reviews were performed by those MDC engineers cognizant of the topical reports for the components and structures of concern. Subsequent to this review, a second independent review of the data matrix was completed by MDC principals. Additional review and comment was provided by Northern States Power.

3.5 Evaluation of Industry Data Bases

Nuclear industry data bases have evolved over the years to capture, sort and disseminate a variety of plant operating data, to benefit particular groups of reactor owners and component users, or to measure performance as a means of identifying improvements. These data bases have been sponsored by private firms, industry associations and the NRC. The potential exists for current industry data bases to make a significant contribution to PLEX activities, in the areas of component reliability tracking, maintenance practices, and component/subcomponent service life evaluation. As part of this project, an evaluation of selected data bases was performed, to determine in a general sense how well the PLEX data requirements identified in the Appendix A matrix are currently collected, retained, compiled and distributed. Nine data bases were selected for the evaluation. These data bases are listed as follows:

- o Generation Availability Data System (GADS) - NERC
- o Nuclear Plant Reliability Data System (NPRDS) - INPO
- o Operating Plant Evaluation Code (OPEC) - S. M. Stoller
- o Nuclear Power Experience (NPE) - S. M. Stoller
- o Comprehensive Performance Analysis and Statistical System (COMPASS) - General Electric
- o Transient Assessment Program (TAP) - B&W
- o Westinghouse Reliability Data Base (WRDB)
- o Nuclear Operations Maintenance Information System (NOMIS) - NUS Corporation
- o Combustion Engineering (CE) Reliability Data System (CERDS)

All necessary information for GADS and NPRDS was available from EPRI reports.[4,5] Owners of the remaining seven data bases were contacted and requested to complete the questionnaire shown in Appendix C. Responses to the questionnaire were received for these seven data bases.

International data bases and data collection methods may prove useful to PLEX activities. However, attempts to research international data bases were not made.

The industry data base systems researched were not initially designed to provide many of the kinds of information required for PLEX. This shortage of information includes failure cause resolution, service life prior to failure, unusual preventive maintenance or outage activities which may have influenced service life, and postulated/observed frequency and trending of repair/refurbishment activities. Certain data bases exhibit a format and basic depth of data which can support PLEX with small to moderate modifications. Based on the questionnaire responses, those data bases with the most potential for contributing to nuclear PLEX activities include NPRDS, WRDB, CE's Reliability Data System (CERDS), COMPASS, and OPEC. Provided below is a brief synopsis of each of these five data bases.

- NPRDS stores engineering/test records and failure reports for all safety-related components in commercial nuclear power plants. The engineering record on a component contains information necessary to identify the component and its application. Failure reports include mode, cause and effect, corrective action, and any other pertinent information.

- WRDB tracks availability, reliability and operational/maintenance data for Westinghouse PWR's. The data base provides information necessary for availability/reliability studies, component aging/wearout analysis, and maintenance and testing impact studies. The scope of repair and replacement data is somewhat similar to NPRDS reportable components.

- CERDS is designed to collect, maintain and manipulate information related to the reliability, safety, and productivity of nuclear power plants. Included in this system are event data and description files which track occurrences at nuclear plants related to the operation of the plant.

- COMPASS calculates overall plant measurements and performance, and tracks reliability and performance history of plant equipment, systems and components for GE BWRs. A record of every significant maintenance activity during each outage is maintained.

- OPEC includes and describes all events that have contributed to the length of or resulted in outage or load reduction for U.S. commercial nuclear plants. Significant preventive maintenance, repairs, and

replacement activities performed during an outage for major components are also included.

Based on a review of the remaining questionnaire responses, the other data bases examined may contribute less to nuclear PLEX, because the current data base design would require major scope and format changes, and data additions. It should be noted that this may not necessarily be the case, since the level of detail in the responses may not have been adequate to correctly make this determination. However, the recommendations provided in the following paragraphs are generic in nature, and thus can be applied in considering all data bases.

To make NPRDS, WRDB, CERDS, COMPASS, and OPEC data bases more functional for PLEX, the subject of aging and degradation must be addressed. A quantitative or more definitive qualitative method of measuring actual component/structure degradation needs to be implemented, to replace a simple pass/fail notation which may be based on an unstated (or remotely stated) acceptance criterion. Quantitative measurement includes recording of analog parameters, nondestructive examination results and digital contact status. Qualitative methods include text description of as-failed condition, degradation present and corrective measures applied. These enhancements provide a stronger basis for component service life assessment.

Generally, these data bases as they currently exist collect maintenance and repair data for component/system failures or incipient failures resulting in a plant outage or derate. In some cases, major preventive maintenance (OPEC) or day-to-day operations and events (WRDB) are recorded. Although noting the occurrence of these events is important, it is not adequate to support a PLEX evaluation. Based on the information provided by the data base managers, it appears that the codes and level of information used to indicate the cause of failure need to be taken a step further to benefit PLEX.

For example, assume a report exists indicating a motor failed to start. This may or may not be a PLEX concern. Was the failure a result of operator error, or a result of bearing failure? Obviously, only the latter is a concern to PLEX. This situation still requires further evaluation. Did the bearing failure result from a lubrication problem or fatigue? One can still question the lubrication problem, e.g., lack of lubricant or incorrect viscosity. A review of the data base information indicates that the current data bases generally do not provide the necessary level of detail for PLEX, although the level varies with the individual data base. Pertinent quantifying information is also necessary for PLEX. Data such as the component service life prior to failure or the actual amount of measured wear needs to be reported for PLEX purposes. This type of data may be difficult to put into coded form, but

could possibly be reported in a narrative section if guidelines were established explicitly requiring this information to be reported. Retaining this data will contribute to component reliability assessments and maintenance planning.

Besides failure-related maintenance, data pertaining to significant preventive maintenance performed to preclude a component from reaching a failed condition is a key concern for PLEX. Other than the OPEC system, the responses indicated that the data bases generally do not track any preventive maintenance. However, all preventive maintenance need not be reported to support PLEX. Activities such as vessel recoating, piping replacement, tube replacement, etc., should be reported. The Appendix A matrix provides guidance as to desired reporting. Tracking the frequency of such activities, along with quantifying the amount of degradation and recording the service life and hours of operation prior to the preventive maintenance, will be beneficial in establishing an accurate method of determining aging and degradation.

Section 5.0 of this report summarizes recommendations for consideration regarding industry data bases. The need for a new, centralized PLEX data base remains uncertain, based on these initial surveys. The EPRI/DOE sponsored Lead Plant Program and further DOE-sponsored data base work should provide a more definitive answer.

3.6 General Analysis of PLEX Operational Data

The matrix of operational data provided in Appendix A contains 291 entries. In order to draw some conclusions which may be beneficial to utility planning and to the development of future phases of this data program, four sorts and analyses were performed on the raw data.

1. High Priority PLEX Data Requirements Not Currently Collected by the Pilot Plants

   Referring to the attribute of "high priority" to the success of PLEX technical evaluations, the data base was searched to extract those high priority data parameters which are not currently collected by the pilot plant programs. Table 2 provides a listing of 31 entries meeting this criterion (10.5% of all data identified). In some cases, the data is not collected because no prior need had been identified. In other cases, the data acquisition presents difficult accessibility or exposure considerations, or the need for special tools or methods which may not yet exist. For each data entry, the affected component(s), plant type and data type are identified.

Table 2

High Priority PLEX Data Requirements Not Currently Collected by the Pilot Plants

Data Description	Component(s)	Plant Type	Data Type
VT and UT examination of CRD housing, stub tube, welds, and adjacent base metal	RPV	BWR	Inspection
RPV sliding foot assemblies, VT or on-line monitoring	RPV	PWR	Inspection
RWCU inlet and outlet isotopics	RPV, RPVI	BWR	Chemistry
Inspection of radial keys, clevis inserts, and alignment pins	RPVI	PWR	Inspection
UT of diffuser to adaptor weld region of jet pump diffuser assembly	RPVI	BWR	Inspection
Temperature and pressure vs. time for charging and safety injection nozzles	RCPBP	PWR	Transient
Containment component thickness data	PC	Both	Test
Visual inspection of reinforced concrete containments	PC	Both	Inspection
Heavy loads data	PC, CCS	Both	Abnormal
Concrete crack mapping and growth monitoring	PC, CCS	Both	Inspection
Concrete core sampling and compressive strength testing	PC, CCS	Both	Material
Evaluation of waterproofing membrane	PC, CCS	Both	Inspection

Table 2 (Cont'd)

Data Description	Component(s)	Plant Type	Data Type
Water box thickness measurements	MC	Both	Test
Condenser shell thickness measurements	MC	Both	Test
Steam outlet temperature	SG	PWR	Transient
SG feedwater inlet temperature	SG	PWR	Transient
SG girth weld inner diameter temperature	SG	PWR	Transient
Inspection results of main generator thermosetting insulation	M-G	Both	Inspection
Full load motor input currents	M-G	Both	Surveillance
Boresonic inspection results of generator rotor shaft	M-G	Both	Inspection
Generator radio frequency signal monitoring	M-G	Both	Surveillance
Testing and analysis of removed low current, low voltage protective relays	ELECT	Both	Material
Ambient temperature, humidity, radiation levels	CABLE, ELECT	Both	Ambient
Power cable conductor and insulation temperature within trays	CABLE	Both	Surveillance
Destructive examination results of removed cables	CABLE	Both	Material

Table 2 (Cont'd)

Data Description	Component(s)	Plant Type	Data Type
Occurrence of unusual events of cable submergence, chemical exposure, excessive heat, power surges, and similar incidents	CABLE	Both	Abnormal
Machine vibration measurements	EDG	Both	Surveillance
Measurements of EDG parts subject to wear	EDG	Both	Surveillance
Engine temperature	EDG	Both	Surveillance
CRD cooling water oxygen content	HCU	BWR	Chemistry
Boat sample analysis of MC pump casing	MCP	PWR	Material Test

The predominance of data types in the inspection, surveillance and material categories is evident. Since this data supports fatigue calculations, embrittlement and other degradation analyses, and the justification of licensing data based on comparison of trends vs. design margins, a major PLEX program will be highly dependent on successful long-term capture and preservation of this key segment of the overall data. A recommendation is provided in Section 5.0 for future emphasis on data surveying and validation related to surveillance, material and non-Section XI ASME inservice inspection data gathering and retention.

2. PLEX Data Requirements Which May Require Special Tools or Methods to Collect

Table 3 provides a listing of 24 PLEX operational data parameters for which a utility will require a special inspection tool or monitoring device, or unusual methods, due to impracticality of current equipment, radiation problems or physical inaccessibility. A great number of these items relate to nondestructive examination methods, some of which are under R&D design by EPRI, NSSS vendors or other private firms. In other cases, development of these new tools or methods should be planned, particularly for the "high" and "medium" priority data records. The definition of the high, medium and low rankings for the relative importance of data is provided in the introduction to Appendix A. Other data entries represent activities for which a commercially available special tool or contracted service may be available, but which is not routinely used or purchased by the utility.

3. PLEX Data Requirements Which Require Improved Methods of Data Recording

Table 4 defines 6 broad data areas where improvement in the extent and nature of existing data gathering programs will significantly aid the PLEX process. In general, quantitative and qualitative data is required to supplement the current "pass/fail" or "checklist" data recording and assessment currently done.

4. Candidates for Investigation as Potential Aging Indicators

As a final example of the Appendix A matrix screening, Table 5 provides a listing of 13

candidates for further investigation as potential "aging indicators". The aging indicator concept is viewed as a self-assessment tool to be applied by utilities committing to a PLEX program. The aging indicators represent parametric data points, or a collection of points judged as a group, which allow simple determinations of overall PLEX likelihood of success, and the effects of PLEX-based activities, such as improved maintenance, surveillance or refurbishments. The aging indicator concept ties in with the PLEX "workbook" concept being developed in the pilot program, under which component service life, maintenance success and design margin usage will be trended for a group of active and passive components.

Table 5 presents only candidates for future investigation, and by no means represents the results of the detailed investigations which will be necessary to confirm or discard the particular candidate as a suitable aging indicator. This is recommended as a future activity.

As noted earlier, the scope of this initial operational data matrix development was limited primarily to the results from the PLEX pilot programs at Monticello and Surry. Since the pilot programs examined life extension feasibility from a variety of economic, safety and technological aspects, the components and structures covered the spectrum of NSSS and BOP systems. It is recommended that this initial data base be further expanded, utilizing data from the License Renewal Lead Plant Program, to include more definition of operational data requirements for safety system components and subcomponents. This data will be developed from the formal screening methodology and technical evaluations which will be prepared as part of the lead plant License Renewal Application.

It is also recommended that further validation of PLEX operational data capture and preservation be performed by examining other BWR and PWR plants, to determine the level of consistency and thoroughness among domestic plants. Areas of maintenance, testing and non-ISI surveillance should be emphasized.

Table 3

PLEX Data Requirements Which May Require Special Tools or Methods to Collect

Data Description	Component(s)	Plant Type	Relative Importance of Data
SG girth weld inner diameter temperature	SG	PWR	HIGH
Inspection results of the main generator thermosetting insulation	M-G	Both	HIGH
Generator radio frequency monitoring data	M-G	Both	HIGH
Humidity level in stator casing	M-G	Both	MED
Visual and tactile inspection results of power and control cables in conduit, trays, and underground duct systems	CABLE	Both	MED
Performance results of power and control cable	CABLE	Both	MED
Ambient temperature, humidity and radiation results in harsh areas (where hand-held devices cannot be used)	CABLE	Both	HIGH
UT of shroud-to-shroud support cylinder welds on core spray inlet tee attachments	RPVI	BWR	MED
UT of top guide beam to plate welds	RPVI	BWR	MED
UT of core plate to rim weld and creviced plate to beam weld	RPVI	BWR	MED

Table 3 (Cont'd)

Data Description	Component(s)	Plant Type	Relative Importance of Data
UT of diffuser to adapter weld region of jet pump diffuser assembly	RPVI	BWR	HIGH
UT of top guide beams	RPVI	BWR	MED
Crack arrest verification system results	RPVI	BWR	MED
Vibration of core barrel and thermal shield	RPVI	PWR	MED
Baffle plate gap measurements on center and corner injection joints	RPVI	PWR	MED
Wear measurements of guide tubes and control rodlets	RPVI	PWR	MED
NDE results of small radius stainless steel piping	HCU	BWR	LOW
Temperature and pressure versus time for charging and safety injection nozzles	RCPBP	PWR	HIGH
Visual and UT examination of CRD housing, stub tube, welds, and adjacent base metal	RPV	BWR	HIGH
Feedwater nozzle bypass leakage (temperature) monitoring	RPV	BWR	HIGH
Reinforcing steel cathodic protection system level data	PC	Both	LOW

Table 3 (Cont'd)

Data Description	Component(s)	Plant Type	Relative Importance of Data
Vibration data for turbine pedestal, RPV pedestal, and Reactor Building floor proximate to M-G sets	CCS	BWR	MED
Engine temperature	EDG	Both	HIGH
Torsional vibration amplitude measurement of turbine shaft	TURB	Both	LOW

Table 4

PLEX Data Requirements Which Require Improved Methods of Data Recording

Data Description	Component(s)	Plant Type	Data Type	Deficiency
Summary evaluation of event cycles	All	Both	Cycle/ transient	Insufficient detail to properly characterize design or code-based events. The summary should quantify temperature, pressure, flow and other data for the event, for comparison with assumed design cycles.
Records of concrete maintenance	CCS	Both	Maintenance	Insufficient detail of previous repair methods and materials. Specific areas repaired, the extent of repair and methods used should be recorded.

Table 4 (Cont'd)

Data Description	Component(s)	Plant Type	Data Type	Deficiency
Containment coating inspection records	PC	Both	Inspection	Damaged areas not precisely defined for follow-up investigation. Specific areas recoated and metal removed during surface preparation should be summarized.
Suppression chamber support inspection data	PC	BWR	Inspection	Only pass/fail assessment utilized. Provide a condition assessment.
Condenser shell visual inspection data	MC	Both	Inspection	Specific degradation areas not identified for follow-up investigation. Identify areas of corrosion/erosion, lagging deterioration, etc.

Table 4 (Cont'd)

Data Description	Component(s)	Plant Type	Data Type	Deficiency
Routine maintenance and surveillance testing of components	All	Both	Inspection	Only pass/fail assessment utilized. Record measured values and provide qualitative condition assessments.

Table 5

Candidates for Investigation
as Potential Aging Indicators

Data Description	Plant Type	Comment on Acceptance/Assessment Criteria
ISI examination results	Both	Codified
Tracking of plant event cycles	Both	Design analysis and code bases exist
Inspection for flaw indications and growth in RPV, particularly nozzles	PWR	An assessment of in-service inspection methods for safe end transition joints is needed
Beltline material surveillance program results	Both	Improved measurements of neutron fluence
Containment component thickness data	Both	Sample size, frequency basis to be improved
Core sampling and compressive strength testing of concrete	Both	Sample size, frequency basis to be improved
Concrete crack mapping, growth monitoring and VT assessment	Both	Needs development of VT criteria
Carbon steel piping thickness measurement data	Both	Sample size, frequency basis to be improved
Destructive examination results of removed cables	Both	Correlation to milder than design environments
NDE of shroud shell welds, longitudinal welds, top guide and core plate ledge	BWR	Acceptance limits to be developed

Table 5 (Cont'd)

Data Description	Plant Type	Comment on Acceptance/Assessment Criteria
Lubrication oil properties for critical machinery such as pumps and motors	Both	Diagnostic and predictive parameters
Water chemistry transient effects on pressure retaining components	Both	Quantify damage
Development of component specific VT acceptance limits, e.g., pressure retaining components, machinery	Both	Detailed criteria do not exist

4.0 EXAMINATION OF CHEMISTRY DATA

This section of the report reviews the specific PLEX data collection needs associated with plant chemistry, in order to validate the needs against current plant practices, and to suggest recommendations for improved methods to support plant life extension. Chemistry data was chosen for the purposes of a sample category, and to refine the methods to be used in future phases of this project.

4.1 Basis for and Definition of PLEX Chemistry Data Needs

An emphasis on operational chemistry data is appropriate for this study from two aspects. Off-normal water chemistry can be a significant cause of component degradation, and therefore assurance of an effective water chemistry program will be a positive contribution to PLEX. Additionally, in performance of the PLEX pilot plant evaluations, there is limited attention given to chemistry monitoring programs, thereby providing the need for further evaluation.

Historically, BWR reactor coolant systems have proven susceptible to IGSCC, caused by the presence of an aggressive water chemistry in conjunction with specific materials and stress conditions. In PWR plants, chemistry-related corrosion problems have contributed to steam generator and turbine unavailability. Auxiliary cooling water chemistry may also promote premature failure of associated system components. It is apparent from these illustrations that water chemistry is a significant factor in extending and maximizing the service life of critical components. Those particular chemistry parameters potentially causing component degradation are therefore of concern for PLEX.

In reviewing the PLEX pilot plant evaluation results, one finds limited discussion of chemistry data monitoring and analysis. For primary and secondary systems, the reports identify specific parameters as being of concern for PLEX, but do not always identify the specific degradation mechanisms and data needs. Pertinent information such as sampling frequency, sample locations, and data storage and retrieval are generally not addressed. These concerns, combined with the potential adverse effects of abnormal water chemistry, provided the impetus for evaluation of current chemistry data monitoring practices as a "test" of PLEX data collection methods.

4.2 Supplementary Literature Research

The examination of PLEX chemistry data needs required completion of two tasks. The initial task was to review available chemistry-related industry literature, to identify what the industry is recommending, how particular chemistry parameters

directly or indirectly affect plant components/structures, and specific problems that have been linked to water chemistry. This information was used to supplement the second task of the investigation, interviews with plant chemistry personnel at selected plants to assess their current practices and methods.

The source documents used for this examination were primarily EPRI reports and chemistry guidelines generated by the NSSS owners' groups.[6-11] The supplementary research proved to be valuable in evaluating reactor/primary water chemistry effects on the reactor vessel and associated piping, and in evaluating secondary water effects on the steam generator. However, very little information is available regarding the unique effects of water chemistry on auxiliary system components (e.g., fuel pool water effects on the liner).

The information gathered from this research was used to supplement the initial matrix of PLEX chemistry data needs previously developed from the pilot studies (Section 3.0). The literature assisted in identifying specific parameters, determining the technical basis for tracking each parameter, and recommending sample locations and frequencies. As previously mentioned, this information is generally only available for the BWR/PWR reactor coolant and the PWR secondary water systems. Therefore, some chemistry entries (e.g., component cooling water system) have no specific parameters identified. These entries are considered potential causes for degradation, although they may not have been identified as a concern yet since there are currently more significant chemistry-related problems. However, trending this data over a long period of time and correlating it to component aging may prove to be useful. Therefore, all potential sources of chemistry-related degradation have been included in a matrix format shown in Appendix B. This matrix was used as the reference for the plant surveys (Section 4.3).

4.3 Plant Chemistry Surveys

To evaluate current chemistry data practices and ultimately to update the chemistry matrix (Section 4.2), interviews with nuclear generating plant chemistry personnel were conducted. Three plants were selected for the survey - one BWR and two PWR's, each with an effective chemistry department. Plants were selected on the basis of reactor type, cooling water source, and region of the country. Because of NSP's active role in this project, both Prairie Island (PWR) and Monticello (BWR) generating stations were selected for this survey. To establish the remaining facility, INPO was requested to identify a plant with an effective chemistry department, and which has a representative on the NUMARC/NUPLEX Working Group. A Southern PWR was selected as the test case.

Prior to the plant visits, proposed topics for discussion and a listing of identified chemistry needs for PLEX were provided to the chemistry personnel at each plant. The objectives of the interviews were to confirm, update, and modify the listing of PLEX chemistry data needs, and to determine/evaluate current methods of data storage and retrieval. The information gathered through the interviews is summarized in Appendix B. Specifically, Part 1 of Appendix B provides a listing of all chemistry parameters determined important to PLEX. Within each parameter entry are six informational categories, with survey data included for each of the three plants. The informational categories are:

a. Currently measured (yes or no)?
b. Method of measurement (e.g., grab sample, on-line)
c. Collection frequency
d. Method for recording, preserving, and retrieving data
e. Offsite transmittal (e.g., NSSS vendor, industry data base)?
f. Feedback from offsite transmittal (yes or no)?

Part 2 of Appendix B provides the survey results to four general questions:

1. What is the value of industry data bases relative to the function and success of the chemistry program?

2. How are the industry chemistry reports analyzed and used in modifying the plant chemistry program?

3. Has the plant identified a liquid chemistry program specifically oriented towards component or structure service life preservation?

4. What specific problems, component replacements, or refurbishments are linked with chemistry issues?

Results from the interviews indicate that in general plants do not share raw chemistry data with the industry via any type of data base. Essentially, all offsite transmittals are sent to the applicable NSSS vendor or to INPO. The NSSS vendor does not distribute the data nor provide regular feedback. INPO utilizes the information in its Performance Indicator program and provides semiannual feedback to each utility. The feedback received provides valuable information to the utilities for overall chemistry program performance. However, collection of raw chemistry data is limited to a few critical parameters.

In general, any interaction within the industry results from meetings/seminars and extensive use of technical reports. EPRI reports[6-10] in particular have been a valuable source of

current information. The chemistry personnel indicated that these reports play a significant role in evaluating and upgrading their chemistry programs. Programs such as plant lay-up, radiation control and hydrogen water chemistry are being implemented as a result of such research.

The systems designed for collection, storage, and retrieval of chemistry data at Prairie Island and Monticello are considered very adequate to support future PLEX implementation. The actual systems themselves are unique; however, their capabilities are very similar. Both plants used a computerized system for which all onsite chemistry data is input. Technical Specification limits and plant designated limits are maintained in the system. In the event of data being input that does not meet these requirements, the computer will "flag" the user so that the situation can be remedied. Additionally, all data is reviewed and verified prior to final input into the system. Both programs have the ability to trend specified data within a matter of seconds. Prairie Island's system also has the capability to generate instrument calibration curves and instant mass balances.

With regards to the scope of chemistry data actually being collected, the plant interviews indicate that data collection is sufficient to support PLEX evaluations, for most BWR primary fluid and PWR primary/secondary fluid parameters. However, improvements will be necessary for the BWR secondary and PWR tertiary chemistry monitoring, to support the identification and tracking of degrading mechanisms affecting component and structure service life. In particular, BWR secondary chemistry monitoring should focus on circulating water chlorides and sulfates; groundwater sulfates, chlorides and pH; RWCU inlet/outlet isotopics; suppression pool oxygen; and microbiological species counts. Similar concerns exist for PWR tertiary monitoring of the circulating water, groundwater, and certain service water systems utilizing "untreated" water. Recent developments in long-term service life concerns from microbiologically induced corrosion also support the benefit of expanded chemistry monitoring. Appendix B illustrates the existing patterns of data collection at the three host plants.

In addition, specific PLEX pilot program work has identified the need for drywell sand pocket evaluation in the BWR, and for generator stator cooling water copper content analysis in both types of plants, to trend degradation mechanisms in these components.

Most of the existing chemistry data is collected and retained to provide a basis for assessing potential debilitating effects, such as IGSCC and general corrosion. However, a significant amount is retained to support Technical Specification requirements, and for regulatory reasons, such as the

National Pollutant Discharge Elimination System (NPDES). Industry-wide sharing of this data, particularly for infrequent events which require analysis of abnormal conditions, would be a useful tool in assessing component service life.

4.4 Industry Data Bases for PLEX Chemistry Data

Results of the industry survey questionnaires and the plant interviews confirm that there exists no industry data base that collects chemistry data on a regular basis. Questionnaire responses from the Stoller Corporation indicate that the OPEC and NPE data bases collect some water chemistry, inasmuch as it directly contributes to a plant outage. However, the frequency and scope of input are not adequate to support a PLEX evaluation.

The INPO Nuclear Power Plant Performance Indicator Program, although not considered a published data base, does routinely collect, retain, and report selected chemistry parameters. Commercial nuclear generating plants are required to provide, on a quarterly basis, average daily values (steady state power) of primary/reactor water parameters and secondary water (PWR) parameters. INPO uses this data to generate and distribute to each member utility a semiannual report providing the average distribution for each parameter, with the intent being to provide a useful means for assessing industry performance and evaluating individual plant performance in relation to the industry. This program does not provide information necessary to PLEX, such as a chemistry profile illustrating daily fluctuations, or maximum/minimum values. As a result, the usefulness of the Performance Indicator program chemistry data to the performance of a PLEX evaluation is limited.

As previously mentioned in Section 4.3, the NSSS vendors routinely receive chemistry reports and data from the plants. However, feedback to the plants is not routinely provided. Generally, the chemistry information is in hardcopy form, and is not input into a data base or computerized system. For fuel warranty purposes, General Electric (GE) collects weekly averages of selected reactor water and feedwater parameters. This information is fed into a computerized system, but is only accessible to GE. In addition, GE indicated that the system is not a "data base", and that the information, once input, is not easily retrievable in a relational data base mode. As a result, it is judged that the NSSS vendors' role in chemistry data collection and dissemination for PLEX purposes is limited.

As is apparent from the above discussions, there are presently no adequate industry means for dissemination of PLEX chemistry data requirements outside of seminars and workshops. Data that is distributed (INPO) is not in a form indicative of aging and degradation.

4.5 Summary and Recommendations

Results of the literature research and the interviews with chemistry personnel indicate that the collection and preservation of chemistry data to support PLEX is currently supportive for BWR primary fluid and PWR primary/secondary fluid systems evaluations. Computerized systems are often used so that data can easily be compiled and retrieved. However, additional BWR secondary and PWR tertiary fluid chemistry data collection, as well as selected other chemistry data in auxiliary plant systems, is required to support plant life extension evaluations. It is recommended that collection of additional chemistry data, as discussed in Section 4.4 and itemized in Appendix B, be considered for PLEX purposes.

As verified by the plant interviews and data base questionnaire responses, chemistry data is not published and distributed throughout the industry. Plants have no readily available means to share either raw or compiled chemistry data on a regular basis. A system to accomplish this dissemination of information is recommended. Such a system will provide the utility/chemistry managers with a potential basis for making decisions to upgrade or modify their chemistry program to support PLEX. Additional software may be needed to pool and trend this chemistry data for practical use among utilities.

5.0 SUMMARY OF RECOMMENDATIONS

This section of the report summarizes the recommended activities resulting from this initial definition of PLEX operational data requirements. Certain recommendations represent suggested areas of investigation for future phases of the PLEX data program.

Recommendation No.	Discussion
1.	Utilities contemplating a PLEX program for their plant, or wishing to preserve the option for PLEX, should compare the PLEX data needs defined in Appendix A with their current data gathering and records storage programs, to define areas of improvement. This will represent a major step towards ensuring the future success of a life extension program.
2.	Utilities should improve methods used to record maintenance, surveillance and inspection data, to provide quantitative and qualitative descriptions of as-observed or as-failed conditions. This improvement is necessary to support use of the PLEX workbook concept for component degradation trending and continuous service life evaluations. It would also provide a statistical data base for justification of a license renewal application.
3.	Industry data bases should be reviewed to determine if failure codes need to be added or expanded (if existing), to better support aging assessments and more precisely define aging-related failures.
4.	Owners of existing data bases which currently record failures or significant outages should be contacted to determine if they wish to expand their data base to support PLEX. Of the data bases wishing to support PLEX, one would

be selected for expansion to include significant preventive maintenance events which are performed to preclude a failure or influence significant day-to-day events affecting service life. In addition, the frequency of activities, the service life and hours of operation prior to the preventive maintenance or failure would also be added to the data base to enhance PLEX evaluations.

5. A future phase of this program should survey plant maintenance, surveillance, testing, non-Section XI ISI and materials records and data collection practices. Pilot plant studies revealed that records in these areas probably are not adequate to support PLEX, particularly for large passive components and structures.

6. The industry should examine the need for additional R&D to develop special tools and methods for PLEX data collection vs. currently available practices, as discussed in Table 3.

7. Plants should implement the improvements in current data collection practices identified in Table 4, to support a life extension program.

8. A future phase of this program should examine the candidate aging indicators identified in Table 5, and possibly others, to assess their validity and usefulness in developing utility self-assessment tools for PLEX.

9. Improve PLEX chemistry data dissemination among utilities by creating an industry data base for chemistry parameters, or by revising the scope and application of the NSSS vendor data bases. Additional software may be needed

to pool and trend the raw data for dissemination.

10. Improve collection of BWR secondary system chemistry data and PWR tertiary system chemistry data to support component degradation analysis and service life evaluation, as identified in Section 4.4 and Appendix B.

11. Expand the initial operational data base to include the scope of safety system components and subcomponents to be examined in the License Renewal Lead Plant Program.

12. Expand the extent of validation for PLEX operational data capture and preservation to other BWR's and PWR's, to determine the level of consistency among the domestic plants.

6.0 REFERENCES

1. EPRI NP-5289P, PWR Pilot Plant Life Extension Study at Surry Unit 1: Phase 1, July 1987.

2. EPRI NP-5181M, BWR Pilot Plant Life Extension Study at the Monticello Plant: Phase 1, May 1987.

3. Multiple Dynamics Corporation, Life Extension Feasibility and Management Plan for the Santa Maria de Garona Nuclear Power Plant, Final Report No. SMG-12-6296, November 1987.

4. EPRI NP-2384, Decentralized Data Systems - Results and Recommendations, Final Report, May 1982.

5. EPRI NP-3116, Users' Guide for Demonstration of Generation Availability Data System Analysis Decision Routines, Final Report, June 1983.

6. EPRI NP-4762-SR, PWR Primary Water Guidelines, September 1986.

7. EPRI NP-3589-SR-LD, BWR Water Chemistry Guidelines, April 1985.

8. EPRI NP-1603, Water Quality in Boiling Water Reactors, November 1980.

9. EPRI NP-1795, Brunswick-2 Water Chemistry, April 1981.

10. EPRI NP-2331, Steam Generator Corrosion Studies, April 1982.

11. Steam Generator Owners Group, Water Chemistry Guidelines Revision Committee, PWR Secondary Water Guidelines, Rev. 1, June 1984.

12. Multiple Dynamics Corporation, Quantification of Degradation Damage in LWR Metal Containment Vessels, INEL-12-5732, June 1987.

APPENDIX A

OPERATIONAL DATA REQUIREMENTS FOR PLEX SEQUENTIAL LISTING OF RECORDS

A.1 INTRODUCTION

A composite listing of the operational data requirements to support a PLEX evaluation of selected critical components has been prepared. Fifteen component and structure groups were selected for this project, as listed in Section A.2, Part 9 of this appendix. The groups were chosen on the basis of degree of criticality to the overall plant life extension effort, and on the availability of existing PLEX evaluation reports related to the group. The operational data includes on-line measurements, operational and laboratory testing, cycle/transient monitoring, and inspection and maintenance activity results. The critical debilitating mechanisms for the plant components/structures have been considered in generating the data composite. The data has been categorized by the reactor type, data type (e.g., inspection, chemistry, ambient, etc.), and associated structure/component.

There may be more than one critical component identified as being associated with any particular operational data parameter listed. In addition to identifying the reactor type, data type, and affected components associated with the operational data listed, a ranking (high, medium, low) based on the relative importance of the data to PLEX is included. Also provided is a brief description of the actual use of this data with regards to PLEX. Other pertinent information, such as an explanation of the degradation mechanisms, identification of a specific area of concern, or safety significance of the data, is included as necessary.

This matrix, therefore, is intended to be a guide for the staff of a nuclear power plant, in identifying what data should be collected, preserved and possibly trended to support service life extension planning. The matrix can be used as a "checklist" to compare current data collection practices with what the pilot PLEX programs have determined is required for prudent planning.

A.2 OPERATIONAL DATA MATRIX

The operational data needs for nuclear plant life extension have been assimilated in a computer program using the commercially available Enable (The Software Group), Version 2.0, Data Base Management System (DBMS). The data base provides pertinent information for each operational data parameter identified. The operational data requirements matrix is a sequential listing of data entries, which means the entries appear in the order they were input into the data base. Consequently, not all entries for a given component/structure will be listed in order.

The following key provides a description and explanation of each of the fields listed:

1. DESCRIPTION OF DATA:

   This identifies the actual data that needs to be collected, limited to 125 characters.

2. TYPE OF DATA:

   This identifies the data type, limited to 23 characters. Examples include:

   a. TRANSIENT

      Temperature, pressure, flow, humidity, etc., during plant transients

   b. CYCLE

      Plant and individual component cyclic data

   c. AMBIENT

      Temperature, humidity, radiation levels, etc., during normal operation

   d. ABNORMAL

      Earthquake data, flood levels, freeze/thaw data

   e. CHEMISTRY

      Water chemistry for primary, secondary, service, circulating, ground, torus, and fuel pool water

   f. SAMPLING

      Lube oil, radwaste, diesel fuel oil sampling

   g. SURVEILLANCE

      Change in equipment performance, motor megger-ing, vibration data, operability testing

   h. MATERIAL

      RPV beltline specimens, concrete testing, boat samples, destructive testing of removed/ abandoned materials

i. INSPECTIONS

ISI results, visual inspections, condition surveys, concrete crack mapping

j. TEST

Leak and hydrotesting, wall thickness testing, eddy current testing

k. MAINTENANCE, REPAIR AND REPLACEMENT RECORDS

Work requests, trended data, maintenance cards, failure records

3. SAFETY SIGNIFICANT:

This identifies whether or not the data parameter is significant to safety. The field is limited to one character - Y (yes) or N (no).

4. RELATIVE IMPORTANCE OF DATA:

This ranking (HIGH, MED, LOW) provides an indication of the degree of importance of the data to performance of a PLEX evaluation. The HIGH, MED, LOW rankings are defined as follows:

HIGH: The data is required to evaluate a degradation mechanism that will definitely influence the life of the component, and may be critical to justifying extended life. HIGH also applies to data that can be used to directly identify degradation. Example: Thickness measurement of carbon steel piping to identify and quantify erosion-corrosion.

MED: This data is required to evaluate a degradation mechanism that potentially could affect the service life of the component, but is generally not expected to. MED also applies to data that indirectly indicates degradation. Example: Hydrostatic test results and frequency used to evaluate a fatigue cycle.

LOW: This data is required to evaluate a degradation mechanism that has essentially been concluded not to affect service life. However, the data is still required to support this conclusion. Example: Containment neutron flux level to evaluate potential embrittlement.

This field is limited to four characters.

5. SEQUENCE NO.:

   This identifies the system record number assigned to the particular data record, with the field limited to three characters. However, this field size can be increased so as not to limit the number of records in the data base. The sequence number is unique to the individual entry.

6. PILOT PLANT DATA COLLECTION:

   This identifies whether or not a particular data parameter is collected at one of the pilot plants. The field is limited to one character - Y (yes), data is collected or N (no), data is not collected.

7. PLANT TYPE:

   This identifies whether the data is applicable for a BWR, PWR, or both type of plants. The field is limited to four characters.

8. DATA COLLECTION METHOD:

   This identifies the method (e.g., strip charts, ISI results, chemistry records), for which the data was collected at the pilot plants. If the data was not collected, an appropriate method of collection is identified. The field is limited to 225 characters.

9. COMPONENTS:

   This identifies for which particular component or structure group (out of the fifteen groups being evaluated) the data will benefit a PLEX analysis. The field is limited to 15 groups with 5 characters each. These groups and associated abbreviations as used in the matrix are as follows:

   a. RPV: Reactor pressure vessel including supports and safe ends
   b. RPVI: Reactor pressure vessel internals including control rods
   c. PC: Primary containment
   d. RCPBP: Reactor coolant pressure boundary piping
   e. EDG: Emergency diesel generators
   f. CCS: Critical concrete structures
   g. CABLE: Cables
   h. M/G: Large motors and main generator
   i. ELECT: Active electrical components

j. TURB: Main turbine
k. MC: Main condenser
l. SG: Steam generator (PWR)
m. CRDM: Control rod drive mechanism (PWR)
n. HCU: Control rod drive hydraulic control unit (BWR)
o. MCP: Main coolant pumps (PWR)

10. USEFULNESS OF DATA:

This identifies the actual use of the data with regards to a PLEX evaluation. The field is limited to 304 characters.

11. REMARKS:

This provides any pertinent information that may be necessary or helpful in assessing the data. Information such as specific areas of a component/ structure that are of particular interest, an explanation of the degradation process, or methods of data interpretation may be included here. The field is limited to 354 characters.

Tables A.1, A.2 and A.3 provide listings of event cycles related to BWR plants, PWR plants, and PWR steam generators. These tables are referenced by Sequence Nos. 38 and 233 in the matrix.

A.3 SUMMARY OF OPERATIONAL DATA MATRIX

The operational data records are summarized in the following entries:

A. Types of Data:

1. Transient Data.	36
2. Cycle Data.	14
3. Ambient Environmental Data. . . .	5
4. Abnormal Environmental Data . . .	8
5. Chemistry Data.	58
6. Sampling Data	6
7. Surveillance Data	38
8. Material Data	8
9. Test Data	20
10. Inspection Data	78
11. Maintenance, Repair, and Replacement Record Data.	27

Note: Total exceeds 291 because some data parameters are assigned to more than one data type.

B. Components or Structures:

1.	Reactor Pressure Vessel including supports and safe ends.	68
2.	Reactor Pressure Vessel Internals	70
3.	Primary Containment	41
4.	Reactor Coolant Pressure Boundary Piping.	44
5.	Emergency Diesel Generators . . .	19
6.	Critical Concrete Structures. . .	17
7.	Cables.	7
8.	Motors and Main Generator	22
9.	Active Electrical Components. . .	5
10.	Main Turbine.	22
11.	Main Condenser.	24
12.	Steam Generator (PWR)	33
13.	Control Rod Drive Mechanism (PWR)	7
14.	Control Rod Drive - Hydraulic Control Units (BWR)	8
15.	Main Coolant Pumps (PWR).	13

Note: Total exceeds 291 because some data parameters influence more than one component or structure.

Table A.1

Typical BWR Plant Event Cycles

Normal Operating Conditions

Normal startup
Normal shutdown
Boltup and unbolt
Cold startup and heatup to low pressure standby
Heatup to high pressure standby
Non-scram reduction to high pressure standby
Non-scram reduction to low pressure standby
Cooldown from low pressure standby

Surveillance Tests

Refueling and boltup leak test
HPCI injection test
RCIC injection test
Cycle S/R valve - no blowdown

Abnormal (Upset) Events

Rod withdrawal error
Inadvertent HPCI injection
Inadvertent RCIC injection
Inadvertent S/R valve cycle - no blowdown
One feed pump trip
Trip both recirc pumps
Inadvertent scram
Turbine trip
Turbine trip with no scram
Load rejection
Load rejection with no scram
Pressure regulator fails open
Recirc controller failure decreasing flow
Recirc controller failure increasing flow
Loss of all feed flow
Closure of one MSIV
Loss of condenser vacuum
Feedwater controller failure increasing flow
Loss of aux transformer
Loss of all grid connections
Closure of all MSIV's
Loss of feedwater heater
Turbine trip without bypass
Load rejection without bypass
S/R valve blowdown
Abnormal recirc pump start

Table A.1 (Cont'd)

Inadvertent LPCI operation
Pipe break (loss of coolant events)
Other abnormal, unspecified events

Reference

Boiling Water Reactor Vessel Life Extension Industry Report, NEDE-31475, March 1988, Rev. 2

Table A.2

Typical PWR Plant Event Cycles

Normal Operating Conditions

Normal startup
Normal shutdown
Bolt and unbolt
Plant loading at 5% of full power/minute
Plant unloading at 5% of full power/minute
Large step decrease in load with steam dump
Feedwater cycling
Step load increase of 10% full power
Step load decrease of 10% full power

Surveillance Tests

Turbine roll test
Primary side leakage test

Abnormal (Upset) Events

Loss of load (w/o immediate turbine trip or reactor trip)
Loss of power (blackout with natural circulation in reactor coolant system)
Reactor trip from full power
Loss of flow (partial loss of flow - 1 pump only)
Exceeding heatup/cooldown limits and/or pressure-temperature limits
Inadvertent startup of inactive loop
Inadvertent RCS depressurization
Control rod drop
Inadvertent safety injection actuation
Excessive feedwater
Loss of feedwater heater
Inadvertent auxiliary spray
Overpower
Loop out of service
PORV opening
Pressure safety valve opening
Charging flow step increase and return
Charging flow step decrease and return
Letdown flow step increase and return
Letdown flow step decrease and return
Letdown flow isolation and return
Charging flow isolation and return
Excess letdown initiation and isolation
RHR operation
High head SI (charging)

Table A.2 (Cont'd)

SI (SIP's)
SI (accumulators)
Reactor coolant pipe break
Steam pipe break
Other abnormal, unspecified events

References

Project Topical Report for Surry Unit No. 1, Life Extension Evaluation of the Reactor Vessel, March 1986, Rev. 0, Westinghouse Electric Corp.

Project Topical Report for Surry Unit No. 1, Life Extension Evaluation of the Reactor Coolant Pump, July 1986, Rev. 0, Westinghouse Electric Corp.

Project Topical Report for Surry Unit No. 1, Life Extension Evaluation of the Reactor Vessel Internals, August 1986, Rev. 1, Westinghouse Electric Corp.

Table A.3

Typical Steam Generator Event Cycles

Normal Operating Conditions

Heatup
Cooldown
Unit loading
Unit unloading
Small step load increase
Small step load decrease
Large step load decrease with steam dump
SS fluctuation
Hot standby

Surveillance Tests

Turbine roll test
Primary leak test
Secondary leak test

Abnormal (Upset) Events

Loss of load
Loss of power
Partial loss of flow
Reactor trip
Other abnormal, unspecified events

References

Project Topical Report for Surry Unit No. 1, Life Extension Evaluation of the Steam Generator, July 1986, Rev. 1, Westinghouse Electric Corporation

DESCRIPTION OF DATA: PRIMARY CONTAINMENT INTEGRATED LEAK RATE TEST (TYPE A) FREQUENCY, TEST PRESSURE AND LEAKAGE RATE

TYPE OF DATA: TEST SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 1

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
ILRT PROCEDURE RESULTS

COMPONENTS: PC

USEFULNESS OF DATA:
CONTRIBUTION TO FATIGUE IN THE CONTAINMENT VESSEL. TRENDING OF LEAKAGE RATES TO TRACK INSERVICE DEGRADATION OF CONTAINMENT BOUNDARY.

REMARKS:
TYPE A TESTS ARE REQUIRED PER 10CFR50, APPENDIX J.

DESCRIPTION OF DATA: CONTAINMENT PRESSURE TRANSIENT DATA

TYPE OF DATA: TRANSIENT SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 2

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
OPERATOR LOGS, EVENT REPORTS, STRIP CHARTS, PLANT COMPUTERS

COMPONENTS: PC

USEFULNESS OF DATA:
CONTAINMENT VESSEL FATIGUE EVALUATION

REMARKS:
NONE

DESCRIPTION OF DATA: CONTAINMENT TEMPERATURE TRANSIENT DATA

TYPE OF DATA: TRANSIENT SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 3

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
OPERATOR LOGS, STRIP CHARTS, EVENT REPORTS

COMPONENTS: PC

USEFULNESS OF DATA:
FATIGUE IN CONTAINMENT VESSEL EVALUATION.

REMARKS:
NONE

DESCRIPTION OF DATA: SUPPRESSION POOL WATER MILLIPORE CRUD CONTENT

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 4

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
SAMPLING AND ANALYSIS

COMPONENTS: PC

USEFULNESS OF DATA:
ASSESSMENT OF THE POTENTIAL FOR SUPPRESSION CHAMBER COATING DAMAGE AND CORROSION.

REMARKS:
SOME PLANTS MAY HAVE TORUS WATER MANGAGEMENT SYSTEMS. IN OTHER PLANTS, TORUS WATER MAY BE SAMPLED FROM PIPING TAPS DURING SYSTEM TEST.

DESCRIPTION OF DATA: CONTAINMENT COATING INSPECTION RECORDS

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 5

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
INSPECTION PROCEDURE RESULTS

COMPONENTS: PC

USEFULNESS OF DATA:
IDENTIFY AREAS REQUIRING FREQUENT COATING MAINTENANCE, NEED FOR RECOATING, AND AREAS SUSCEPTIBLE TO CORROSION.

REMARKS:
NONE

DESCRIPTION OF DATA: CONTAINMENT COMPONENT THICKNESS DATA

TYPE OF DATA: TEST SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 6

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
DATA NOT NORMALLY COLLECTED AT PILOT PLANTS BUT WAS COLLECTED FOR PLEX.

COMPONENTS: PC

USEFULNESS OF DATA:
DETECTION AND TRENDING OF CONTAINMENT CORROSION/WALL THINNING.

REMARKS:
THICKNESS DATA FOR PLEX IS REQUIRED FOR CONTAINMENT PRESSURE RETAINING COMPONENTS AND THE CONTAINMENT LINER PLATE.

DESCRIPTION OF DATA: CONTAINMENT NEUTRON FLUX LEVEL

TYPE OF DATA: AMBIENT SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 7

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BWR

DATA COLLECTION METHOD:
RADIATION MONITORING, ANALYSIS

COMPONENTS: PC

USEFULNESS OF DATA:
DETERMINE NEUTRON FLUENCE AND POTENTIAL FOR CONTAINMENT VESSEL EMBRITTLEMENT.

REMARKS:
FLUENCE CAN BE ANALYTICALLY DETERMINED USING A TYPICAL FLUX VALUE. FLUENCE MEASUREMENTS FOR ONE REFUELING CYCLE IS SUFFICIENT.

DESCRIPTION OF DATA: SAFETY VALVE DISCHARGE LINE TEMPERATURES AND PRESSURES

TYPE OF DATA: TRANSIENT SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 8

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BWR

DATA COLLECTION METHOD:
TAIL PIPE MONITORS, PLANT COMPUTER, RECORDERS

COMPONENTS: PC

USEFULNESS OF DATA:
COMPARE ACTUAL DATA WITH TEMPERATURES AND PRESSURES IN PUA FOR POTENTIAL AFFECT ON FATIGUE EVALUATIONS.

REMARKS:
NONE

DESCRIPTION OF DATA: LOCAL SUPPRESSION POOL TEMPERATURE DATA

TYPE OF DATA: TRANSIENT SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 9

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
LOCAL POOL TEMPERATURES ARE COLLECTED USING SPOTMOS.

COMPONENTS: PC

USEFULNESS OF DATA:
COMPARISON OF ACTUAL TEMPERATURES WITH PUA TEMPERATURES AND EVALUATE POTENTIAL IMPACT ON FATIGUE DUE TO SRV DISCHARGES.

REMARKS:
NONE

DESCRIPTION OF DATA: HPCI/RCIC TESTING FREQUENCY

TYPE OF DATA: CYCLE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 10

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
FORMALIZED PROCEDURE/TECHNICAL SPECIFICATION REQUIREMENTS

COMPONENTS: PC

USEFULNESS OF DATA:
FATIGUE EVALUATION OF SUPPRESSION CHAMBER SHELL HPCI/RCIC PENETRATIONS.

REMARKS:
NONE

DESCRIPTION OF DATA: CONTAINMENT INSERVICE INSPECTION

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 11

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
INSERVICE INSPECTION PROGRAM

COMPONENTS: PC

USEFULNESS OF DATA:
EVALUATE EXISTING CONDITION OF CONTAINMENT AND IDENTIFY AREAS REQUIRING REPAIR.

REMARKS:
NONE

DESCRIPTION OF DATA: CONTAINMENT VESSEL - CONCRETE INTERFACE INSPECTION DATA

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 12

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
DATA IS NOT NORMALLY COLLECTED BY PILOT PLANTS BUT WAS COLLECTED FOR PLEX.

COMPONENTS: PC

USEFULNESS OF DATA:
EVALUATE THE POTENTIAL FOR CONTAINMENT VESSEL CORROSION, DEGRADATION OF CAULK/SEAL, REPLACEMENT.

REMARKS:
GAPS AT THE INTERFACE CAN LEAD TO MOISTURE COLLECTION INCREASING THE POTENTIAL FOR CORROSION. THE INSPECTIONS DATA IS NEEDED FOR ALL LOCATIONS WHERE CONTAINMENT VESSELS ARE EMBEDDED. INTERFACE SEALS ARE GENERALLY PROVIDED, BUT SUBJECT TO DEGRADATION.

DESCRIPTION OF DATA: CONTAINMENT PRESSURE BOUNDARY REPAIR RECORDS

TYPE OF DATA: MAINTENANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 13

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
DATA IS INDIRECTLY TRACEABLE THROUGH MANUAL SEARCHES OF WORK ORDERS.

COMPONENTS: PC

USEFULNESS OF DATA:
IDENTIFICATION OF PREVIOUSLY DAMAGED AREAS OR FAILURES WHICH DESERVE SPECIAL ATTENTION AS FUTURE SITES OF DEGRADATION

REMARKS:
NONE

DESCRIPTION OF DATA: VENT LINE BELLOWS AND PENETRATION BELLOWS VISUAL INSPECTION DATA

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 14

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BWR

DATA COLLECTION METHOD:
DATA IS NOT NORMALLY COLLECTED BY PILOT PLANTS BUT WAS COLLECTED FOR PLEX.

COMPONENTS: PC

USEFULNESS OF DATA:
IDENTIFICATION OF MECHANICAL DAMAGE (STRESS RISERS) OR FATIGUE CRACKS.

REMARKS:
APPLIES TO MARK I CONTAINMENT. FATIGUE IN THE BELLOWS AT STRESS RISERS IS A PLEX CONCERN.

DESCRIPTION OF DATA: SUPPRESSION CHAMBER SUPPORT INSPECTION DATA

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 15

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
FORMALIZED PROCEDURE

COMPONENTS: PC

USEFULNESS OF DATA:
DETERMINE IF CORROSION EXISTS, EVIDENCE OF SUPPORT PAD BINDING, AND SUPPORT DAMAGE FROM SRV DISCHARGES.

REMARKS:
APPLIES TO MARK I CONTAINMENT.

DESCRIPTION OF DATA: CONTAINMENT COATING REPAIR DATA

TYPE OF DATA: MAINTENANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 16

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
MAINTENANCE RECORDS

COMPONENTS: PC

USEFULNESS OF DATA:
IDENTIFICATION OF AREAS WITH A HIGH POTENTIAL FOR THE EXISTENCE OF REDUCED WALL OR PAST CORROSION.

REMARKS:
COATING REPAIR METHODS SUCH AS GRINDING MAY RESULT IN WALL THINNING. CORROSION PRIOR TO REPAIR OF DEGRADED COATINGS MAY ALSO HAVE OCCURRED. THEREFORE THESE AREAS ARE OF CONCERN FOR PLEX.

DESCRIPTION OF DATA: HOT PIPING PENETRATION BELLOWS VISUAL INSPECTION DATA

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 17

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
DATA IS NOT NORMALLY COLLECTED BY PILOT PLANTS BUT WAS COLLECTED FOR PLEX.

COMPONENTS: PC

USEFULNESS OF DATA:
IDENTIFICATION OF MECHANICAL DAMAGE (STRESS RISERS) OR FATIGUE CRACKS, DEFORMATION, AND MISALIGNMENT.

REMARKS:
FATIGUE IN THE BELLOWS IS AGGRAVATED BY SURFACE IRREGULARITIES.

DESCRIPTION OF DATA: CONTAINMENT PRESSURE BOUNDRY VISUAL INSPECTION

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 18

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
INSPECTION REPORTS, MAINTENANCE RECORDS

COMPONENTS: PC

USEFULNESS OF DATA:
IDENTIFICATION OF DAMAGED AREAS OR AREAS EXHIBITING DEGRADATION OR THE POTENTIAL FOR DEGRADATION, AND ONSET OF CORROSION.

REMARKS:
SOME VISUAL INSPECTION DATA IS COLLECTED AS PART OF INTEGRATED LEAK RATE TESTING. HOWEVER THESE INSPECTIONS ARE PERFORMED TO DETERMINE ACCEPTABILITY (PASS/FAIL) RATHER THAN PROVIDING INSIGHT ON COMPONENT CONDITION.

DESCRIPTION OF DATA: VISUAL INSPECTION OF REINFORCED CONCRETE FOR CONCRETE CONTAINMENTS

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 19

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
INSPECTION REPORTS

COMPONENTS: PC

USEFULNESS OF DATA:
IDENTIFICATION OF REINFORCING STEEL CORROSION, CONCRETE SPALLS, CRACKING, FREEZE/THAW DAMAGE, SURFACE DISINTEGRATION.

REMARKS:
ISI REQUIREMENTS FOR CONCRETE CONTAINMENT STRUCTURES (ASME SECTION XI, ARTICLE IWL) HAVE NOT BEEN ISSUED OR ENDORSED BY 10CFR50.55 TO DATE.

DESCRIPTION OF DATA: GROUNDWATER CHEMISTRY DATA (Ph, CHLORIDE, SULFIDE)

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA. MED SEQUENCE NO: 20

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
SAMPLING AND ANALYSIS

COMPONENTS: PC CCS

USEFULNESS OF DATA:
LOW PH CAN LEAD TO CONCRETE DEGRADATION BELOW SURFACE.

REMARKS:
THIS DATA APPLIES ONLY TO CONCRETE CONTAINMENTS AND BUILDING BASEMATS. TWO TESTS PER YEAR (SPRING AND FALL) ARE RECOMMENDED.

DESCRIPTION OF DATA: TEMPERATURE DATA FOR CONTAINMENT PENETRATIONS

TYPE OF DATA: AMBIENT SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 21

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
LOCAL TESTING/MEASUREMENTS

COMPONENTS: PC

USEFULNESS OF DATA:
ESTABLISH THAT TEMPERATURES ARE TOO LOW TO ADVERSELY AFFECT CONTAINMENT OR CONCRETE AT PENETRATIONS.

REMARKS:
DATA FOR ONE FULL FUEL CYCLE IS ADEQUATE TO ESTABLISH TEMPERATURES.

DESCRIPTION OF DATA: REINFORCING STEEL CATHODIC PROTECTION SYSTEM CURRENT LEVEL DATA

TYPE OF DATA: SURVEILLENCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 22

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
TEST RECORDS, MAINTENANCE RECORDS

COMPONENTS: PC

USEFULNESS OF DATA:
ENSURE THAT CURRENT LEVELS ARE ADEQUATE TO PROVIDE CONTINUED CORROSION PROTECTON.

REMARKS:

DESCRIPTION OF DATA: NORMAL AND EXCURSION GROUNDWATER LEVELS

TYPE OF DATA: AMBIENT SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 23

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
LOCAL MEASUREMENTS

COMPONENTS: PC

USEFULNESS OF DATA:
ASSESSMENT OF THE AFFECTS, IF ANY, OF GROUNDWATER ON CONTAINMENT AND FOUNDATIONS BELOW GRADE.

REMARKS:
NONE

DESCRIPTION OF DATA: CONTAINMENT AND CCS LIQUID SPILL DATA

TYPE OF DATA: ABNORMAL SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 24

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
EVENT REPORTS, WORK ORDERS FOR SPILL CLEAN-UP

COMPONENTS: PC CCS

USEFULNESS OF DATA:
EVALUATE THE EFFECTS OF THESE EVENTS ON CONTAINMENT VESSEL OR LINER, AND CCS.

REMARKS:
EXTENT OF SPILL, TIME PRIOR TO REMOVAL, CHEMICAL CONTENT, AND DAMAGE ASSESSMENT ARE REQUIRED FOR PLEX.

DESCRIPTION OF DATA: HEAVY LOADS DATA

TYPE OF DATA: ABNORMAL SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 25

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
CRANE OPERATOR LOGS, OUTAGE PLANS/REPORTS

COMPONENTS: PC CCS

USEFULNESS OF DATA:
EVALUATION OF FATIGUE AND AREAS OF POTENTIAL DAMAGE FROM POLAR CRANE OPERATIONS/LIFTS.

REMARKS:
HEAVY LOADS DATA WOULD INCLUDE DROPPED LOADS, IMPACTS ON CONTAINMENT SHELL, HEAVY POLAR CRANE LOADS, ETC.

DESCRIPTION OF DATA: TUBESHEET MATERIAL SAMPLE TEST RESULTS

TYPE OF DATA: MATERIAL SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 26

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
SAMPLING AND ANALYSIS OF REMOVED SPECIMENS

COMPONENTS: MC

USEFULNESS OF DATA:
IDENTIFICATION OF TUBESHEET SCC (FOR STAINLESS STEEL) AND DEZINCIFICATION (FOR ADMIRALTY).

REMARKS:
MATERIAL SAMPLING PROVIDES THE ONLY METHOD FOR QUANTIFYING THE DEGRADING EFFECTS OF DEMETALIZATION.

DESCRIPTION OF DATA: SECONDARY WATER AMMONIA CONTENT

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 27

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: PWR

DATA COLLECTION METHOD:
PERIODIC GRAB SAMPLING AND ANALYSIS, OR ON-LINE MONITORING

COMPONENTS: MC TURB SG

USEFULNESS OF DATA:
EVALUATION OF THE POTENTIAL FOR HEAT EXCHANGER TUBESHEET CORROSION AND SCC OF TUBES. EVALUATE THE POTENTIAL FOR SCC OF TURBINE ROTOR DISCS.

REMARKS:
NONE

DESCRIPTION OF DATA: CIRCULATING WATER CHLORIDE CONTENT

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 28

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
PERIODIC GRAB SAMPLING AND ANALYSIS, OR ON-LINE MONITORING

COMPONENTS: MC

USEFULNESS OF DATA:
EVALUATION OF THE POTENTIAL FOR CORROSION OF WATER BOXES, TUBESHEETS, AND TUBES.

REMARKS:
HIGH CHLORIDE CONCENTRATIONS CAUSE SCC, PITTING, AND CREVICE CORROSION OF STAINLESS STEEL TUBES.

DESCRIPTION OF DATA: VISUAL INSPECTION DATA OF CONDENSER TUBES, TUBESHEETS, AND TUBE SUPPORT

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 29

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
INFORMAL INSPECTIONS OF CONDENSER INTERIOR, OR MAINTENANCE RECORDS

COMPONENTS: MC

USEFULNESS OF DATA:
DETECTION AND TRENDING OF TUBE VIBRATION WEAR AND EROSION.

REMARKS:
NONE

DESCRIPTION OF DATA: CONDENSER SHELL VISUAL INSPECTION DATA

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 30

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
INFORMAL INSPECTIONS OF CONDENSER INTERIOR, OR MAINTENANCE RECORDS

COMPONENTS: MC

USEFULNESS OF DATA:
DETECTION AND TRENDING OF CONDENSER INTERIOR CORROSION AND EROSION. IDENTIFICATION OF AREAS WHERE CONDENSER SHELL THICKNESS SHOULD BE MONITORED.

REMARKS:
NONE

DESCRIPTION OF DATA: WATER BOX THICKNESS MEASUREMENTS

TYPE OF DATA: TEST SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 31

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
ULTRASONIC THICKNESS MEASUREMENTS

COMPONENTS: MC

USEFULNESS OF DATA:
ESTABLISH BASELINE AND TRENDING OF WATER BOX CORROSION/EROSION RATES.

REMARKS:
DATA NOT NORMALLY COLLECTED AT PILOT PLANTS BUT THICKNESS MEASUREMENTS WERE TAKEN TO SUPPORT PLEX EVALUATIONS.

DESCRIPTION OF DATA: CONDENSER SHELL THICKNESS MEASUREMENTS

TYPE OF DATA: TEST SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 32

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
ULTRASONIC THICKNESS MEASUREMENTS

COMPONENTS: MC

USEFULNESS OF DATA:
ESTABLISH BASELINE AND TRENDING OF SHELL CORROSION/EROSION RATES.

REMARKS:
DATA NOT NORMALLY COLLECTED AT PILOT PLANTS BUT THICKNESS MEASUREMENTS WERE TAKEN TO SUPPORT PLEX EVALUATIONS.

DESCRIPTION OF DATA: CONDENSER EXPANSION JOINT INSPECTION RESULTS

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 33

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
INFORMAL INSPECTIONS OF CONDENSER INTERIOR, MAINTENANCE RECORDS

COMPONENTS: MC

USEFULNESS OF DATA:
DETECTION OF DRY ROT, CRACKING, AND DETERIORATION OF RUBBER.

REMARKS:
NONE

DESCRIPTION OF DATA: WATER BOX INTERIOR INSPECTION RESULTS

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 34

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
INFORMAL WATER BOX INSPECTIONS, AND MAINTENANCE RECORDS

COMPONENTS: MC

USEFULNESS OF DATA:
DETECTION OF TUBE INLET EROSION, TUBESHEET SCC, CORROSION AND DEMETALIZING, AND CORROSION OF WATER BOX SHELLS.

REMARKS:
NONE

DESCRIPTION OF DATA: NUMBER AND LOCATION OF PLUGGED/FAILED TUBES

TYPE OF DATA: MAINTENANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 35

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
MAINTENANCE WORK REQUESTS, WORK ORDERS, RECORDS

COMPONENTS: MC

USEFULNESS OF DATA:
CHARACTERIZES TUBE FAILURE PATTERNS AND AREAS OF HIGH FAILURE POTENTIAL, AND DETERMINES TIMING OF TUBE REPLACEMENT TO AVOID POWER REDUCTION.

REMARKS:
NONE

DESCRIPTION OF DATA: TUBESHEET LIQUID PENETRANT TEST RESULTS

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 36

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
TEST RESULTS PACKAGE

COMPONENTS: MC

USEFULNESS OF DATA:
DETECTION OF CRACKING IN THE TUBESHEETS.

REMARKS:
NONE

DESCRIPTION OF DATA: HYDROSTATIC TEST RESULTS AND FREQUENCY OF TESTS

TYPE OF DATA: TEST SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 37

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
ISI PROGRAM OR REPAIR PROGRAM TEST RESULTS PACKAGES, IMPLEMENTED VIA PROCEDURE
COMPONENTS: RPV RCPBP MCP SG

USEFULNESS OF DATA:
TO DEMONSTRATE PRESSURE BOUNDARY INTEGRITY AND TO EVALUATE AS A FATIGUE CYCLE IN VESSELS AND PIPING.

REMARKS:
PRESSURE-TEMPERATURE LIMITS ARE ESTABLISHED TO PROTECT AGAINST NON-DUCTILE FAILURE. TEST PROCEDURE AND RESULTS SHOULD INDICATE FREQUENCY, TEST PRESSURES, TEMPERATURES AND ANY ABNORMALITIES IDENTIFIED.
FOR PWR, BOTH PRIMARY AND SECONDARY SIDE HYDROS SHOULD BE INCLUDED.

DESCRIPTION OF DATA: TRACKING OF PLANT EVENT CYCLES

TYPE OF DATA: CYCLE/TRANSIENT SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 38

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
OPERATOR LOGS, CYCLE MONITORS AND LOGS, POWER HISTOGRAMS, PLANT COMPUTER, SEQUENCE OF EVENTS RECORDER
COMPONENTS: RPV RPVI MCP RCPBP PC TURB

USEFULNESS OF DATA:
TRACK FATIGUE CYCLES IN AFFECTED COMPONENTS. COMPARISON OF NUMBER OF EVENTS TO THE "ALLOWED" NUMBER WILL DETERMINE THE NEED FOR MORE RIGOROUS FATIGUE EVALUATIONS AND ASSIST IN MARGIN AWARENESS.

REMARKS:
TYPE AND NUMBER OF EVENTS ARE DEFINED IN COMPONENT DESIGN SPECIFICATIONS AS REFLECTED IN THE SAR AND TECH SPEC DESCRIPTIONS. TYPICAL EVENTS ARE LISTED IN TABLE 1 (BWR) AND TABLE 2 (PWR). THE CONTRIBUTION TO THE PREDICTED FATIGUE USAGE MUST BE DETERMINED FROM DESIGN ANALYSIS DOCUMENTS AND ACTUAL PLANT EVENTS.

DESCRIPTION OF DATA: SUMMARY EVALUATIONS OF EVENT CYCLES

TYPE OF DATA: CYCLE/TRANSIENT SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 39

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
REACTOR TRIP REPORTS, EVENT REPORTS
COMPONENTS: RPV RPVI RCPBP SG MCP PC TURB

USEFULNESS OF DATA:
PROVIDE SUMMARY EVALUATIONS OF SELECTED TRACKED CYCLE EVENTS, AND EVALUATIONS OF PERIODS OF OPERATION OUTSIDE OF TECH SPEC LIMITS SUCH AS HEATUP/COOLDOWN RATES, PRESSURE-TEMPERATURE RESTRICTIONS, ETC.

REMARKS:
RECORD OF SPECIFIC PLANT PARAMETERS SHOULD BE MAINTAINED SUCH AS PERTINENT TEMPERATURES, PRESSURES AND FLOWS FOR THE EVENTS. INDIVIDUAL PARAMETERS FOR TRANSIENT CHARACTERIZATION ARE CITED ELSEWHERE.

DESCRIPTION OF DATA: REACTOR WATER OXYGEN CONTENT

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 40

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
ON-LINE MONITORING
COMPONENTS: RPV RPVI RCPBP

USEFULNESS OF DATA:
EVALUATE THE POTENTIAL FOR IGSCC AND GENERAL CORROSION/EROSION

REMARKS:
INCREASED LEVELS OF OXYGEN CONTRIBUTE TO IGSCC ALONG WITH OTHER FACTORS. LOW OXYGEN CONTENT AFFECTS THE SUSCEPTIBILITY OF CARBON STEEL PIPING TO EROSION/CORROSION.

DESCRIPTION OF DATA: REACTOR WATER CHLORIDE CONTENT

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 41

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
SAMPLING AND ANALYSIS
COMPONENTS: RPV RPVI RCPBP

USEFULNESS OF DATA:
EVALUATE THE POTENTIAL FOR SCC

REMARKS:
CHLORIDES ARE ALSO CAPABLE OF INDUCING TRANSGRANULAR CRACKING OF NON-SENSITIZED STAINLESS STEEL AND PROMOTE PITTING AND CREVICE ATTACK OF MOST RCS MATERIALS. CHLORIDES ENTER THE REACTOR AS A RESULT OF RESIN RELEASES FROM THE DEMINERALIZER SYSTEMS OR FROM CONDENSER LEAKS.

DESCRIPTION OF DATA: REACTOR WATER CONDUCTIVITY

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 42

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
ON-LINE MONITORS, GRAB SAMPLING
COMPONENTS: RPV RPVI RCPBP

USEFULNESS OF DATA:
EVALUATE THE POTENTIAL FOR IGSCC, AND FUEL PERFORMANCE.

REMARKS:
INCREASING LEVELS OF IONIC IMPURITIES ADVERSELY INFLUENCE SCC OF RCS MATERIAL AND EROSION/CORROSION OF CARBON STEEL PIPING MATERIALS.

DESCRIPTION OF DATA: FEEDWATER CONDUCTIVITY

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 43

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
ON-LINE, SAMPLING
COMPONENTS: RPV RPVI RCPBP

USEFULNESS OF DATA:
EVALUATE THE POTENTIAL FOR IGSCC.

REMARKS:
INCREASING LEVELS OF IONIC IMPURITIES ADVERSELY INFLUENCE SCC OF RCS MATERIALS.

DESCRIPTION OF DATA: ISI EXAMINATION RESULTS

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 44

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
INSERVICE INSPECTION RECORDS
COMPONENTS: RPV RCPBP RPVI MCP SG CRDM

USEFULNESS OF DATA:
PROVIDE ASSURANCE OF STRUCTURAL INTEGRITY, INCLUDING MARGIN AWARENESS AND CHARACTERIZATION, AND GROWTH PREDICTION OF DETECTED INDICATIONS IN THE PRESSURE BOUNDARY.

REMARKS:
ENHANCED AND/OR SPECIFIC COMPONENT INSPECTIONS FOR PLEX ARE IDENTIFIED ELSEWHERE.

DESCRIPTION OF DATA: PRESSURE RETAINING BOUNDARY WELD REPAIR RECORDS

TYPE OF DATA: MAINTENANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 45

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
REPAIR PROGRAM DESCRIPTIONS, TRACKING OF WORK ORDERS
COMPONENTS: RPV RPVI RCPBP

USEFULNESS OF DATA:
IDENTIFICATION OF AREAS OF CONCERN FOR FUTURE INSPECTION AND EVALUATION.

REMARKS:
NONE

DESCRIPTION OF DATA: VISUAL AND UT EXAMINATION OF CRD HOUSING, STUB TUBE, WELDS, AND ADJACENT BASEMETAL

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 46

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BWR

DATA COLLECTION METHOD:
NOT APPLICABLE

COMPONENTS: RPV

USEFULNESS OF DATA:
IDENTIFICATION OF POTENTIAL IGSCC.

REMARKS:
CRD BOTTOM HEAD PENETRATIONS HAVE BEEN IDENTIFIED AS CONCERN FOR LIFE EXTENSION.
THE VISUAL INSECTION IS NORMALLY PERFORMED AND RESULTS RECORDED IN ISI RECORDS.

DESCRIPTION OF DATA: INSPECTION OF FEEDWATER NOZZLE INSIDE BORE AND NOZZLE RADIUS

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 47

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
INSERVICE INSPECTION RECORDS

COMPONENTS: RPV

USEFULNESS OF DATA:
IDENTIFICATION OF POTENTIAL CRACKING DUE TO RAPID CYCLING FATIGUE.

REMARKS:
FEEDWATER THERMAL SLEEVE LEAKAGE CAN LEAD TO RAPID CYCLING FATIGUE IN THE NOZZLE BLEND REGION. FEEDWATER NOZZLES ARE A CONCERN FOR LIFE EXTENSION.

DESCRIPTION OF DATA: VISUAL INSPECTION OF FEEDWATER NOZZLE INTERIOR CLAD BEND RADII

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 48

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
INSERVICE INSPECTION RESULTS

COMPONENTS: RPV

USEFULNESS OF DATA:
IDENTIFICATION OF POTENTIAL CLAD CRACKING.

REMARKS:
THE PILOT PLANT HAD EXPERIENCED FEEDWATER NOZZLE CLAD CRACKING. VISUAL INSPECTION OF THE AREA WAS ADDED TO ISI SUBSEQUENT TO REPAIR.

DESCRIPTION OF DATA: FEEDWATER NOZZLE BYPASS LEAKAGE (TEMPERATURE) MONITORING

TYPE OF DATA: SURVEILLANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 49

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
FORMAL MONITORING PROGRAM

COMPONENTS: RPV

USEFULNESS OF DATA:
HIGH CYCLE FATIGUE EVALUATION OF AFFECTED NOZZLE REGIONS.

REMARKS:
LEAKAGE CALCULATED MONTHLY AT PILOT PLANT. NUMEROUS TEMPERATURE MEASUREMENT LOCATIONS ARE REQUIRED IN ORDER TO DETERMINE LOCALIZED TEMPERATURE DIFFERENCES/GRADIENTS.

DESCRIPTION OF DATA: EXAMINATION OF REFUELING BELLOWS SKIRT

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 50

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BWR

DATA COLLECTION METHOD:
DATA IS NOT NORMALLY COLLECTED BY THE PILOT PLANTS BUT WAS COLLECTED FOR PLEX.

COMPONENTS: RPV

USEFULNESS OF DATA:
IDENTIFICATION OF FATIGUE CRACKING AND CORROSION.

REMARKS:
NONE

DESCRIPTION OF DATA: SURFACE AND VOLUMETRIC EXAMINATION OF VESSEL STUDS

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 51

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
INSERVICE INSPECTION RECORDS

COMPONENTS: RPV

USEFULNESS OF DATA:
IDENTIFICATION OF FATIGUE CRACKS, CORROSION, FRETTING AND CRACKING.

REMARKS:
NONE

DESCRIPTION OF DATA: DIMENSIONAL SURVEY OF VESSEL STUDS

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 52

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
DATA IS NOT NORMALLY COLLECTED BY PILOT PLANTS BUT WAS SAMPLED FOR PLEX.

COMPONENTS: RPV

USEFULNESS OF DATA:
DETECTION OF YIELDING OR CREEP OF THE STUDS FROM HIGH TEMPERATURES AND TENSILE STRESS.

REMARKS:
STUDS HAVE BEEN IDENTIFIED AS LIKELY REQUIRING REPLACEMENT FOR LIFE EXTENSION.

DESCRIPTION OF DATA: EXAMINATION OF SUPPORT SKIRT WELDS

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 53

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
INSERVICE INSPECTION RESULTS

COMPONENTS: RPV

USEFULNESS OF DATA:
PROVIDE ASSURANCE OF CONTINUED INTEGRITY.

REMARKS:
PILOT PLANT SUPPORT SKIRT ATTACHMENT WELD HAS HIGH CALCULATED FATIGUE USAGE RESULTING FROM VESSEL HEATUP/COOLDOWN. ACTUAL DUTY IS JUDGED TO BE LOW.

DESCRIPTION OF DATA: VISUAL INSPECTION OF BASE METAL, THICKNESS MEASUREMENTS TAKEN BASED ON VT RESULTS FOR RPV SKIRT

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 54

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
DATA NOT NORMALLY COLLECTED BY PILOT PLANTS BUT WAS COLLECTED FOR PLEX

COMPONENTS: RPV

USEFULNESS OF DATA:
IDENTIFICATION OF GAPS, MOISTURE COLLECTION AND CORROSION OF METAL SUPPORT SKIRT AND CONCRETE INTERFACES, AND ALSO TO PROVIDE A BASELINE FOR TRENDING ANY DEGRADATION OF THE EXTERIOR SURFACES

REMARKS:
MINIMUM CORROSION OF LOW ALLOY STEEL IS EXPECTED. THIS APPLIES TO BWR SUPPORT SKIRTS (ALSO SOLE FLANGE AND ANCHOR BOLTS FOR SHOP FABRICATED VESSELS).

DESCRIPTION OF DATA: METAL TEMPERATURES

TYPE OF DATA: TRANSIENT SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 55

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BWR

DATA COLLECTION METHOD:
RECORDER, PLANT COMPUTER, LOCAL INDICATION

COMPONENTS: RPV

USEFULNESS OF DATA:
CHARACTERIZE THE METAL TEMPERATURE RESPONSE TO LIMITING DESIGN TRANSIENTS.

REMARKS:
TYPICAL EXISTING LOCATIONS INCLUDE OUTSIDE SURFACE THERMOCOUPLES ON THE HEAD FLANGES, SHELL, TOP AND BOTTOM HEAD.

DESCRIPTION OF DATA: VOLUMETRIC EXAMINATIONS OF VESSEL SHELL WELDS, ESPECIALLY IN BELTLINE REGION

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 56

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
INSERVICE INSPECTION RECORDS

COMPONENTS: RPV

USEFULNESS OF DATA:
VOLUMETRIC EXAMINATION OF WELDS PROVIDES STRUCTURAL INTEGRITY.

REMARKS:
BECAUSE OF LIMITED ACCESSSIBILITY, 100% OF THE WELDS ARE NOT EXAMINED AT MOST PLANTS.

DESCRIPTION OF DATA: ADJUSTMENT CHECK OF STABILIZERS

TYPE OF DATA: MAINTENANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 57

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BWR

DATA COLLECTION METHOD:
PILOT PLANT COLLECTED THIS DATA PRIOR TO INITIAL PLANT STARTUP

COMPONENTS: RPV

USEFULNESS OF DATA:
ENSURE THE STABILIZERS ARE OPERATIONAL.

REMARKS:
NONE

DESCRIPTION OF DATA: SEISMIC EVENTS

TYPE OF DATA: ABNORMAL SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 58

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
SEISMIC MONITORING SYSTEM, PUBLIC RECORDS

COMPONENTS: RPV RPVI CCS RCPBP PC

USEFULNESS OF DATA:
EVALUATE POTENTIAL FATIGUE RESULTING FROM SEISMIC EVENTS, VERIFICATION OF OBE/DBE PROBABILITY.

REMARKS:
NONE

DESCRIPTION OF DATA: RPV SLIDING FOOT ASSEMBLIES VISUAL INSPECTION OR ON LINE MONITORING

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 59

PILOT PLANT DATA COLLECTION: N PLANT TYPE: PWR

DATA COLLECTION METHOD:
DATA IS NOT NORMALLY COLLECTED BY THE PILOT PLANT BUT WAS COLLECTED FOR PLEX.

COMPONENTS: RPV

USEFULNESS OF DATA:
DETERMINE STICK-SLIP BEHAVIOR AND TO ASSURE IT IS FREE FROM BINDING.

REMARKS:
THE LUBRICANTS IN THE SLIDING FOOT ASSEMBLIES MAY EXPERIENCE DEGRADATION AND PREVENT THERMAL EXPANSION OF THE REACTOR VESSEL.

DESCRIPTION OF DATA: INSPECTION FOR FLAW INDICATIONS AND GROWTH IN RPV, ESPECIALLY NOZZLES

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 60

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: PWR

DATA COLLECTION METHOD:
INSERVICE INSPECTION RECORDS

COMPONENTS: RPV

USEFULNESS OF DATA:
TO EVALUATE POTENTIAL PRESSURIZED THERMAL SHOCK EFFECTS AND FATIGUE CRACK GROWTH.

REMARKS:
NONE

DESCRIPTION OF DATA: UT AND VISUAL EXAMINATION OF STAINLESS STEEL AND INCONEL SAFE ENDS

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 61

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
ISI AT THE PILOT PLANT IS PERFORMED ON A LIMITED PORTION OF THE SAFE ENDS.

COMPONENTS: RPV

USEFULNESS OF DATA:
DETECTION OF IGSCC.

REMARKS:
NONE

DESCRIPTION OF DATA: VISUAL INSPECTION OF FEEDWATER THERMAL SLEEVE TO SPARGER JOINT

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 62

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BWR

DATA COLLECTION METHOD:
INSPECTION REPORTS, TEST RESULTS

COMPONENTS: RPV

USEFULNESS OF DATA:
MECHANICAL WEAR OF THE THERMAL SLEEVE INCREASES BYPASS LEAKAGE AND THERMAL CYCLING.

REMARKS:
NONE

DESCRIPTION OF DATA: INSPECTION OF RPV CLADDING, PARTICULARLY AT WELDED ATTACHMENTS AND NOZZLES

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 63

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
INSERVICE INSPECTION RECORDS

COMPONENTS: RPV

USEFULNESS OF DATA:
PROVIDE ASSURANCE OF INTEGRITY, AND IDENTIFICATION OF CRACK INITIATION/GROWTH.

REMARKS:
WELDED ATTACHMENTS WITH HIGH RESIDUAL STRESS MAY BE SUSCEPTIBLE TO IGSCC. ATTACHMENTS WITH NO PWHT ARE MOST SUSCEPTIBLE. CURRENT INSPECTION TECHNIQUES ARE LIMITED BY ACCESSIBILITY.

DESCRIPTION OF DATA: REACTOR COOLANT TEMPERATURES

TYPE OF DATA: TRANSIENT SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 64

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
STRIP CHARTS

COMPONENTS: RPV RCPBP

USEFULNESS OF DATA:
EVALUATE SEVERITY OF TRANSIENT EVENTS COMPARED TO DESIGN EVENT SPECIFICATIONS FOR LIMITING LOCATIONS FOR VESSEL, NOZZLES, AND RC PIPING. CHARACTERIZATION MAY BE NECESSARY IF THE NUMBER OF TRACKED EVENTS IS PREDICTED TO APPROACH DESIGN FREQUENCIES.

REMARKS:
MEASUREMENTS ARE TYPICALLY AVAILABLE AS DOME SATURATION TEMPERATURE (MS INSTRUMENT PRESSURE), RECIRC SUCTION LINE, RHR HEAT EXCHANGER INLET, AND PRV DRAIN LINE TEMPERATURE RECORDERS. RATES OF TEMPERATURE CHANGE ARE OF INTEREST.

DESCRIPTION OF DATA: REACTOR PRESSURE

TYPE OF DATA: TRANSIENT/CYCLE SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 65

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
STRIP CHART RECORDER, PLANT COMPUTER

COMPONENTS: RPV RCPBP MCP SG

USEFULNESS OF DATA:
EVALUATE SEVERITY OF ACTUAL PRESSURE EVENTS COMPARED TO DESIGN EVENT SPECS FOR LIMITING LOCATIONS FOR VESSEL, NOZZLES, RC PIPING, MC PUMPS AND SG. CHARACTERIZATION IS NECESSARY IF NUMBER OR NATURE OF TRACKED EVENTS APPROACHES OR EXCEEDS DESIGN LIMITS.

REMARKS:
REQUIRED FOR PWR PTS EVALUATIONS.

DESCRIPTION OF DATA: VISUAL INSPECTION OF EXPOSED SURFACES OF CRITICAL CONCRETE STRUCTURES

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 66

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
DATA IS NOT NORMALLY COLLECTED BY PILOT PLANTS BUT WAS COLLECTED FOR PLEX.

COMPONENTS: CCS

USEFULNESS OF DATA:
IDENTIFICATION OF DEBILITATING EFFECTS AND ONGOING ASSURANCE OF INTEGRITY.

REMARKS:
NOTE SURVEY AREA;IDENTIFICATION/LOCATION OF CRACKS; VOLUME CHANGES; CONDITION OF PROTECTIVE COATINGS, PAINTS, OR MEMBRANES; AND LOCATIONS OF EXPOSED REINFORCING STEEL, PREVIOUS PATCHES OR REPAIRS.

DESCRIPTION OF DATA: CRACK MAPPING AND GROWTH MONITORING FOR CCS AND CONCRETE CONTAINMENTS

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 67

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
INSPECTION REPORTS, SURVEILLANCE RECORDS

COMPONENTS: CCS PC

USEFULNESS OF DATA:
DETECT STRUCTURAL DISTRESS AND, FOLLOWING A SEISMIC EVENT, ASSESS STRUCTURAL DAMAGE.

REMARKS:
NONE

DESCRIPTION OF DATA: CORE SAMPLING AND COMPRESSIVE STRENGTH TESTING OF CCS AND CONCRETE CONTAINMENTS

TYPE OF DATA: MATERIAL SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 68

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
NOT NORMALLY COLLECTED BY PLANT BUT COLLECTED FOR PLEX.

COMPONENTS: CCS PC

USEFULNESS OF DATA:
VERIFY AND ANALYZE THE SYNERGISTIC EFFECTS OF THERMAL GRADIENTS, RADIATION EXPOSURE, CORROSION OF REINFORCING STEEL, CONCRETE VOLUME CHANGES, AND NORMAL AGING.

REMARKS:
PARAMETERS TO MONITOR INCLUDE COMPRESSIVE AND TENSILE STRENGTH, DEPTH OF CARBONATION, AIR ENTRAINMENT/ENTRAPMENT, CHLORIDE CONTENT, MICROSTRUCTURAL GRADATION, CONDITION OF CONCRETE, AND PRESENCE OF DELETERIOUS MATERIALS.

DESCRIPTION OF DATA: CONCRETE PROTECTIVE COATING THICKNESS

TYPE OF DATA: TEST SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 69

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
DATA IS NOT NORMALLY COLLECTED BY PILOT PLANTS BUT WAS COLLECTED FOR PLEX.

COMPONENTS: CCS

USEFULNESS OF DATA:
PROVIDE ASSURANCE THAT REINFORCING STEEL CORROSION, ABRASION, ETC. WILL NOT OCCUR.

REMARKS:
HIGH TRAFFIC, WEAR, AND ABRASION LOCATIONS ARE ESPECIALLY SUSCEPTIBLE TO COATING THINNING.

DESCRIPTION OF DATA: VIBRATION DATA FOR TURBINE PEDESTAL, RPV PEDESTAL, AND REACTOR BUILDING FLOOR PROXIMATE TO MG SETS

TYPE OF DATA: SURVEILLANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 70

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BWR

DATA COLLECTION METHOD:
VIBRATION AND DYNAMIC EFFECTS MONITORING SYSTEMS

COMPONENTS: CCS

USEFULNESS OF DATA:
ASSESS FATIGUE ON THESE COMPONENTS DUE TO HIGH CYCLE VIBRATIONS.

REMARKS:
DATA SHOULD INCLUDE FREQUENCY, AMPLITUDE, AND LOCATION.

DESCRIPTION OF DATA: FREEZE/THAW CYCLING

TYPE OF DATA: ABNORMAL SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 71

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
AVAILABLE FROM LOCAL AGENCIES, WEATHER BUREAU RECORDS, ENVIRONMENTAL MONITORING PROGRAM.

COMPONENTS: CCS PC

USEFULNESS OF DATA:
EVALUATION OF FREEZE/THAW DAMAGE POTENTIAL.

REMARKS:
REPEATED FREEZING AND THAWING CAN PRODUCE SERIOUS DAMAGE TO COVER CONCRETE AND SUBSEQUENT REBAR DEGRADATION.

DESCRIPTION OF DATA: AIR AND RAIN/SNOW SAMPLE ANALYSIS

TYPE OF DATA: SAMPLING SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 72

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
DATA IS NOT COLLECTED BY THE PLANTS BUT MAY BE AVAILABLE FROM LOCAL AGENCIES.

COMPONENTS: CCS PC

USEFULNESS OF DATA:
DETERMINE EFFECTS OF AIR POLLUTION, ACID RAIN AND SALT CONTENT ON EXPOSED CONCRETE STRUCTURES.

REMARKS:
DATA SHOULD INCLUDE AIR QUALITY, HUMIDITY, SALT AIR, AND ACIDITY.

DESCRIPTION OF DATA: RECORDS OF CONCRETE MAINTENANCE INCLUDING PAINTING, SEALING OF SURFACES, REPAIRS, CRACK RESTORATION

TYPE OF DATA: MAINTENANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 73

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
MAINTENANCE RECORDS, REPAIR RECORDS, WORK ORDERS

COMPONENTS: CCS PC

USEFULNESS OF DATA:
ASSESS INTEGRITY OF CCS, AND IDENTIFY AREAS OF CONCERN FOR DEGRADATION AND FUTURE OBSERVATION.

REMARKS:
NONE

DESCRIPTION OF DATA: RECORD OF FLOODING

TYPE OF DATA: ABNORMAL SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 74

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
LOCAL AGENCY DATA, EVENT REPORTS

COMPONENTS: CCS

USEFULNESS OF DATA:
DETERMINE POTENTIAL FOR DEBILITATING EFFECTS RESULTING FROM THESE EVENTS.

REMARKS:
NONE

DESCRIPTION OF DATA: NEUTRON FLUENCE

TYPE OF DATA: MATERIAL SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 75

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
DOSIMETERS, SUVEILLANCE SPECIMEN CAPSULES

COMPONENTS: CCS

USEFULNESS OF DATA:
EXTRAPOLATION OF FLUENCE LEVELS AT RPV BOUNDARY TO REACTOR CAVITY/BIO. SHIELD WALL SURFACE YIELDS APPROXIMATE LEVELS FOR ASSESSING CONDITION AND AGING.

REMARKS:
CONCRETE DAMAGE FROM NEUTRONS IS A CONCERN FOR REACTOR COOLANT SYSTEM COMPONENT VAULTS, SACRIFICIAL AND BIOLOGICAL SHIELDS.

DESCRIPTION OF DATA: EVALUATION OF WATERPROOFING MEMBRANE

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 76

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
EVALUATION REPORTS, INSPECTION/TEST RECORDS

COMPONENTS: CCS PC

USEFULNESS OF DATA:
VERIFICATION OF WATERPROOFING MEMBRANE CONDITION PROVIDES ASSURANCE OF THE PROTECTION FOR THE BURIED CONCRETE FROM GROUNDWATER INTRUSION AND CONCRETE DEGRADATION.

REMARKS:
NONE

DESCRIPTION OF DATA: BUILDING SETTLEMENT MEASUREMENT

TYPE OF DATA: SURVEILLANCE SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 77

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
SURVEILLANCE REPORTS

COMPONENTS: CCS PC

USEFULNESS OF DATA:
TRENDING WILL VERIFY ABSENCE OF SETTLEMENT, SOIL STABILITY.

REMARKS:
SETTLEMENT CAN POTENTIALLY REDUCE THE SERVICE LIFE OF THE BUILDING CONCRETE STRUCTURES DUE TO CRACKING AND ASSOCIATED GROUNDWATER DAMAGE. BELOW GRADE BUILDING PENETRATIONS ARE AFFECTED.

DESCRIPTION OF DATA: THERMAL GRADIENTS, AND GAMMA RADIATION

TYPE OF DATA: SURVEILLANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 78

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
NOT NORMALLY COLLECTED BY PILOT PLANT FOR THIS PURPOSE. HOWEVER THE DATA MAY BE AVAILABLE FROM RADIATION PROTECTION FOR PERSONNEL EXPOSURE CONSIDERATIONS.

COMPONENTS: CCS

USEFULNESS OF DATA:
SUPPORT OR MODIFY LIFE ASSESSMENT OF CONCRETE STRUCTURES, PARTICULARLY BIOLOGICAL SHIELDS AND PRESTRESSED CONCRETE.

REMARKS:
ABSORBED GAMMA RADIATION, THERMAL GRADIENT AND ELEVATED TEMPERATURE EXPOSURE ARE POTENTIAL DEBILITATING PARAMETERS FOR THE BIOLOGICAL SHIELD. HIGH GAMMA RADIATION LEVELS CAN CAUSE AN EFFECTIVE LOSS OF COMPRESSIVE AND TENSILE STRENGTH OF CONCRETE.
ALSO, THE ABSORBED GAMMA RADIATION ENHANCES THE DEBILITATION CAUSED BY NEUTRONS.

DESCRIPTION OF DATA: FREQUENCY OF TURBINE STOP VALVE FAST CLOSURES

TYPE OF DATA: TRANSIENT SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 79

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
EVENT REPORTS

COMPONENTS: RCPBP SG

USEFULNESS OF DATA:
EVALUATION OF STEAM LINE AND STEAM GENERATOR FATIGUE RESULTING FROM DYNAMIC LOADING STRESSES.

REMARKS:
NONE

DESCRIPTION OF DATA: RCPB PIPING LEAK AND HYDRO TEST FREQUENCIES, PRESSURES, AND TEMPERATURES

TYPE OF DATA: TEST SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 80

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
FORMAL PROCEDURE, INSPECTION REPORTS

COMPONENTS: RCPBP

USEFULNESS OF DATA:
EVALUATION OF PIPING FATIGUE USAGE.

REMARKS:
NONE

DESCRIPTION OF DATA: INSERVICE VIBRATION FREQUENCY AND AMPLITUDE DATA FOR PIPING

TYPE OF DATA: SURVEILLANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 81

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
VIBRATION AND DYNAMIC EFFECTS MONITORING SYSTEM, STARTUP TEST RESULTS

COMPONENTS: RCPBP

USEFULNESS OF DATA:
EVALUATION OF HIGH CYCLE FATIGUE ON PIPING AND SUPPORTS.

REMARKS:
VIBRATION DATA WILL BE REQUIRED FOR NUMEROUS POINTS WITHIN PIPING SYSTEMS FOR AT LEAST ONE FUEL CYCLE.

DESCRIPTION OF DATA: ISI EXAMINATION RESULTS FOR RCPBP

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 82

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
INSERVICE INSPECTION RESULTS

COMPONENTS: RCPBP

USEFULNESS OF DATA:
IDENTIFICATION OF SURFACE DEFECTS (CRACKING) AND INTERNAL DEFECTS.

REMARKS:
DATA WOULD INCLUDE ENHANCED VOLUMETRIC EXAMINATION FOR DETECTION OF IGSCC.

DESCRIPTION OF DATA: CARBON STEEL PIPING THICKNESS MEASUREMENT DATA

TYPE OF DATA: TEST SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 83

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
FORMAL EROSION MONITORING PROGRAM

COMPONENTS: RCPBP

USEFULNESS OF DATA:
EVALUATION OF EROSION-CORROSION, AND CORROSION DAMAGE IN PIPING SYSTEMS.

REMARKS:
THICKNESS DATA SHOULD BE COLLECTED AT CRITICAL LOCATIONS AT REGULAR INTERVALS FOR TRENDING OF WALL THINNING RATES.

DESCRIPTION OF DATA: REPAIR RECORDS FOR INDICATIONS IN RCPBP IDENTIFIED THROUGH ISI

TYPE OF DATA: MAINTENANCE SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 84

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
INDIRECTLY IDENTIFIED FROM ISI RESULTS

COMPONENTS: RCPBP

USEFULNESS OF DATA:
IDENTIFICATION OF AREAS WHERE INDICATIONS APPEAR REPEATEDLY.

REMARKS:
RECURRENCE OF INDICATIONS AT REPAIRED LOCATIONS CAN BE USED TO DIRECTLY IDENTIFY AREAS SUSCEPTIBLE TO DEGRADATION.

DESCRIPTION OF DATA: VISUAL INSPECTION RESULTS FOR PIPING AND SUPPORTS

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 85

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
INSERVICE INSPECTION RESULTS

COMPONENTS: RCPBP

USEFULNESS OF DATA:
IDENTIFICATION OF PIPING EXTERNAL CORROSION, BINDING OF SUPPORTS, PIPING OR SUPPORT MECHANICAL WEAR.

REMARKS:
INSPECTION SCOPE AND PROCEDURES MAY REQUIRE EXPANSION.

DESCRIPTION OF DATA: SNUBBER MAINTENANCE AND REPAIR RECORDS

TYPE OF DATA: MAINTENANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 86

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
DATA IS TRACKABLE THROUGH WORK ORDERS AND FORMALIZED SNUBBER INSPECTION PROCEDURES.

COMPONENTS: RCPBP

USEFULNESS OF DATA:
FACILITATES PREDICTIVE MAINTENANCE.

REMARKS:
SNUBBER FAILURE COULD LEAD TO EXCESSIVE PIPING STRESSES DURING A TRANSIENT.

DESCRIPTION OF DATA: TEMPERATURE AND PRESSSURE VERSUS TIME FOR CHARGING AND SAFETY INJECTION NOZZLES

TYPE OF DATA: TRANSIENT SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 87

PILOT PLANT DATA COLLECTION: N PLANT TYPE: PWR

DATA COLLECTION METHOD:
ON-LINE FATIGUE MONITORING SYSTEM

COMPONENTS: RCPBP

USEFULNESS OF DATA:
DETERMINATION OF FATIGUE USAGE IN THE NOZZLES

REMARKS:
FATIGUE IN THE NOZZLES WAS IDENTIFIED AS A CONCERN AT SURRY AND PRAIRIE ISLAND.

DESCRIPTION OF DATA: FLOW AND TEMPERATURE CHANGES FOR PRESSURIZER SURGE NOZZLES

TYPE OF DATA: TRANSIENT SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 88

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: PWR

DATA COLLECTION METHOD:
EVENT REPORTS

COMPONENTS: RCPBP

USEFULNESS OF DATA:
EVALUATION OF FATIGUE IN THE PRESSURIZER SURGE NOZZLE.

REMARKS:
NONE

DESCRIPTION OF DATA: VISUAL INSPECTION RESULTS OF SWITCHGEAR/MCC METAL CLAD ENCLOSURES, BUS WORK, AND OTHER PASSIVE ELECTRICAL COMPONENTS

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 89

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
V.T. TEST PACKAGES, NOTATIONS ON PREVENTIVE MAINTENANCE REPORTS

COMPONENTS: ELECT

USEFULNESS OF DATA:
TREND AND MITIGATE INDICATIONS OF CORROSION, FATIGUE CRACKS, LOOSE PARTS, AND DISCOLORATION INDICATIVE OF GASES OR OTHER ENVIRONMENTAL ACTION.

REMARKS:
NONE

DESCRIPTION OF DATA: RESULTS OF INFRARED THERMAL SCANNING OF BUS WORK, SWITCHGEAR, MCC'S AND MCC BREAKERS

TYPE OF DATA: TEST SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 90

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
USE OF INFRARED THERMAL "GUN" IN A PERIODIC EXAMINATION PROGRAM

COMPONENTS: ELECT

USEFULNESS OF DATA:
IDENTIFICATION OF "HOT SPOTS", AND TRENDING TO LOCATE PHYSICAL CAUSES WHICH MAY BE MITIGATED BY REPAIRS OR COMPONENT REPLACEMENT.

REMARKS:
HOT SPOTS MAY BE A RESULT OF ARCING, LOOSE CONTACTS, STRAY CURRENTS, OR ELECTROCHEMICAL REACTIONS, AND MAY CAUSE CORROSION.

DESCRIPTION OF DATA: FAILURE RATE AND REPLACEMENTS OF LOW CURRENT, LOW VOLTAGE PROTECTIVE RELAYS

TYPE OF DATA: MAINTENANCE SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 91

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
MAINTENANCE WORK REQUESTS, BULLETIN/VENDOR LETTER RESPONSES

COMPONENTS: ELECT

USEFULNESS OF DATA:
TRENDING WILL AID IN ASSESSING SERVICE LIFE FOR A GIVEN CLASS OF RELAYS.

REMARKS:
NONE

DESCRIPTION OF DATA: TESTING AND ANALYSIS RESULTS OF REMOVED LOW CURRENT, LOW VOLTAGE PROTECTIVE RELAYS

TYPE OF DATA: MATERIAL SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 92

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
UTILIZE SAMPLING PROGRAM TO DETERMINE TRENDS FOR A GIVEN CLASS OF RELAYS.

COMPONENTS: ELECT

USEFULNESS OF DATA:
DETERMINE ACTUAL EFFECTS OF AGING, AND PREDICT A SERVICE LIFE.

REMARKS:
NONE

DESCRIPTION OF DATA: UT EXAMINATION RESULTS OF SHRUNK-ON TURBINE DISCS

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 93

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
TEST PROGRAM AND RESULTS PACKAGES

COMPONENTS: TURB

USEFULNESS OF DATA:
IDENTIFY POTENTIAL SCC AND FATIGUE CRACKING, AND TREND FLAW GROWTH.

REMARKS:
NONE

DESCRIPTION OF DATA: TURBINE SHAFT VIBRATION MONITORING DATA

TYPE OF DATA: SURVEILLANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 94

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
ON-LINE VIBRATION MONITORING SYSTEM OR OTHER DATA ACQUISITION SYSTEM

COMPONENTS: TURB

USEFULNESS OF DATA:
TRENDING WILL IDENTIFY CHANGE IN RESPONSE INDICATIVE OF SPECIFIC PROBLEMS.

REMARKS:
NONE

DESCRIPTION OF DATA: INSPECTION RESULTS OF TURBINE BLADES

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 95

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
ACOUSTIC DOPPLER TECHNIQUES, LPT, MPT - TEST RESULTS PACKAGE

COMPONENTS: TURB

USEFULNESS OF DATA:
IDENTIFY ONSET OF BLADE CRACKS PRIOR TO SEPARATION.

REMARKS:
NONE

DESCRIPTION OF DATA: TORSIONAL VIBRATION AMPLITUDE MEASUREMENT OF TURBINE SHAFT(S)

TYPE OF DATA: TRANSIENT SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 96

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
ON-LINE VIBRATION MONITORING SYSTEM OR OTHER DATA ACQUISITION SYSTEM

COMPONENTS: TURB

USEFULNESS OF DATA:
EVALUATE POTENTIAL FATIGUE FAILURE OF SHAFT(S).

REMARKS:
TRANSIENTS OF INTEREST INCLUDE SEVERE ELECTRICAL FAULTS AND IMPROPER SYNCHRONIZATION.

DESCRIPTION OF DATA: INLET STEAM QUALITY MEASUREMENT

TYPE OF DATA: TRANSIENT/SURVEILLANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 97

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
COMPUTED FROM OTHER ON-LINE PROCESS PARAMETERS, COLORIMETER

COMPONENTS: TURB

USEFULNESS OF DATA:
EVALUATE BLADE EROSION ASSOCIATED WITH WATER INDUCTION.

REMARKS:
NONE

DESCRIPTION OF DATA: BEARING MAINTENANCE RECORDS

TYPE OF DATA: MAINTENANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 98

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
MAINTENANCE RECORDS, WORK ORDERS, INSPECTION RECORDS

COMPONENTS: TURB

USEFULNESS OF DATA:
INFORMATION COULD BE INDICATIVE OF EXCESSIVE SHAFT STRESSES, FOUNDATION SETTLEMENT PROBLEMS, AND THERMAL EXPANSION.

REMARKS:
NONE

DESCRIPTION OF DATA: MAIN TURBINE LUBE OIL SAMPLING RESULTS

TYPE OF DATA: SAMPLING SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 99

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
MONTHLY SURVEILLANCE PROGRAM, GRAB SAMPLING AND ANALYSIS

COMPONENTS: TURB

USEFULNESS OF DATA:
TRENDING WILL AID IN EVALUATION OF OIL FILTRATION SYSTEM, OIL QUALITY AND BEARING DEGRADATION.

REMARKS:
RESULTS OF TEST SHOULD INCLUDE SUSPENDED SOLIDS (METALLIC ASSAY), WATER, AIR, DISSOLVED GASES, AND VISCOSITY.

DESCRIPTION OF DATA: LP TURBINE CASING THICKNESS MEASUREMENT

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 100

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
ULTRASONIC TEST RESULTS PACKAGES

COMPONENTS: TURB

USEFULNESS OF DATA:
TRENDING WILL AID IN ESTABLISHING A MATERIAL LOSS RATE DUE TO EROSION AND CORROSION.

REMARKS:
NONE

DESCRIPTION OF DATA: LP TURBINE SHAFT BORE BOROSONIC INSPECTION

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 101

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
TEN YEAR INSPECTION RESULTS

COMPONENTS: TURB

USEFULNESS OF DATA:
MONITORING OF SHAFT BORE CRACKS AND FLAW GROWTH WILL AID IN DETERMINING LIFE EXPECTANCY OF THE ROTOR SHAFT.

REMARKS:
NONE

DESCRIPTION OF DATA: MAIN TURBINE CROSS-UNDER/OVER PIPE WALL THICKNESS MEASUREMENTS

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 102

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
UT THICKNESS TEST RESULTS PACKAGES

COMPONENTS: TURB

USEFULNESS OF DATA:
TRENDING WILL AID IN ESTABLISHING MATERIAL LOSS RATE DUE TO EROSION-CORROSION.

REMARKS:
NONE

DESCRIPTION OF DATA: NUMBER OF CRDM LATCH ASSEMBLY STEPS PER CRDM

TYPE OF DATA: CYCLE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 103

PILOT PLANT DATA COLLECTION: N PLANT TYPE: PWR

DATA COLLECTION METHOD:
STEPS CAN BE MONITORED FROM THE POWER OR LOGIC CABINETS. HOWEVER, COUNTERS ARE REQUIRED TO COUNT THE NUMBER OF STEPS OCCURRING. PROCESS COMPUTER MAY BE USED.

COMPONENTS: CRDM

USEFULNESS OF DATA:
FORECAST THE LATCH ASSEMBLY POTENTIAL END OF LIFE CONDITION DUE TO MECHANICAL WEAR.

REMARKS:
THE LATCH ASSEMBLIES ARE DESIGNED FOR A FINITE NUMBER OF STEPS .

DESCRIPTION OF DATA: CRDM COIL INLET, OUTLET, AND BOBBIN TEMPERATURE DURING OPERATION AND DURING LOSS OF COOLING FAN

TYPE OF DATA: TRANSIENT/SURVEILLANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 104

PILOT PLANT DATA COLLECTION: N PLANT TYPE: PWR

DATA COLLECTION METHOD:
CRDM TEMPERATURE MONITORING SYSTEM

COMPONENTS: CRDM

USEFULNESS OF DATA:
TRENDING OF TEMPERATURES WILL PROVIDE BASES FOR ASSESSMENT OF COIL LIFE.

REMARKS:
MAINTENANCE RECORDS PROVIDE INDIRECT INDICATION OF TEMPERATURE DAMAGE. COIL LIFE IS DETERMINED BY INSULATION BREAKDOWN AS A RESULT OF TEMPERATURE EXPOSURE.

DESCRIPTION OF DATA: INSPECTION RESULTS OF DRIVE ROD ASSEMBLIES

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 105

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: PWR

DATA COLLECTION METHOD:
MAINTENANCE RECORDS

COMPONENTS: CRDM

USEFULNESS OF DATA:
TRENDING RESULTS WILL ALLOW EVALUATION OF DEGRADATION OF THE DRIVE ROD ASSEMBLIES.

REMARKS:
DRIVE ROD ASSEMBLIES ARE SUBJECT TO FATIGUE IN THE COUPLING, AND MECHANICAL WEAR OF THE DRIVE ROD STEPPING GROOVES.

DESCRIPTION OF DATA: CRDM THERMAL HISTORY DURING LOSS OF FLOW, CONTROL ROD DROP, AND END OF RAMP HEATUP

TYPE OF DATA: TRANSIENT SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 106

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: PWR

DATA COLLECTION METHOD:
EVENT REPORTS, STRIP CHARTS, OPERATOR LOGS

COMPONENTS: CRDM

USEFULNESS OF DATA:
REEVALUATION OF FATIGUE LIFE OF CRDM PRESSURE BOUNDARY.

REMARKS:
LOSS OF FLOW, CONTROL ROD DROP, AND END OF RAMP HEATUP ARE THE CRITICAL PLANT TEMPERATURE TRANSIENTS WHICH AFFECT THE FATIGUE ANALYSIS OF THE FATIGUE ANALYSIS OF THE CRDM PRESSURE BOUNDARY.

DESCRIPTION OF DATA: SECONDARY WATER SULPHATE CONTENT

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 107

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: PWR

DATA COLLECTION METHOD:
GRAB SAMPLING AND ANALYSIS

COMPONENTS: SG TURB MC

USEFULNESS OF DATA:
EVALUATE THE POTENTIAL FOR IGSCC.

REMARKS:
THE PARAMETER SHOULD BE MONITORED IN THE FOLLOWING LOCATIONS: FEEDWATER, MAIN STEAM, CONDENSATE PUMP DISCHARGE, BLOWDOWN.

DESCRIPTION OF DATA: STEAM OUTLET TEMPERATURE

TYPE OF DATA: TRANSIENT SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 108

PILOT PLANT DATA COLLECTION: N PLANT TYPE: PWR

DATA COLLECTION METHOD:
STRIP CHARTS, LOGS, PLANT COMPUTER

COMPONENTS: SG

USEFULNESS OF DATA:
EVALUATE SEVERITY OF TRANSIENT EVENTS COMPARED TO DESIGN EVENT SPECIFICATIONS FOR LIMITING LOCATIONS FOR THE STEAM GENERATOR. CHARACTERIZATION MAY BE NECESSARY IF THE NUMBER OF TRACKED EVENTS IS PREDICTED TO APPROACH DESIGN FREQUENCIES.

REMARKS:
NONE

DESCRIPTION OF DATA: HOT LEG TEMPERATURE

TYPE OF DATA: TRANSIENT SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 109

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: PWR

DATA COLLECTION METHOD:
STRIP CHARTS, PLANT COMPUTER

COMPONENTS: SG RCPBP RPV

USEFULNESS OF DATA:
EVALUATE SEVERITY OF TRANSIENT EVENTS COMPARED TO DESIGN EVENT SPECIFICATIONS FOR LIMITING LOCATIONS VESSEL, NOZZLES, RC PIPING AND SG. CHARACTERIZATION MAY BE NECESSARY IF THE NUMBER OF TRACKED EVENTS IS PREDICTED TO APPROACH DESIGN LIMITS.

REMARKS:
DATA COLLECTED FOR TECHNICAL SPECIFICATION REQUIREMENTS. METHOD OF COLLECTION IS UNKNOWN BUT MOST LIKELY IS STRIP CHARTS.

DESCRIPTION OF DATA: COLD LEG TEMPERATURE

TYPE OF DATA: TRANSIENT/CYCLE SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 110

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: PWR

DATA COLLECTION METHOD:
STRIP CHART RECORDER, PLANT COMPUTER

COMPONENTS: SG MCP RCPBP RPV

USEFULNESS OF DATA:
EVALUATE SEVERITY OF ACTUAL TEMPERATURE EVENTS COMPARED TO DESIGN EVENT SPECS FOR LIMITING LOCATIONS FOR VESSEL, NOZZLES, RC PIPING, MC PUMP AND SG. CHARACTERIZATION IS NECESSARY IF NUMBER OR NATURE OF TRACKED EVENTS APPROACHES OR EXCEEDS DESIGN LIMITS.

REMARKS:
NONE

DESCRIPTION OF DATA: STEAM GENERATOR FEEDWATER INLET TEMPERATURE MONITORING

TYPE OF DATA: TRANSIENT SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 111

PILOT PLANT DATA COLLECTION: N PLANT TYPE: PWR

DATA COLLECTION METHOD:
DATA WAS COLLECTED AT ONE OF THE PILOT PLANTS FOR A REFUELING CYCLE TO SUPPORT FATIGUE ANALYSIS

COMPONENTS: SG

USEFULNESS OF DATA:
EVALUATE SEVERITY OF TRANSIENT EVENTS COMPARED TO DESIGN EVENT SPECFICATIONS FOR LIMITING LOCATIONS FOR THE STEAM GENERATOR, ESP. FW NOZZLES. CHARACTERIZATION MAY BE NECESSARY IF THE NUMBER OF TRACKED EVENTS IS PREDICTED TO APPROACH DESIGN LIMITS.

REMARKS:
TOP, MIDDLE, AND BOTTOM TEMPERATURES OF THE NOZZLES SHOULD BE MONITORED TO DETERMINE STRATIFICATION AT LOW FW FLOW.

DESCRIPTION OF DATA: STEAM GENERATOR FEEDWATER PRESSURE

TYPE OF DATA: TRANSIENT SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 112

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: PWR

DATA COLLECTION METHOD:
COMPUTER PRINTOUTS, LOGS, STRIP CHARTS

COMPONENTS: SG

USEFULNESS OF DATA:
EVALUATE SEVERITY OF TRANSIENT EVENTS COMPARED TO DESIGN EVENT SPECIFICATIONS FOR LIMITING LOCATIONS FOR STEAM GENERATOR, ESP. FW NOZZLES. CHARACTERIZATION MAY BE NECESSARY IF THE NUMBER OF TRACKED EVENTS IS PREDICTED TO APPROACH DESIGN LIMITS.

REMARKS:
STEADY-STATE PRESSURE AND TRANSIENT PRESSURE PULSES IN THE FEEDWATER LINE DUE TO WATER HAMMER SHOULD BE MONITORED.

DESCRIPTION OF DATA: STEAM GENERATOR FEEDWATER FLOW RATE

TYPE OF DATA: TRANSIENT SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 113

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: PWR

DATA COLLECTION METHOD:
STRIP CHARTS, LOGS

COMPONENTS: SG

USEFULNESS OF DATA:
EVALUATE SEVERITY OF TRANSIENT EVENTS COMPARED TO DESIGN EVENT SPECIFICATIONS FOR LIMITING LOCATIONS OF STEAM GENERATOR, ESP. FW NOZZLES. CHARACTERIZATION MAY BE NECESSARY IF THE NUMBER OF TRACKED EVENTS IS PREDICTED TO APPROACH DESIGN LIMITS.

REMARKS:
NONE

DESCRIPTION OF DATA: STEAM GENERATOR GIRTH WELD INNER DIAMETER TEMPERATURE

TYPE OF DATA: TRANSIENT SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 114

PILOT PLANT DATA COLLECTION: N PLANT TYPE: PWR

DATA COLLECTION METHOD:
TBD

COMPONENTS: SG

USEFULNESS OF DATA:
TO ASSESS CUMULATIVE FATIGUE IN GIRTH WELD.

REMARKS:
NONE

DESCRIPTION OF DATA: EDDY CURRENT INSPECTION OF SG TUBES

TYPE OF DATA: TEST SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 115

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: PWR

DATA COLLECTION METHOD:
FORMALIZED PLANT PROCEDURES PERFORMED AS PART OF THE ISI.

COMPONENTS: SG

USEFULNESS OF DATA:
TO ASSESS SG TUBE WEAR AT ANTI-VIBRATION BAR INTERSECTIONS, TUBE DENTING, SCC, AND TUBE THINNING.

REMARKS:
NONE

DESCRIPTION OF DATA: NUMBER OF OCCURRENCES OF FEEDWATER AND AUXILIARY FEEDWATER ADDITIONS DURING HOT STANDBY

TYPE OF DATA: CYCLE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 116

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: PWR

DATA COLLECTION METHOD:
OPERATOR LOGS

COMPONENTS: SG

USEFULNESS OF DATA:
ASSESS FATIGUE IN FEEDWATER NOZZLES.

REMARKS:
FEEDWATER ADDITION DURING HOT STANDBY IS THE PRIMARY CONTRIBUTOR TO STEAM GENERATOR FEEDWATER NOZZLE FATIGUE.

DESCRIPTION OF DATA: NUMBER AND SEVERITY OF STEAM GENERATOR WATER HAMMER EVENTS (FEEDRING RELATED)

TYPE OF DATA: TRANSIENT SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 117

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: PWR

DATA COLLECTION METHOD:
EVENT REPORTS

COMPONENTS: SG

USEFULNESS OF DATA:
EVALUATE SG FOR POTENTIAL DAMAGE AND FATIGUE USAGE.

REMARKS:
STEAM GENERATOR WATER HAMMER IS A GENERIC CONCERN FOR PWRS AND HAS RECEIVED SIGNIFICANT REGULATORY ATTENTION.

DESCRIPTION OF DATA: NUMBER OF CLOSE-IN SHORT CIRCUITS NEAR GENERATOR HIGHSIDE TERMINALS OR SHORT CIRCUITS WITHIN MAIN OR AUXILIARY TRANSFORMERS

TYPE OF DATA: MAINTENANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 118

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
NOT APPLICABLE

COMPONENTS: M/G

USEFULNESS OF DATA:
ASSESS POTENTIAL FOR FATIGUE FAILURE DUE TO THERMAL STRESSES ON ROTOR SHAFT.

REMARKS:
EXCESSIVE NUMBER OF THESE EVENTS MAY CAUSE STRESSES IN SOME SHAFTS TO EXCEED THE YIELD POINT. A FEW SUCH EVENTS ARE NOT LIKELY TO RESULT IN A FATIGUE FAILURE, BUT IF UNIT IS SUBJECTED TO AN UNUSUALLY LARGE NUMBER OF SUCH EVENTS, ACCUMULATED FATIGUE DAMAGE COULD CAUSE FAILURE.

DESCRIPTION OF DATA: V.I. RESULTS OF ROTOR WINDINGS

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 119

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
INSPECTION RESULTS PACKAGE

COMPONENTS: M/G

USEFULNESS OF DATA:
DETERMINE OVERALL CONDITION OF GENERATOR ROTOR WINDING TO ASSESS LIFE EXPECTANCY.

REMARKS:
WINDING SUBJECT TO MECHANICAL WEAR AND INSULATION SUBJECT TO DEGRADATION DUE TO AGING.
THIS DATA USED IN CONJUNCTION WITH SEQUENCE NOS 242, 243, 244, 245 TO EVALUATE ROTOR WINDING COND.

DESCRIPTION OF DATA: MOTOR/GENERATOR ROTOR VIBRATIONS

TYPE OF DATA: SURVEILLANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 120

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
INSTALLED ROTOR VIBRATION MONITORING SYSTEM OR OTHER DATA ACQUISITION SYSTEM

COMPONENTS: M/G

USEFULNESS OF DATA:
DETECT TRENDS AND CHANGES IN RESPONSE INDICATIVE OF MISALIGNMENT, STATOR CORE LOOSENESS, BEARING WEAR, ETC.

REMARKS:
NONE

DESCRIPTION OF DATA: MOTOR/GENERATOR TEMPERATURE MONITORING (STATOR FIELD, HYDROGEN COOLING SYSTEM, COOLING WATER, AND BEARING)

TYPE OF DATA: SURVEILLANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 121

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
PLANT COMPUTER, LOCAL TEMPERATURE MONITORS AND INDICATORS, RECORDERS

COMPONENTS: M/G

USEFULNESS OF DATA:
EVALUATE MOTOR-GENERATOR SERVICE LIFE.

REMARKS:
NONE

DESCRIPTION OF DATA: GENERATOR COOLING PRESSURE (HYDROGEN COOLING AND COOLING WATER)

TYPE OF DATA: SURVEILLANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 122

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
PLANT COMPUTER, LOCAL PRESSURE MONITORS AND INDICATORS, RECORDERS

COMPONENTS: M/G

USEFULNESS OF DATA:
EVALUATE MOTOR-GENERATOR WINDING INTEGRITY.

REMARKS:
NONE

DESCRIPTION OF DATA: COPPER PARTICULATE MEASUREMENTS (MAIN GENERATOR STATOR)

TYPE OF DATA: SAMPLING SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 123

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
PARTICULATE SENSORS AND FILTER CHECK (FOR COPPER) IN HYDROGEN GAS SYSTEM

COMPONENTS: M/G

USEFULNESS OF DATA:
DETECT FATIGUE CRACKING AND INTERNAL LOSS IN STATOR WINDINGS. INDICATES INSULATION DETERIORATION.

REMARKS:
NONE

DESCRIPTION OF DATA: MAIN GENERATOR OUTBOARD COLLECTOR RINGS AIR GROOVE DEPTH MEASUREMENT

TYPE OF DATA: SURVEILLANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 124

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
TEN YEAR INSPECTION RESULTS

COMPONENTS: M/G

USEFULNESS OF DATA:
TREND DATA AND DETERMINE WHETHER REPLACEMENT IS NECESSARY DUE TO UNACCEPTABLE REDUCTION IN MINIMUM AIR GROOVE DEPTH

REMARKS:
NONE

DESCRIPTION OF DATA: VISUAL INSPECTION AND LIQUID PENETRANT NDT RESULTS OF GENERATOR RETAINING RING

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 125

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
TEN YEAR INSPECTION RESULTS

COMPONENTS: M/G

USEFULNESS OF DATA:
TO IDENTIFY POTENTIAL SCC.

REMARKS:
NONE

DESCRIPTION OF DATA: INSPECTION RESULTS OF MAIN GENERATOR THERMOSETTING INSULATION

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 126

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
INSPECTION PROCEDURE TO BE DETERMINED

COMPONENTS: M/G

USEFULNESS OF DATA:
DETERMINE IF DEGRADATION OF THE INSULATION HAS OCCURRED DUE TO LEAKS IN CASING AND STRUCTURE.

REMARKS:
METHODS FOR INSPECTION OF THERMOSETTING INSULATION NEED TO BE DEVELOPED.

DESCRIPTION OF DATA: VISUAL INSPECTION AND NDT RESULTS OF MAIN GENERATOR STATOR

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 127

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
TEST PROCEDURES AND TEST RESULTS PACKAGES

COMPONENTS: M/G

USEFULNESS OF DATA:
DETECT POTENTIAL ABRASIONS, LOOSE PARTS, CORROSION FROM WATER LEAKAGE, CRACKING, INTAKE OF FOREIGN MATERIAL, AND OTHER EVIDENCE OF DEGRADATION.

REMARKS:
NONE

DESCRIPTION OF DATA: MAIN GENERATOR MAINTENANCE FINDINGS

TYPE OF DATA: MAINTENANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 128

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
MAINTENANCE CARDS, LOGS, WORK ORDERS

COMPONENTS: M/G

USEFULNESS OF DATA:
IDENTIFICATION OF RECURRING ACTIVITIES PROVIDES INPUT TO SERVICE LIFE EVALUATION.

REMARKS:
NONE

DESCRIPTION OF DATA: VISUAL AND TACTILE INSPECTION RESULTS OF POWER AND CONTROL CABLES IN CONDUIT, TRAYS, AND UNDERGROUND DUCT SYSTEMS

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 129

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
NDE TEST PACKAGES AND PROGRAM

COMPONENTS: CABLE

USEFULNESS OF DATA:
DETECT OBVIOUS DEBILITATION SUCH AS INSULATION/JACKET CRACKS CAUSED BY MECHANICAL STRESS OR HUMAN CONTACT. DETERIORATION CAUSED BY EXCESSIVELY WET OR CONTAMINATED SURFACES AND INSULATION "SPONGINESS". OBSERVE FOR UNUSUAL CONDITIONS SUCH AS HYGROSCOPIC ABSORPTION.

REMARKS:
USE A ROTATING SAMPLING PROGRAM TO COLLECT DATA. A NON-CONDUCTING DOWEL SHOULD BE USED TO PROBE AT JACKETS AND INSULATION. IMPROVED METHODS ARE UNDER DEVELOPMENT BY EPRI AND SANDIA NATIONAL LABS.

DESCRIPTION OF DATA: AMBIENT TEMPERATURE, HUMIDITY AND RADIATION LEVELS IN AREAS OF CABLE AND ELECT EQUIPMENT

TYPE OF DATA: AMBIENT SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 130

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
SELECTED DATA MAY BE AVAILABLE FROM STRIP CHARTS OR HEALTH PHYSICS RECORDS, DEPENDING ON THE SPECIFIC AREA. OTHERWISE, OBTAIN DATA BY AN ENVIRONMENTAL "MAPPING PROGRAM".

COMPONENTS: CABLE ELECT

USEFULNESS OF DATA:
ANALYZE OPERATING CONDITIONS TO LOCATE PLANT "HOT SPOTS" WHERE ACCELERATED CABLE AND EQUIPMENT DEGRADATION MAY OCCUR, AND TO FOCUS VT PROGRAM. DATA ALSO USED TO RELATE ACTUAL CONDITIONS TO PRESUMED EQ CONDITIONS FOR AGING CALCULATIONS.

REMARKS:
COLLECTION OF ENVIRONMENTAL MAP DATA ALSO USEFUL FOR OTHER COMPONENT EVALUATIONS.

DESCRIPTION OF DATA: PERFORMANCE RESULTS OF POWER AND CONTROL CABLE

TYPE OF DATA: SURVEILLANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 131

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
MEGGERING TESTS, BIL TESTS, CONTINUITY CHECKS, INFRARED HEAT GUN SURVEYS

COMPONENTS: CABLE

USEFULNESS OF DATA:
TREND GRADUAL DEGRADATION OF CABLE DESIGN PROPERTIES, PARTICULARLY DURING CABLE DISCONNECT AND RECONNECT MAINTENANCE ACTIVITY, BY COMPARING TO ORIGINAL TEST DATA.

REMARKS:
ECCAD SYSTEM (TIME-DOMAIN REFLECTROMETRY) IS A NEW METHOD IN DEVELOPMENT.

DESCRIPTION OF DATA: POWER CABLE CONDUCTOR AND INSULATION TEMPERATURES WITHIN TRAYS

TYPE OF DATA: SURVEILLANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 132

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
USE TEMPERATURE PROBE. ALSO ANALYTICAL CALCULATIONS BASED ON CURRENT MEASUREMENT.

COMPONENTS: CABLE

USEFULNESS OF DATA:
ANALYZE EFFECTS OF OPERATING LOADS ON CONDUCTORS AND INSULATION, PARTICULARLY WHERE FIRE-WRAP INSTALLED AS APPENDIX R REQUIREMENT OR TRAY PACKING HAS ALTERED DESIGN BASIS HEAT TRANSFER AWAY FROM CABLES.

REMARKS:
DATA SHOULD BE CORRELATED WITH CABLE LOADING STUDIES AND MONITORING OF NEW LOAD ADDITIONS.

DESCRIPTION OF DATA: DESTRUCTIVE EXAMINATION RESULTS OF REMOVED CABLES

TYPE OF DATA: MATERIAL SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 133

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
CUT SAMPLES FROM ABANDONED CABLE IN SEVERE ENVIRONMENT ZONES. TREND PERIODIC RESULTS OVER SEVERAL YEARS.

COMPONENTS: CABLE

USEFULNESS OF DATA:
DETERMINE MACROSCOPIC AND MICROSCOPIC EFFECTS OF AGING ON CABLE CONDITION TO REACH GENERAL CONCLUSIONS ABOUT CABLES IN A GIVEN ZONE.

REMARKS:
ESTABLISH VIRGIN SAMPLES AS BASELINE DATA FROM ORIGINALLY INSTALLED STOCK.

DESCRIPTION OF DATA: RECORDS OF CABLES WHICH HAVE BEEN REPLACED OR ABANDONED

TYPE OF DATA: MAINTENANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 134

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
MAINTENANCE RECORDS, WORK ORDERS, CABLE LISTS

COMPONENTS: CABLE

USEFULNESS OF DATA:
DETERMINE WHICH CABLES HAVE A SERVICE LIFE ADVANTAGE BECAUSE OF THEIR PREVIOUS REPLACEMENT, OR WHICH CABLES ARE AVAILABLE FOR SAMPLE REMOVAL.

REMARKS:
NEED TO ENSURE THAT PLANT HISTORICAL RECORDS CAN BE SORTED TO EXTRACT CABLE REPLACEMENT AND ABANDONMENT DATA CONVENIENTLY.

DESCRIPTION OF DATA: NUMBER OF START DEMANDS AND SUCCESSFUL STARTS OF EDG

TYPE OF DATA: CYCLE SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 135

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
CYCLE LOGS, FORMALIZED TEST PROCEDURES, OPERATION RECORDS, START AND LOAD-RUN RECORDS, SURVEILLANCE TEST REPORTS

COMPONENTS: EDG

USEFULNESS OF DATA:
DETERMINE THE EDG START RELIABILITY.

REMARKS:
THIS DATA WILL BE COMBINED WITH THE EDG LOAD-RUN RELIABILITY TO TREND THE EDG RELIABILITY.

DESCRIPTION OF DATA: NUMBER OF DEMANDS TO LOAD AND SUCCESSFUL LOAD-RUNS OF EDG

TYPE OF DATA: CYCLE SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 136

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
OPERATION RECORDS, START AND LOAD-RUN RECORDS, SURVEILLANCE TEST REPORTS

COMPONENTS: EDG

USEFULNESS OF DATA:
DETERMINE EDG LOAD-RUN RELIABILITY.

REMARKS:
THIS DATA WILL BE COMBINED WITH THE EDG START RELIABILITY TO TREND THE EDG RELIABLITY.

DESCRIPTION OF DATA: EDG LUBE OIL VISCOSITY, TOTAL ACID NUMBER AND LEVEL OF OXIDATION PRODUCTS

TYPE OF DATA: SAMPLING SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 137

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
FORMALIZED PROCEDURES EXIST FOR BI-ANNUALLY LUBE OIL TESTING.

COMPONENTS: EDG

USEFULNESS OF DATA:
BY TRENDING, EVALUATION OF OIL PERFORMANCE AND ENGINE DETERIORATION CAUSED BY WEAR AND CORROSION

REMARKS:
AS VISCOSITY DECREASES, FRICTION AND HEAT AT METAL-TO-METAL SURFACES INCREASES RESULTING IN WEAR. ACIDS AND OXIDATION PRODUCTS CAUSE CORROSION.

DESCRIPTION OF DATA: EDG FIELD AND STATOR INSULATION RESISTANCE

TYPE OF DATA: SURVEILLANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 138

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
FORMALIZED PROCEDURE, GENERATOR RESISTANCE CHECK RECORD, MEGGER TEST LOGS

COMPONENTS: EDG

USEFULNESS OF DATA:
TRENDING WILL AID IN IDENTIFICATION OF DEBILITATING EFFECTS THAT MAY LEAD TO LOSS OF EDG RELIABILITY.

REMARKS:
NONE

DESCRIPTION OF DATA: MACHINE VIBRATION MEASUREMENTS

TYPE OF DATA: SURVEILLANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 139

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
VIBRATION MONITORING SYSTEM, VENDOR TEST RECORDS

COMPONENTS: EDG

USEFULNESS OF DATA:
TRENDING CAN IDENTIFY CHANGES IN VIBRATIONS AT DIFFERENT FREQUENCIES THAT CAN BE MATCHED WITH SPECIFIC COMPONENTS

REMARKS:
ABNORMAL VIBRATIONS CAN CAUSE ENGINE CONTROLS TO GO OUT OF ADJUSTMENT AND CAUSE STRESSES LEADING TO CATASTROPHIC FAILURES, PARTS LOOSENING.

DESCRIPTION OF DATA: SURVEILLANCE TESTING OF EDG TURBOCHARGER DRIVE GEARS

TYPE OF DATA: SURVEILLANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 140

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
FORMALIZED PROCEDURE

COMPONENTS: EDG

USEFULNESS OF DATA:
EVALUATE POTENTIAL MECHANICAL STRESS, EXCESSIVE WEAR

REMARKS:
NONE

DESCRIPTION OF DATA: EDG INSPECTION RESULTS

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 141

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
FORMALIZED INSPECTION PROCEDURES, MAINTENANCE RECORDS

COMPONENTS: EDG

USEFULNESS OF DATA:
AID IN CONDITION ASSESSMENT OF COMPONENTS, IDENTIFICATION OF RECURRING PROBLEMS.

REMARKS:
NONE

DESCRIPTION OF DATA: EDG WINDINGS INSPECTION

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 142

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
INSPECTION REPORTS

COMPONENTS: EDG

USEFULNESS OF DATA:
DETERMINE AGING EFFECTS ON THE WINDINGS, INSULATION INTEGRITY.

REMARKS:
ONE OF THE PILOT PLANTS PERFORMS THIS INSPECTION PERIODICALLY.

DESCRIPTION OF DATA: KW GENERATION AS A FUNCTION OF DATE AND OPERATIONAL HOURS

TYPE OF DATA: CYCLE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 143

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
DATA WAS COLLECTED AT SOME OF THE PILOT PLANTS BUT NOT AT OTHERS.

COMPONENTS: EDG

USEFULNESS OF DATA:
TO EVALUATE POTENTIAL WEAR AND DEGRADATION OF ENGINE AND GENERATOR PERFORMANCE.

REMARKS:
NONE

DESCRIPTION OF DATA: EDG COMPONENT FAILURE

TYPE OF DATA: MAINTENANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 144

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
FORMALIZED MAINTENANCE CARDS, MAINTENANCE AND REPAIR RECORDS

COMPONENTS: EDG

USEFULNESS OF DATA:
ALLOW FOR CONSTANT EVALUATION OF EDG DEGRADATION PROCESS, OPTIMUM MAINTENANCE INTERVALS, RECURRING PROBLEMS.

REMARKS:
MAINTENANCE AND REPAIR SHOULD INCLUDE CAUSE, STARTS AT FAILURE TIME, HRS OF OPER./STARTS SINCE PREVIOUS REPLACEMENT

DESCRIPTION OF DATA: MEASUREMENTS OF EDG PARTS SUBJECT TO WEAR AND NUMBER OF STARTS AT TIME OF MEASUREMENTS

TYPE OF DATA: SURVEILLANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 145

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
INSPECTION REPORTS

COMPONENTS: EDG

USEFULNESS OF DATA:
TRENDING WILL DETERMINE AMOUNT OF EDG COMPONENT WEAR, REPLACEMENT CYCLES AND TIMELY PARTS PROCUREMENT.

REMARKS:
NONE

DESCRIPTION OF DATA: FREQUENCY OF OIL CHANGES

TYPE OF DATA: MAINTENANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 146

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
MAINTENANCE RECORDS, WORK ORDERS

COMPONENTS: EDG

USEFULNESS OF DATA:
VERIFY REGULAR OIL CHANGES HAVE BEEN PERFORMED, EVALUATE OIL CONSUMPTION/BURN, PISTON RING WEAR.

REMARKS:
UNCLEAN OIL MAY CAUSE ENGINE DETERIORATION, INDICATES NEED FOR OVERHAUL.

DESCRIPTION OF DATA: PRIMARY WATER OXYGEN CONTENT

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 147

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: PWR

DATA COLLECTION METHOD:
ON-LINE, SAMPLING

COMPONENTS: RPV RPVI RCPBP

USEFULNESS OF DATA:
EVALUATE THE POTENTIAL FOR LOCALIZED AND GENERAL CORROSION.

REMARKS:
MINIMIZATION OF COOLANT OXYGEN WILL LEAD TO MINIMIZATION OF BOTH LOCALIZED AND GENERAL CORROSION IN THE REACTOR COOLANT SYSTEM AND GENERAL CORROSION OF THE ZIRCALLOY FUEL CLADDING.

DESCRIPTION OF DATA: FAILURES AND MALFUNCTIONS OF HCU VALVES

TYPE OF DATA: MAINTENANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 148

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
FORMALIZED MAINTENANCE HISTORY CARDS, WORK ORDERS

COMPONENTS: HCU

USEFULNESS OF DATA:
TRENDING WILL AID IN EVALUATING RELIABILITY OF THESE COMPONENTS AS A GROUP FOR SERVICE LIFE DETERMINATION.

REMARKS:
HCU VALVES ARE SUBJECT TO DEGRADATION FROM MECHANICAL WEAR AND AGING, ESPECIALLY NONMETALLIC PARTS.

DESCRIPTION OF DATA: HCU VALVE LEAKAGE RATES

TYPE OF DATA: TEST SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 149

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
TEST RESULTS PACKAGES FROM FORMAL TESTS, PLANT ENGINEERS' LOGS AND FILES

COMPONENTS: HCU

USEFULNESS OF DATA:
TREND HCU VALVE PERFORMANCE.

REMARKS:
NONE

DESCRIPTION OF DATA: INSPECTION RESULTS OF HCU MANIFOLD FILTERS

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 150

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BWR

DATA COLLECTION METHOD:
MAINTENANCE AND INSPECTION RECORDS

COMPONENTS: HCU

USEFULNESS OF DATA:
TO REDUCE POTENTIAL FOR PARTICLE ACCUMULATION IN THE MANIFOLD.

REMARKS:
PARTICLE ACCUMULATION CAUSES EROSION AND WEAR OF MANIFOLD AND CONTROL ROD DRIVE MECHANISMS.

DESCRIPTION OF DATA: JET PUMP FLOW RATE

TYPE OF DATA: SURVEILLANCE SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 151

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
JET PUMP INSTRUMENTATION DATA

COMPONENTS: RPVI

USEFULNESS OF DATA:
VERIFICATION OF OPERABILITY AND IDENTFICATION OF JET PUMP DEGRADATION (NOZZLE EROSION).

REMARKS:
NONE

DESCRIPTION OF DATA: UT OF SHROUD TO SHROUD SUPPORT CYLINDER WELDS AND CORE SPRAY INLET TEE ATTACHMENTS

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 152

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BWR

DATA COLLECTION METHOD:
INSPECTION REPORTS

COMPONENTS: RPVI

USEFULNESS OF DATA:
IDENTIFICATION OF IGSCC AND FATIGUE CRACKING.

REMARKS:
THESE INSPECTIONS CAN NOT BE EASILY PERFORMED DUE TO THE PROXIMITY OF THESE COMPONENTS TO THE CORE.

DESCRIPTION OF DATA: VISUAL INSPECTION OF SHROUD SHELL WELDS, LONGITUDINAL WELDS, TOP GUIDE AND CORE PLATE LEDGE

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 153

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
INSERVICE INSPECTION RESULTS

COMPONENTS: RPVI

USEFULNESS OF DATA:
IDENTIFICATION OF POTENTIAL IGSCC.

REMARKS:
NONE

DESCRIPTION OF DATA: UT OF TOP GUIDE BEAM TO PLATE WELDS

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 154

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BWR

DATA COLLECTION METHOD:
INSPECTION REPORTS

COMPONENTS: RPVI

USEFULNESS OF DATA:
IDENTIFICATION OF IGSCC.

REMARKS:
TECHNIQUES FOR THIS INSPECTION HAVE NOT YET BEEN DEVELOPED.

DESCRIPTION OF DATA: UT OF CORE PLATE TO RIM WELD AND CREVICED PLATE TO BEAM WELD

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 155

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BWR

DATA COLLECTION METHOD:
INSPECTION REPORTS

COMPONENTS: RPVI

USEFULNESS OF DATA:
IDENTIFICATION OF IGSCC.

REMARKS:
TECHNIQUES FOR THIS INSPECTION HAVE NOT YET BEEN DEVELOPED.

DESCRIPTION OF DATA: DYE PENETRANT EXAMINATION OF DISASSEMBLED JET PUMP INLET-MIXER SUBASSEMBLY

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 156

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BWR

DATA COLLECTION METHOD:
INSPECTION REPORTS

COMPONENTS: RPVI

USEFULNESS OF DATA:
IDENTIFICATION OF INLET MIXER SUBASSEMBLY EROSION, CARBONIZATION AND THERMAL EMBRITTLEMENT (CF8M CASTINGS).

REMARKS:
THIS DATA IS ONLY REQUIRED ONCE EVERY 30 TO 40 YEARS OF PLANT OPERATION.

DESCRIPTION OF DATA: UT OF RISER ELBOW TO THERMAL SLEEVE WELD OF JET PUMP RISER SUBASSEMBLY

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 157

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BWR

DATA COLLECTION METHOD:
INSPECTION REPORTS

COMPONENTS: RPVI

USEFULNESS OF DATA:
IDENTIFICATION OF CRACKING IN THE RISER ELBOW TO THERMAL SLEEVE WELD.

REMARKS:
THIS AREA IS SUSCEPTIBLE TO CRACKING. CURRENT INSPECTION METHODS ARE NOT ADEQUATE FOR DETECTION OF CRACKING AT THIS LOCATION.

DESCRIPTION OF DATA: UT OF DIFFUSER TO ADAPTER WELD REGION OF JET PUMP DIFFUSER SUBASSEMBLY

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 158

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BWR

DATA COLLECTION METHOD:
INSPECTION REPORTS

COMPONENTS: RPVI

USEFULNESS OF DATA:
IDENTIFICATION OF CRACKING

REMARKS:
THIS WAS IDENTIFIED AS THE LIMITING AREA OF THE DIFFUSER ASSEMBLY. HOWEVER, CRACKING IN THIS AREA CANNOT BE IDENTIFIED USING EXISTING TECHNIQUES.

DESCRIPTION OF DATA: UT OF TOP GUIDE BEAMS

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 159

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BWR

DATA COLLECTION METHOD:
INSPECTION REPORTS

COMPONENTS: RPVI

USEFULNESS OF DATA:
IDENTIFICATION OF POTENTIAL IGSCC, IASCC.

REMARKS:
METHODS FOR THIS INSPECTION HAVE BEEN DEVELOPED BUT HAVE NOT BEEN IMPLEMENTED.

DESCRIPTION OF DATA: MAINTENANCE HISTORY FOR CORE SHROUD, TOP GUIDE, CORE PLATE, JET PUMPS

TYPE OF DATA: MAINTENANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 160

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
INSERVICE INSPECTION RECORDS, MAINTENANCE RECORDS

COMPONENTS: RPVI

USEFULNESS OF DATA:
IDENTIFICATION OF RECURRING PROBLEMS.

REMARKS:
NONE

DESCRIPTION OF DATA: BAFFLE PLATE GAP MEASUREMENTS ON CENTER AND CORNER INJECTION JOINTS

TYPE OF DATA: TEST SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 161

PILOT PLANT DATA COLLECTION: N PLANT TYPE: PWR

DATA COLLECTION METHOD:
NOT APPLICABLE

COMPONENTS: RPVI

USEFULNESS OF DATA:
EVALUATE THE EFFECTS OF BAFFLE JETTING.

REMARKS:
BAFFLE JETTING CAN LEAD TO CLADDING FAILURES. MEASUREMENTS TAKEN AT OUTAGES.

DESCRIPTION OF DATA: PRIMARY WATER ACTIVITY LEVELS

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 162

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: PWR

DATA COLLECTION METHOD:
GRAB SAMPLING AND ANALYSIS

COMPONENTS: RPVI

USEFULNESS OF DATA:
EVALUATION OF THE EFFECTS OF BAFFLE JETTING.

REMARKS:
BAFFLE JETTING CAN RESULT IN FUEL ROD DAMAGE WHICH IS INDIRECTLY DETECTABLE THROUGH COOLANT ACTIVITY LEVELS.

DESCRIPTION OF DATA: FUEL ASSEMBLY INSPECTION RESULTS

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 163

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: PWR

DATA COLLECTION METHOD:
PILOT PLANT MONITORING SYSTEM

COMPONENTS: RPVI

USEFULNESS OF DATA:
IDENTIFICATION OF BAFFLE JETTING.

REMARKS:
NONE

DESCRIPTION OF DATA: WEAR MEASUREMENTS OF GUIDE TUBES AND CONTROL RODLETS

TYPE OF DATA: TEST SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 164

PILOT PLANT DATA COLLECTION: N PLANT TYPE: PWR

DATA COLLECTION METHOD:
INSPECTION RESULTS

COMPONENTS: RPVI

USEFULNESS OF DATA:
EVALUATION OF WEAR RATES AND DETERMINATION OF SERVICE LIFE.

REMARKS:
NONE

DESCRIPTION OF DATA: VIBRATION OF CORE BARREL AND THERMAL SHIELD

TYPE OF DATA: SURVEILLANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 165

PILOT PLANT DATA COLLECTION: N PLANT TYPE: PWR

DATA COLLECTION METHOD:
INTERNALS VIBRATION MONITORING PROGRAM, VENDOR TEST DATA

COMPONENTS: RPVI

USEFULNESS OF DATA:
DEVELOP BASELINES AND TRENDS TO DETERMINE SERVICE LIFE

REMARKS:
THE DATA CAN BE COLLECTED USING NOISE LEVELS. HOWEVER, SUCH A SYSTEM HAD NOT BEEN IMPLEMENTED AT THE PILOT PLANTS.

DESCRIPTION OF DATA: GENERATOR THRUST BEARING INSULATION CHECK

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 166

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
MAINTENANCE RECORDS

COMPONENTS: EDG

USEFULNESS OF DATA:
TO IDENTIFY POTENTIAL DISTRESS OF THE BEARING.

REMARKS:
AT A PILOT PLANT THE THRUST BEARING WAS FOUND SEVERELY DISTRESSED DUE TO ELECTRICAL LEAKAGE FROM THE GENERATOR ENGINE.

DESCRIPTION OF DATA: VT AND PT EXAMINATION RESULTS OF PUMP INTERNALS

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 167

PILOT PLANT DATA COLLECTION: N PLANT TYPE: PWR

DATA COLLECTION METHOD:
INSPECTION TEST RESULTS PACKAGES

COMPONENTS: MCP

USEFULNESS OF DATA:
ASSESS CURRENT CONDITION OF PUMP INTERNALS.

REMARKS:
NONE

DESCRIPTION OF DATA: MC PUMP VIBRATION DATA

TYPE OF DATA: SURVEILLANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 168

PILOT PLANT DATA COLLECTION: N PLANT TYPE: PWR

DATA COLLECTION METHOD:
ON-LINE MEASUREMENTS, RECORDERS, D.A.S.

COMPONENTS: MCP

USEFULNESS OF DATA:
TRENDING OF PUMP PERFORMANCE CHANGES ASSOCIATED WITH INTERNALS, BEARINGS, SHAFT, MOTOR.

REMARKS:
IMPORTANT FOR PREDICTIVE MAINTENANCE DECISIONS.

DESCRIPTION OF DATA: LARGE MOTOR FIELD AND STATOR INSULATION RESISTANCE TEST (MEGGERING) RESULTS

TYPE OF DATA: SURVEILLANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 169

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
PERIODIC INSPECTIONS, AND TESTS AFTER MODIFICATION WORK

COMPONENTS: M/G

USEFULNESS OF DATA:
USED TO ASSESS PRESENT CONDITION OF INSULATION AND TREND RATE OF DEGRADATION.

REMARKS:
DATA CAN BE USED WITH AMPERAGE HISTORY TO PREDICT INSULATION LIFE.

DESCRIPTION OF DATA: FULL LOAD MOTOR INPUT CURRENTS

TYPE OF DATA: SURVEILLANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 170

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
PERIODIC MEASUREMENTS AND TESTS AFTER MODIFICATION. INDICATORS (CONTROL ROOM AND LOCAL), PLANT COMPUTER INPUT FOR SOME LARGE MOTORS.

COMPONENTS: M/G

USEFULNESS OF DATA:
PROVIDES OVERALL INDICATION OF CHANGE IN MOTOR PERFORMANCE.

REMARKS:
AMPERAGE WILL INCREASE BECAUSE OF BEARING WEAR, LUBRICANT DEGRADATION AND OTHER COMPONENT DEFICIENCIES. INCREASE IN AMPERAGE MAY ALSO RESULT FROM OTHER LOADS. THEREFORE, TERMINAL VOLTAGE AT MOTOR SHOULD BE RECORDED WHEN A HIGH CURRENT EXISTS.

DESCRIPTION OF DATA: CRD INSERTION TIMES

TYPE OF DATA: SURVEILLANCE SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 171

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: PWR

DATA COLLECTION METHOD:
FORMALIZED TEST PROCEDURES AND TEST RECORDS

COMPONENTS: HCU RPVI CRDM

USEFULNESS OF DATA:
TRENDING OF INSERTION TIMES PROVIDES EARLY INDICATION FOR CRD DEGRADATION.

REMARKS:
A UNIFORM DISTRIBUTION OF SLOWER INSERTION TIMES WOULD BE INDICATIVE OF AGE-RELATED DEGRADATION. SLOW INSERTION TIMES FOR ONLY SOME RODS MAY INDICATE OTHER THAN AGE-RELATED DEGRADATION.

DESCRIPTION OF DATA: ACCUMULATOR LEAKAGE ALARM OCCURENCES AND RELATED CORRECTIVE ACTION RECORDS

TYPE OF DATA: SURVEILLANCE SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 172

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
OPERATOR'S DAILY LOGS

COMPONENTS: HCU

USEFULNESS OF DATA:
TREND ACCUMULATOR PERFORMANCE AND DEGRADATION AS A GROUP.

REMARKS:
A PROGRESSIVE DECREASE IN PERIOD OF TIME BETWEEN ALARMS IS INDICATIVE OF O-RING DEGRADATION.

DESCRIPTION OF DATA: NDE RESULTS OF SMALL RADIUS STAINLESS STEEL PIPING (INSERT AND WITHDRAW LINES)

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 173

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BWR

DATA COLLECTION METHOD:
NDE INSPECTION RESULTS

COMPONENTS: HCU

USEFULNESS OF DATA:
ACQUISITION OF DATA IS REQUIRED TO VERIFY CONTINUED INTEGRITY OF IGSCC AFFECTED PIPING.

REMARKS:
METHOD TO DETECT IGSCC ON WELDS IN SMALL RADIUS PIPING IS YET TO BE DEVELOPED.

DESCRIPTION OF DATA: PRIMARY CONTAINMENT LOCAL LEAK RATE TEST (TYPE B) FREQUENCY, PRESSURES, LEAKAGE RATE

TYPE OF DATA: TEST SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 174

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
TEST REPORTS

COMPONENTS: PC

USEFULNESS OF DATA:
CONTRIBUTION OF FATIGUE USAGE OF PENETRATION ASSEMBLIES. TRENDING OF LEAKAGE RATES TO PREDICT WHERE ACCEPTANCE CRITERIA WILL BE EXCEEDED.

REMARKS:
TYPE B TESTS ARE REQUIRED PER 10CFR50 APPENDIX J.

DESCRIPTION OF DATA: VOLUMETRIC EXAMINATION OF SG NOZZLE INSIDE RADIUS REGION

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 175

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: PWR

DATA COLLECTION METHOD:
ISI RECORDS

COMPONENTS: SG

USEFULNESS OF DATA:
DETECT THE INITIATION OF NOZZLE CORNER FLAWS.

REMARKS:
INSIDE RADIUS REGIONS ARE SUBJECT TO HIGHER STRESS LEVELS THAN OTHER PORTIONS OF THE NOZZLE. EXTENDED GROWTH OF THESE FLAWS IN SERVICE CAN LEAD TO THROUGH WALL LEAKAGE OF REACTOR COOLANT FROM THE SG HEAD.

DESCRIPTION OF DATA: VISUAL INSPECTION OF STEAM DRYERS

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 176

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
ISI RECORDS

COMPONENTS: RPVI

USEFULNESS OF DATA:
IDENTIFICATION OF POTENTIAL IGSCC OR FATIGUE CRACKING.

REMARKS:
INSPECTION PER ASME SECTION XI.

DESCRIPTION OF DATA: VISUAL INSPECTION OF STEAM DRYER SUPPORT RING

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 177

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
ISI RECORDS

COMPONENTS: RPVI

USEFULNESS OF DATA:
IDENTIFICATION OF SCC DUE TO COLD WORK.

REMARKS:
INSPECTION PER ASME SECTION XI.

DESCRIPTION OF DATA: VISUAL INSPECTION OF STEAM SEPERATORS ALONG PERIMETER OF SHROUD HEAD

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 178

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
ISI RECORDS

COMPONENTS: RPVI

USEFULNESS OF DATA:
IDENTIFICATION OF SCC DUE TO THE COMBINATION OF WELD RESIDUAL STRESSES WITH POTENTIALLY SENSITIZED WELD HEAT AFFECTED ZONES AND CREVICE CONDITIONS.

REMARKS:
INSPECTION PER ASME SECTION XI.

DESCRIPTION OF DATA: VISUAL INSPECTION OF INTERNAL CORE SPRAY LINE

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 179

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
ISI RECORDS

COMPONENTS: RPVI

USEFULNESS OF DATA:
IDENTIFICATION OF IGSCC DUE TO WELD RESIDUAL STRESSES WITH POTENTIALLY SENSITIZED HEAT AFFECTED ZONES AND CREVICE CONDITION.

REMARKS:
INSPECTION PER IE BULLETIN 80-13. CURRENT INSPECTION IS EVERY TEN YEARS.

DESCRIPTION OF DATA: VISUAL INSPECTION OF CORE SPRAY SPARGER

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 180

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
ISI RECORDS

COMPONENTS: RPVI

USEFULNESS OF DATA:
IDENTIFICATION OF SCC DUE TO COLD WORK.

REMARKS:
INSPECTION PER IE BULLETIN 80-13. CURRENT INSPECTION FREQUENCY IS EVERY TEN YEARS.

DESCRIPTION OF DATA: UT EXAMINATION OF SHROUD SUPPORT ACCESS HOLE COVER

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 181

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BWR

DATA COLLECTION METHOD:
INSPECTION RECORDS

COMPONENTS: RPVI

USEFULNESS OF DATA:
ASSESS CURRENT CONDITION AND IDENTIFICATION OF POTENTIAL IGSCC IN WELDS AND HAZ.

REMARKS:
INSPECTION PER IE INFORMATION NOTICE 88-03.

DESCRIPTION OF DATA: UT EXAMINATION OF SHROUD HEAD BOLTS

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 182

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
ISI RECORDS

COMPONENTS: RPVI

USEFULNESS OF DATA:
IDENTIFICATION OF POTENTIAL IGSCC.

REMARKS:
INSPECTION PER ASME SECTION XI. INSPECTION FREQUENCY IS EVERY TEN YEARS.

DESCRIPTION OF DATA: VISUAL INSPECTION OF SHROUD HEAD

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 183

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
ISI RECORDS

COMPONENTS: RPVI

USEFULNESS OF DATA:
IDENTIFICATION OF POTENTIAL IGSCC.

REMARKS:
INSPECTION PER ASME SECTION XI. INSPECTION FREQUENCY IS EVERY TEN YEARS.

DESCRIPTION OF DATA: VISUAL INSPECTION OF FEEDWATER SPARGER

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 184

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
ISI RECORDS

COMPONENTS: RPVI

USEFULNESS OF DATA:
IDENTIFICATION OF CRACKING DUE TO THERMAL CYCLING.

REMARKS:
IN THE PILOT PLANT, A DECREASE IN FREQUENCY TO EVERY FOUR YEARS IS RECOMMENDED.

DESCRIPTION OF DATA: VISUAL INSPECTION OF SRM/IRM DRY TUBE

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 185

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
INSPECTION RECORDS

COMPONENTS: RPVI

USEFULNESS OF DATA:
IDENTIFICATION OF POTENTIAL IASCC OR CREVICE ASSISTED IGSCC.

REMARKS:
INSPECTION PERFORMED PER GE SIL 409 REV. 1.

DESCRIPTION OF DATA: VISUAL INSPECTION OF CONTROL BLADES

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 186

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
INSPECTION RECORDS

COMPONENTS: RPVI

USEFULNESS OF DATA:
IDENTIFICATION OF POTENTIAL IGSCC AGGRAVATED BY FLUENCE.

REMARKS:
NONE

DESCRIPTION OF DATA: VISUAL INSPECTION OF JET PUMP SENSING LINE

TYPE OF DATA: INSPECTIONN SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 187

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
ISI RECORDS

COMPONENTS: RPVI

USEFULNESS OF DATA:
EVALUATE POTENTIAL FOR FAILURE DUE TO HIGH CYCLE FATIGUE INDUCED BY JET PUMP DIFFUSER VIBRATION AND FLOW INDUCED VIBRATION.

REMARKS:
NONE

DESCRIPTION OF DATA: PRIMARY WATER CHLORIDE CONTENT

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 188

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: PWR

DATA COLLECTION METHOD:
GRAB SAMPLING AND ANALYSIS

COMPONENTS: RPV RPVI RCPBP

USEFULNESS OF DATA:
TO EVALUATE THE POTENTIAL FOR SCC OF AUSTENITIC MATERIALS.

REMARKS:
CHLORIDE INDUCED SCC OCCURS WHEN AUSTENITIC MATERIALS ARE EXPOSED TO CHLORIDE IONS IN THE PRESENCE OF OXYGEN IN HIGH TEMPERATURE WATER.

DESCRIPTION OF DATA: PRIMARY WATER FLOURIDE CONTENT

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 189

PILOT PLANT DATA COLLECTION: N PLANT TYPE: PWR

DATA COLLECTION METHOD:
GRAB SAMPLING AND ANALYSIS

COMPONENTS: RPV RPVI RCPBP

USEFULNESS OF DATA:
EVALUATE THE POTENTIAL FOR SCC OF AUSTENITIC STAINLESS STEELS.

REMARKS:
FLUORIDE INDUCED SCC OF AUSTENITIC STAINLESS STEELS IS LIMITED. MINIMIZING WILL ALSO MINIMIZE THE POTENTIAL CORROSION OF THE ZIRCALLOY FUEL CLADDING.

DESCRIPTION OF DATA: PRIMARY WATER SULPHUR CONTENT

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 190

PILOT PLANT DATA COLLECTION: N PLANT TYPE: PWR

DATA COLLECTION METHOD:
SAMPLING AND ANALYSIS

COMPONENTS: RPV

USEFULNESS OF DATA:
EVALUATE THE POTENTIAL OF SCC.

REMARKS:
PRIMARY SIDE SCC OF ALLOY 600 HAS BEEN ATTRIBUTED TO HIGH CONCENTRATIONS OF SULPHUR SPECIES. FOR SIMPLICITY, SULPHUR SPECIES SHOULD BE OXIDIZED AND ANALYZED AS SULPHATE.

DESCRIPTION OF DATA: PRIMARY WATER pH

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 191

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: PWR

DATA COLLECTION METHOD:
GRAB SAMPLING AND ANALYSIS

COMPONENTS: RPV RPVI RCPBP

USEFULNESS OF DATA:
EVALUATE POTENTIAL FOR GENERAL CORROSION AND STRESS CORROSION.

REMARKS:
WITHIN THE NORMAL RANGE ENCOUNTERED IN PWR SYSTEMS, pH VARIATIONS WOULD NOT BE EXPECTED TO HAVE ANY IMPACT ON SYSTEM INTEGRITY.

DESCRIPTION OF DATA: PRIMARY WATER SUSPENDED SOLIDS

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 192

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: PWR

DATA COLLECTION METHOD:
GRAB SAMPLING AND ANALYSIS

COMPONENTS: RPVI SG

USEFULNESS OF DATA:
EVALUATE THE POTENTIAL FOR CORROSION/EROSION.

REMARKS:
SUSPENDED SOLIDS INFLUENCE CORROSION BY ERODING OR ABRADING THE METAL SURFACE OR REMOVING PASSIVATED SURFACES.

DESCRIPTION OF DATA: CONDENSATE WATER CONDUCTIVITY

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 193

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
ON-LINE MONITORING
COMPONENTS: MC RPV RPVI RCPBP

USEFULNESS OF DATA:
EVALUATE PERFORMANCE ABNORMALITIES IN RESIN BATCHES, AND PROVIDE EVIDENCE OF CONDENSER LEAKAGE.

REMARKS:
PARAMETER SHOULD BE MONITORED AT CONDENSER HOTWELL, CONDENSATE PUMP DISCHARGE AND CONDENSATE STORAGE TANKS.

DESCRIPTION OF DATA: CONDENSATE WATER SODIUM CONTENT

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 194

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
GRAB SAMPLING AND ANALYSIS
COMPONENTS: MC

USEFULNESS OF DATA:
IDENTIFICATION OF CONDENSER INLEAKAGE AND POTENTIAL DEMINERALIZER PROBLEMS.

REMARKS:
PARAMETER SHOULD BE MONITORED AT CONDENSER HOTWELL, CONDENSATE PUMP DISCHARGE, AND POLISHED CONDENSATE. CATION CONDUCTIVITY CAN ALSO BE USED TO IDENTIFY CONDENSER INLEAKAGE, PARTICULARLY FOR SEAWATER PLANTS.

DESCRIPTION OF DATA: FEEDWATER OXYGEN CONTENT

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 195

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
ON-LINE, GRAB SAMPLING
COMPONENTS: RPV RPVI RCPBP

USEFULNESS OF DATA:
EVALUATE THE POTENTIAL FOR IGSCC AND CARBON STEEL PIPING CORROSION/EROSION.

REMARKS:
INCREASED LEVELS OF OXYGEN PROMOTE IGSCC. EXTEMELY LOW OXYGEN CONCENTRATIONS CONTRIBUTE TO EROSION/CORROSION OF CARBON STEEL PIPING.

DESCRIPTION OF DATA: REACTOR WATER SILICA CONTENT

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 196

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
CHEMISTRY DEPARTMENT RECORDS, SAMPLING AND ANALYSIS
COMPONENTS: RPV RPVI RCPBP

USEFULNESS OF DATA:
PROVIDES AN INDICATION OF THE EFFECTIVENESS OF THE REACTOR WATER CLEANUP SYSTEM, AND INDICATES RESIN INTRUSIONS.

REMARKS:
NONE

DESCRIPTION OF DATA: REACTOR WATER SULPHATE CONTENT

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 197

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
CHEMISTRY DEPARTMENT RECORDS, SAMPLING AND ANALYSIS
COMPONENTS: RPV RPVI RCPBP

USEFULNESS OF DATA:
EVALUATE THE POTENTIAL FOR IGSCC.

REMARKS:
INTRODUCTION OF SULPHATES RESULTS FROM COOLING WATER INLEAKAGE AND RESIN INGRESS.

DESCRIPTION OF DATA: REACTOR WATER FLUORIDE CONTENT

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 198

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BWR

DATA COLLECTION METHOD:
SAMPLING AND ANALYSIS
COMPONENTS: RPV RPVI RCPBP

USEFULNESS OF DATA:
EVALUATE THE POTENTIAL FOR SCC.

REMARKS:
FLUORIDES ENTER THE REACTOR AS A RESULT OF RESIN RELEASES FROM THE DEMINERALIZER SYSTEMS OR FROM CONDENSER LEAKS.

DESCRIPTION OF DATA: CRACK ARREST VERIFICATION SYSTEM RESULTS

TYPE OF DATA: SURVEILLANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 199

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BWR

DATA COLLECTION METHOD:
TEST RESULTS, R&D PROGRAMS

COMPONENTS: RPVI

USEFULNESS OF DATA:
PROVIDES A DIRECT INDICATION OF THE PLANT UNIQUE CONDITIONS FOR IGSCC.

REMARKS:
MONITOR ELECTROCHEMICAL POTENTIAL FOR STAINLESS STEEL AND OTHER REACTOR INTERNAL MATERIALS IN THE BWR ENVIRONMENT.

DESCRIPTION OF DATA: REACTOR WATER CARBONATE CONTENT

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 200

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
SAMPLING AND ANALYSIS

COMPONENTS: RPV RPVI RCPBP

USEFULNESS OF DATA:
EVALUATE THE POTENTIAL IGSCC

REMARKS:
CARBONATE ACCELERATES THE EFFECTS OF IGSCC OF SENSITIZED STAINLESS STEEL. ROUTINE ANALYSIS TECHNIQUES WITH REQUIRED SENSITIVITY HAVE NOT BEEN DEVELOPED YET.

DESCRIPTION OF DATA: CONDENSATE OXYGEN CONTENT

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 201

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
ON-LINE MONITORING, GRAB SAMPLE AND ANALYSIS

COMPONENTS: MC

USEFULNESS OF DATA:
EVALUATE THE POTENTIAL FOR IGSCC AND EROSION/CORROSION OF CARBON STEEL SYSTEMS.

REMARKS:
PARAMETER SHOULD BE MONITORED AT CONDENSATE PUMP DISCHARGE AND POLISHED CONDENSATE.

DESCRIPTION OF DATA: REACTOR WATER CLEANUP INLET AND OUTLET CONDUCTIVITY

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 202

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
ON-LINE MONITORING

COMPONENTS: RPVI RPV

USEFULNESS OF DATA:
ASSURES A HIGH LEVEL OF RWCU PERFORMANCE.

REMARKS:
NONE

DESCRIPTION OF DATA: REACTOR WATER CLEANUP WATER INLET AND OUTLET ISOTOPICS

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 203

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BWR

DATA COLLECTION METHOD:
SAMPLING AND ANALYSIS

COMPONENTS: RPV RPVI

USEFULNESS OF DATA:
ASSURES A HIGH LEVEL OF RWCU PERFORMANCE

REMARKS:
NONE

DESCRIPTION OF DATA: REACTOR WATER CLEANUP WATER SILICA CONTENT

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 204

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
GRAB SAMPLING AND ANALYSIS

COMPONENTS: RPVI RPV

USEFULNESS OF DATA:
VALUABLE INDICATION OF THE EFFECTIVENESS OF THE RWCU SYSTEM.

REMARKS:
NONE

DESCRIPTION OF DATA: REACTOR WATER SODIUM CONTENT

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 205

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BWR

DATA COLLECTION METHOD:
GRAB SAMPLING AND ANALYSIS
COMPONENTS: RPV RPVI RCPBP

USEFULNESS OF DATA:
IDENTIFICATION OF DEMINERALIZER SYSTEM PROBLEMS, CONDENSER LEAKAGE FOR SEAWATER PLANTS.

REMARKS:
NONE

DESCRIPTION OF DATA: REACTOR WATER pH

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 206

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
SAMPLING AND ANALYSIS
COMPONENTS: RPV RPVI RCPBP

USEFULNESS OF DATA:
EVALUATE POTENTIAL FOR IGSCC.

REMARKS:
pH HAS BEEN DEMONSTRATED TO HAVE AN IMPORTANT INFLUENCE ON IGSCC INITIATION, BUT IS VERY DIFFICULT TO ACCURATELY MEASURE. THERE IS A CORRELATION OF pH TO EROSION/CORROSION OF CARBON STEEL PIPING MATERIALS.

DESCRIPTION OF DATA: DRYWELL SAND POCKET MATERIAL TEST

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 207

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BWR

DATA COLLECTION METHOD:
NOT NORMALLY COLLECTED, BUT WAS COLLECTED IN RESPONSE TO NRC GENERIC LETTER 87-05.
COMPONENTS: PC

USEFULNESS OF DATA:
EVALUATE THE POTENTIAL FOR MICROBIOLOGICALLY INDUCED CORROSION, PRESENCE OF CHLORIDES, CORROSION PRODUCTS TO DETERMINE EFFECTS ON CONTAINMENT SHELL.

REMARKS:
NONE

DESCRIPTION OF DATA: CRD COOLING WATER CONDUCTIVITY

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 208

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
GRAB SAMPLING AND ANALYSIS OR ON-LINE MONITORING

COMPONENTS: HCU

USEFULNESS OF DATA:
EVALUATE THE POTENTIAL FOR SCC OF THE CRD.

REMARKS:
CONDUCTIVITY LEVELS SHOULD BE MAINTAINED AS LOW AS POSSIBLE.

DESCRIPTION OF DATA: CRD COOLING WATER OXYGEN CONTENT

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 209

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
GRAB SAMPLING AND ANALYSIS, OR ON-LINE MONITORING

COMPONENTS: HCU

USEFULNESS OF DATA:
EVALUATE THE POTENTIAL FOR CORROSION OF CRD MATERIAL.

REMARKS:
CONFORMANCE CAN BE SATISFIED BY REFERENCE TO THE FEEDWATER MONITOR PROVIDED CRD WATER IS CONFIRMED TO POLISHED CONDENSATE.

DESCRIPTION OF DATA: SUPPRESSION POOL WATER CONDUCTIVITY

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 210

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
SAMPLING AND ANALYSIS

COMPONENTS: PC

USEFULNESS OF DATA:
ASSESSMENT OF THE POTENTIAL FOR SUPPRESSION CHAMBER COATING DAMAGE AND CORROSION OF THE SUPPRESSION CHAMBER SURFACE.

REMARKS:
SOME PLANTS MAY HAVE TORUS WATER MANAGEMENT SYSTEMS. IN OTHER PLANTS, TORUS WATER MAY BE SAMPLED FROM PIPING TAPS.

DESCRIPTION OF DATA: SUPPRESSION POOL WATER pH

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 211

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
SAMPLING AND ANALYSIS

COMPONENTS: PC

USEFULNESS OF DATA:
ASSESSMENT OF THE POTENTIAL FOR SUPPRESSION CHAMBER COATING DAMAGE AND CORROSION OF THE SUPPRESSION CHAMBER.

REMARKS:
SOME PLANTS HAVE TORUS WATER MANAGEMENT SYTEMS. IN OTHER PLANTS, TORUS WATER MAY BE SAMPLED FROM PIPING TAPS.

DESCRIPTION OF DATA: SUPPRESSION POOL OXYGEN CONTENT

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 212

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BWR

DATA COLLECTION METHOD:
SAMPLING AND ANALYSIS

COMPONENTS: PC

USEFULNESS OF DATA:
EVALUATE THE POTENTIAL FOR CORROSION.

REMARKS:
NONE

DESCRIPTION OF DATA: SECONDARY WATER SPECIFIC CONDUCTIVITY

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 213

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: PWR

DATA COLLECTION METHOD:
ON-LINE MONITORING, GRAB SAMPLING AND ANALYSIS

COMPONENTS: SG MC TURB

USEFULNESS OF DATA:
EVALUATE THE POTENTIAL FOR SCC AND EROSION/CORROSION OF CARBON STEEL SYSTEMS AND CONDENSER LEAKAGE INDICATION.

REMARKS:
THIS PARAMETER SHOULD BE MONITORED IN THE FOLLOWING LOCATIONS: FEEDWATER, MAIN STEAM, CONDENSATE PUMP DISCHARGE, BLOWDOWN, MAKEUP, AUXILIARY FEEDWATER.

DESCRIPTION OF DATA: SECONDARY WATER CATION CONDUCTIVITY

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 214

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: PWR

DATA COLLECTION METHOD:
ON-LINE MONITORING, GRAB SAMPLING AND ANALYSIS

COMPONENTS: SG MC TURB

USEFULNESS OF DATA:
INDICATE THE TOTAL APPROXIMATE LEVEL OF ANIONIC IMPURITIES WHICH MAY INDUCE SCC.

REMARKS:
THIS PARAMETER SHOULD BE MONITORED IN THE FOLLOWING LOCATIONS: FEEDWATER, MAIN STEAM, CONDENSATE PUMP DISCHARGE, MAKEUP, HEATER DRAINS, AND AUXILIARY FEEDWATER.

DESCRIPTION OF DATA: SECONDARY WATER OXYGEN CONTENT

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 215

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: PWR

DATA COLLECTION METHOD:
ON-LINE MONITORING, GRAB SAMPLING AND ANALYSIS

COMPONENTS: SG MC TURB

USEFULNESS OF DATA:
EVALUATE THE POTENTIAL FOR EROSION/CORROSION AND IGSCC OF CS PIPING AND COMPONENTS.

REMARKS:
THIS PARAMETER SHOULD BE MONITORED IN THE FOLLOWING LOCATIONS: FEEDWATER, MAIN STEAM, CONDENSATE PUMP DISCHARGE, MAKEUP, HEATER DRAINS.

DESCRIPTION OF DATA: SECONDARY WATER pH

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 216

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: PWR

DATA COLLECTION METHOD:
ON-LINE MONITORING, GRAB SAMPLE AND ANALYSIS

COMPONENTS: SG MC TURB

USEFULNESS OF DATA:
EVALUATE THE POTENTIAL FOR IGSCC AND EROSION/CORROSION.

REMARKS:
THE PARAMETER SHOULD BE MONITORED IN THE FOLLOWING LOCATIONS: FEEDWATER, MAIN STEAM, CONDENSATE PUMP DISCHARGE, BLOWDOWN, MAKEUP.

DESCRIPTION OF DATA: SECONDARY WATER HYDRAZINE CONTENT

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 217

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: PWR

DATA COLLECTION METHOD:
ON-LINE MONITORING, GRAB SAMPLING AND ANALYSIS

COMPONENTS: SG

USEFULNESS OF DATA:
EVALUATE THE POTENTIAL FOR EROSION/CORROSION.

REMARKS:
HYDRAZINE WILL REACT WITH DISSOLVED OXYGEN. THIS REACTION IS SLOW AT LOW TEMP. THEREFORE, A LARGE FRACTION OF THE OXYGEN PRESENT WILL REACT WITH FEEDTRAIN METAL SURFACES FORMING CORROSION. PARAMETER SHOULD BE MONITORED IN THE FEEDWATER AND MAIN STEAM.

DESCRIPTION OF DATA: SECONDARY WATER SODIUM CONTENT

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 218

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: PWR

DATA COLLECTION METHOD:
ON-LINE MONITORING, GRAB SAMPLING AND ANALYSIS

COMPONENTS: SG MC TURB

USEFULNESS OF DATA:
IDENTIFICATION OF CONDENSER IN-LEAKAGE AND POTENTIAL DEMINERALIZER PROBLEMS.

REMARKS:
THE PARAMETER SHOULD BE MONITORED IN THE FOLLOWING LOCATIONS: FEEDWATER, MAIN STEAM, CONDENSATE PUMP DISCHARGE, AND BLOWDOWN.

DESCRIPTION OF DATA: SECONDARY WATER CHLORIDE CONTENT

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 219

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: PWR

DATA COLLECTION METHOD:
ON-LINE MONITORING, GRAB SAMPLING AND ANALYSIS

COMPONENTS: MC SG TURB

USEFULNESS OF DATA:
IDENTIFICATION OF CONDENSER IN-LEAKAGE, AND EVALUATE THE POTENTIAL FOR SCC AND PITTING/CORROSION.

REMARKS:
THE PARAMETER SHOULD BE MONITORED IN THE FOLLOWING LOCATIONS: FEEDWATER, MAIN STEAM, CONDENSATE PUMP DISCHARGE, BLOWDOWN.

DESCRIPTION OF DATA: STATOR COOLING WATER COPPER CONTENT

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 220

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
SAMPLING AND ANALYSIS OF WATER

COMPONENTS: M/G

USEFULNESS OF DATA:
IDENTIFICATION OF GENERATOR HOLLOW WINDINGS EROSION.

REMARKS:
NONE

DESCRIPTION OF DATA: VISUAL INSPECTION OF POST TENSIONED CONCRETE CONTAINMENT STRUCTURES

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 221

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
INSPECTION REPORTS

COMPONENTS: PC

USEFULNESS OF DATA:
TRACKING OF PRE-STRESS LOSSES, BROKEN WIRES, FAILED BUTTONHEADS, ETC. WILL PROVIDE AN ASSESSMENT OF DEGRADATION.

REMARKS:
ISI REQUIREMENTS FOR CONCRETE CONTAINMENT STRUCTURES (ASME SECTION XI, ARTICLE IWL) HAVE NOT BEEN ISSUED OR ENDORSED BY 10CFR50.55 TO DATE. CURRENTLY PERFORMED UNDER REG. GUIDE NO. 1-1.35.

DESCRIPTION OF DATA: REACTOR POWER LEVEL

TYPE OF DATA: TRANSIENT SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 222

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
STRIP CHARTS, RECORDS, COMPUTERS

COMPONENTS: RPV RPVI

USEFULNESS OF DATA:
EVALUATE SEVERITY OF TRANSIENT EVENTS COMPARED TO DESIGN EVENT SPECIFICATIONS FOR LIMITING LOCATIONS FOR VESSEL, NOZZLES, RC PIPING. ESTIMATION OF NEUTRON FLUX VS TIME.

REMARKS:
NONE

DESCRIPTION OF DATA: RECIRCULATION FLOW RATE

TYPE OF DATA: TRANSIENT SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 223

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
STRIP CHARTS

COMPONENTS: RPV RCPBP

USEFULNESS OF DATA:
EVALUATE SEVERITY OF TRANSIENT EVENTS COMPARED TO DESIGN EVENT SPECIFICATIONS FOR LIMITING LOCATIONS FOR VESSEL, NOZZLES, AND RC PIPING. CHARACTERIZATION MAY BE NECESSARY IF THE NUMBER OF TRACKED EVENTS IS PREDICTED TO APPROACH DESIGN FREQUENCIES.

REMARKS:
NONE

DESCRIPTION OF DATA: FEEDWATER FLOW RATE AND TEMPERATURE

TYPE OF DATA: TRANSIENT SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 224

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
STRIP CHARTS

COMPONENTS: RPV RCPBP

USEFULNESS OF DATA:
EVALUATE SEVERITY OF TRANSIENT COMPARED TO DESIGN EVENTS SPECIFICATIONS FOR LIMITING LOCATIONS FOR VESSEL, NOZZLES, AND RC PIPING. CHARACTERIZATON MAY BE NECESSARY IF THE NUMBER OF TRACKED EVENTS IS PREDICTED.

REMARKS:
NONE

DESCRIPTION OF DATA: MS FLOW RATE AND TEMPERATURE

TYPE OF DATA: TRANSIENT SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 225

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
STRIP CHARTS

COMPONENTS: RPV RCPBP

USEFULNESS OF DATA:
EVALUATE SEVERITY OF TRANSIENT EVENTS COMPARED TO DESIGN EVENT SPECFICATIONS FOR LIMITING LOCATIONS FOR VESSEL, NOZZLES, AND RC PIPING. CHARACTERIZATION MAY BE NECESSARY IF THE NUMBER OF TRACKED EVENTS IS PREDICTED TO APPROACH DESIGN FREQUENCIES.

REMARKS:
NONE

DESCRIPTION OF DATA: REACTOR COOLANT SYSTEM LOOP FLOWS

TYPE OF DATA: TRANSIENT SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 226

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: PWR

DATA COLLECTION METHOD:
STRIP CHARTS

COMPONENTS: RPV RCPBP

USEFULNESS OF DATA:
EVALUATE SEVERITY OF TRANSIENT EVENTS COMPARED TO DESIGN SPECIFICATIONS FOR LIMITING LOCATIONS FOR VESSEL, NOZZLES, AND RC PIPING. CHARACTERIZATION MAY BE NECESSARY IF THE NUMBER OF TRACKED EVENTS IS PREDICTED TO APPROACH DESIGN FREQUENCIES.

REMARKS:
NONE

DESCRIPTION OF DATA: REACTOR COOLANT PUMP BREAKER STATUS

TYPE OF DATA: TRANSIENT SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 227

PILOT PLANT DATA COLLECTION: N PLANT TYPE: PWR

DATA COLLECTION METHOD:
IT WAS NOT DETERMINED WHETHER THE DATA WAS COLLECTED AT THE PILOT PLANTS.

COMPONENTS: RPV

USEFULNESS OF DATA:
EVALUATE SEVERITY OF TRANSIENT EVENTS COMPARED TO DESIGN EVENT SPECIFICATIONS FOR LIMITING LOCATIONS FOR VESSEL. CHARACTERIZATION MAY BE NECESSARY IF THE NUMBER OF TRACKED EVENTS IS PREDICTED TO APPROACH DESIGN FREQUENCIES.

REMARKS:
NONE

DESCRIPTION OF DATA: SAFETY INJECTION FLOW

TYPE OF DATA: TRANSIENT SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 228

PILOT PLANT DATA COLLECTION: N PLANT TYPE: PWR

DATA COLLECTION METHOD:
IT WAS NOT DETERMINED WHETHER THE DATA WAS COLLECTED AT THE PILOT PLANTS.

COMPONENTS: RPV

USEFULNESS OF DATA:
EVALUATE SEVERITY OF TRANSIENT EVENTS COMPARED TO DESIGN EVENT SPECIFICATIONS FOR LIMITING LOCATIONS FOR VESSEL, NOZZLES, AND RC PIPING. CHARACTERIZATION MAY BE NECESSARY IF THE NUMBER AND SEVERITY OF TRACKED EVENTS IS PREDICTED TO APPROACH DESIGN FREQUENCIES.

REMARKS:
NONE

DESCRIPTION OF DATA: BELTLINE MATERIAL SURVEILLANCE PROGRAM RESULTS

TYPE OF DATA: MATERIAL SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 229

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
TEST RESULTS

COMPONENTS: RPV

USEFULNESS OF DATA:
TRENDING AND PROJECTING OF RTNDT SHIFT AND UPPER SHELF ENERGY (USE).

REMARKS:
NONE

DESCRIPTION OF DATA: LOOSE PARTS MONITORING PROGRAM RESULTS

TYPE OF DATA: SURVEILLANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 230

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
SAFETY EVALUATION REPORT, LER'S, OPERATOR LOG

COMPONENTS: RPVI

USEFULNESS OF DATA:
POTENTIAL ON-LINE INDICATION OF DEGRADED INTERNAL COMPONENTS.

REMARKS:
NONE

DESCRIPTION OF DATA: RADIATION FIELD TRENDS

TYPE OF DATA: SURVEILLANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 231

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
HEALTH PHYSICS DEPT.

COMPONENTS: RPV RPVI RCPBP

USEFULNESS OF DATA:
RADIATION BUILDUP IMPACTS PLEX MONITORING AND REFURBISHMENTS.

REMARKS:
NONE

DESCRIPTION OF DATA: VESSEL STUD TENSIONING NON-CONFORMANCE DISPOSITIONS

TYPE OF DATA: SURVEILLANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 232

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
SAFETY EVALUATION REPORTS

COMPONENTS: RPV

USEFULNESS OF DATA:
POTENTIAL EVALUATION OF A FATIGUE EVENT TO BE CONSIDERED IN TRACKED EVENT RECONCILIATION.

REMARKS:
NONE

DESCRIPTION OF DATA: TRACKING OF SG EVENT CYCLES

TYPE OF DATA: CYCLE SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 233

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: PWR

DATA COLLECTION METHOD:
OPERATOR LOGS, CYCLE LOGS

COMPONENTS: SG

USEFULNESS OF DATA:
COMPARISON OF NUMBER OF EVENTS TO THE "ALLOWED" NUMBER WILL DETERMINE THE NEED FOR MORE RIGOROUS FATIGUE EVALUATIONS.

REMARKS:
TYPE AND NUMBER OF EVENTS ARE DEFINED IN COMPONENT DESIGN SPECIFICATIONS AS REFLECTED IN THE SAR AND TECH SPEC DESCRIPTIONS. TYPICAL EVENTS ARE LISTED IN TABLE 3 AND DEPEND ON VENDOR AND AGE.
CONTRIBUTION TO THE PREDICTED FATIGUE USAGE MUST BE DETERMINED FROM DESIGN ANALYSIS DOCUMENTS.

DESCRIPTION OF DATA: STEAM GENERATOR INLET TEMPERATURE

TYPE OF DATA: TRANSIENT SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 234

PILOT PLANT DATA COLLECTION: N PLANT TYPE: PWR

DATA COLLECTION METHOD:
IT WAS NOT DETERMINED WHETHER THE DATA WAS COLLECTED AT THE PILOT PLANTS.

COMPONENTS: SG

USEFULNESS OF DATA:
EVALUATE SEVERITY OF TRANSIENT EVENTS COMPARED TO DESIGN EVENT SPECIFICATIONS FOR LIMITING LOCATIONS FOR STEAM GENERATOR. CHARACTERIZATION MAY BE NECESSARY IF THE NUMBER OF TRACKED EVENTS IS PREDICTED TO APPROACH DESIGN FREQUENCIES.

REMARKS:
NONE

DESCRIPTION OF DATA: OCCURRENCE OF UNUSUAL EVENTS OF CABLE SUBMERGENCE, CHEMICAL EXPOSURE, EXCESSIVE HEAT, POWER SURGES AND SIMILAR INCIDENTS

TYPE OF DATA: ABNORMAL SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 235

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
CABLE MAINTENANCE WORK ORDERS, LERS, EVENT REPORTS, INSPECTION REPORTS

COMPONENTS: CABLE

USEFULNESS OF DATA:
MONITORING AND TRENDING OF THIS DATA WILL AID IN EVALUATING THE NEED FOR CABLE REPLACEMENT, OR TO JUSTIFY THEIR CONTINUED OPERABILITY AND INTEGRITY UNDER ACCIDENT CONDITIONS.

REMARKS:
NONE

DESCRIPTION OF DATA: COMPONENT COOLING WATER SYSTEM CHEMISTRY ANALYSIS RESULTS

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 236

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: PWR

DATA COLLECTION METHOD:
GRAB SAMPLING AND ANALYSIS

COMPONENTS:

USEFULNESS OF DATA:

REMARKS:

DESCRIPTION OF DATA: FUEL POOL WATER CHEMISTRY ANALYSIS RESULTS

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 237

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
GRAB SAMPLING AND ANALYSIS

COMPONENTS:

USEFULNESS OF DATA:

REMARKS:

DESCRIPTION OF DATA: REACTOR MAKE-UP WATER STORAGE TANKS FLUID CHEMISTRY ANALYSIS

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 238

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
GRAB SAMPLING AND ANALYSIS

COMPONENTS:

USEFULNESS OF DATA:

REMARKS:

DESCRIPTION OF DATA: CONDENSATE STORAGE TANK CHEMISTRY ANALYSIS RESULTS

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 239

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
GRAB SAMPLING AND ANALYSIS

COMPONENTS:

USEFULNESS OF DATA:

REMARKS:

DESCRIPTION OF DATA: RBCCW CHEMISTRY ANALYSIS RESULTS

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 240

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
GRAB SAMPLING AND ANALYSIS

COMPONENTS:

USEFULNESS OF DATA:

REMARKS:

DESCRIPTION OF DATA: TBCCW CHEMISTRY ANALYSIS RESULTS

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 241

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BWR

DATA COLLECTION METHOD:
GRAB SAMPLING AND ANALYSIS

COMPONENTS:

USEFULNESS OF DATA:

REMARKS:

DESCRIPTION OF DATA: DIELECTRIC ABSORPTION TEST OF ROTOR WINDINGS

TYPE OF DATA: TEST SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 242

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
TEST RESULTS PACKAGE

COMPONENTS: M/G

USEFULNESS OF DATA:
DETERMINE OVERALL CONDITION OF GENERATOR ROTOR WINDING TO ASSESS LIFE EXPECTANCY.

REMARKS:
WINDING SUBJECT TO MECHANICAL WEAR AND INSULATION SUBJECT TO DEGRADATION DUE TO AGING.
THIS DATA USED IN CONJUNCTION WITH SEQUENCE NOS 119, 243, 244, 245 TO EVALUATE ROTOR WINDING COND.

DESCRIPTION OF DATA: 60 HZ WINDING IMPEDENCE TEST OF ROTOR WINDINGS

TYPE OF DATA: TEST SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 243

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
TEST RESULTS PACKAGE

COMPONENTS: M/G

USEFULNESS OF DATA:
DETERMINE OVERALL CONDITION OF GENERATOR ROTOR WINDING TO ASSESS LIFE EXPECTANCY.

REMARKS:
WINDING SUBJECT TO MECHANICAL WEAR AND INSULATION SUBJECT TO DEGRADATION DUE TO AGING.
THIS DATA USED IN CONJUNCTION WITH SEQUENCE NOS 119, 242, 244, 245 TO EVALUATE ROTOR WINDING COND.

DESCRIPTION OF DATA: HIGH POTENTIAL TEST OF ROTOR WINDINGS

TYPE OF DATA: TEST SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 244

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
TEST RESULTS PACKAGE

COMPONENTS: M/G

USEFULNESS OF DATA:
DETERMINE OVERALL CONDITION OF GENERATOR ROTOR WINDING TO ASSESS LIFE EXPECTANCY.

REMARKS:
WINDING SUBJECT TO MECHANICAL WEAR AND INSULATION SUBJECT TO DEGRADATION DUE TO AGING.
THIS DATA USED IN CONJUNCTION WITH SEQUENCE NOS 119, 242, 243, 245 TO EVALUATE ROTOR WINDING COND.

DESCRIPTION OF DATA: POWER FACTOR TEST OF ROTOR WINDINGS

TYPE OF DATA: TEST SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 245

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
TEST RESULTS PACKAGE

COMPONENTS: M/G

USEFULNESS OF DATA:
DETERMINE OVERALL CONDITION OF GENERATOR ROTOR WINDING TO ASSESS LIFE EXPECTANCY.

REMARKS:
WINDING SUBJECT TO MECHANICAL WEAR AND INSULATION SUBJECT TO DEGRADATION DUE TO AGING.
THIS DATA USED IN CONJUNCTION WITH SEQUENCE NOS 119, 242, 243, 244 TO EVALUATE ROTOR WINDING COND.

DESCRIPTION OF DATA: TURBINE/GENERATOR SPEED

TYPE OF DATA: TRANSIENT SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 246

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
CYCLE LOGS, TRIP REPORTS, PLANT COMPUTERS

COMPONENTS: TURB M/G

USEFULNESS OF DATA:
TURBINE/GENERATOR RESPONSE DATA AND TRENDING TO DETECT DEGRADATION CAUSED BY AGING OF TURBINE, CONTROL EQUIPMENT, AND GENERATOR.

REMARKS:
NONE

DESCRIPTION OF DATA: CIRCULATING WATER TURBIDITY RESULTS (DISSOLVED AND UNDISSOLVED SOLIDS)

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 247

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
PERIODIC GRAB SAMPLING

COMPONENTS: MC

USEFULNESS OF DATA:
EVALUATION OF THE POTENTIAL FOR EROSION/CORROSION OF WATER BOXES, TUBESHEETS, AND TUBES

REMARKS:
NONE

DESCRIPTION OF DATA: BORESONIC INSPECTION RESULTS OF THE ROTOR SHAFT

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 248

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
TEN YEAR INSPECTION RESULTS

COMPONENTS: M/G

USEFULNESS OF DATA:
IDENTIFY POTENTIAL SCC.

REMARKS:
NONE

DESCRIPTION OF DATA: GENERATOR RADIO FREQUENCY SIGNAL MONITORING DATA

TYPE OF DATA: SURVEILLANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 249

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
RADIO FREQUENCY DETECTOR

COMPONENTS: M/G

USEFULNESS OF DATA:
DETECT CONDITIONS INDICATING POTENTIAL FAILURE OF CONDUCTORS AND INSULATION.

REMARKS:
NONE

DESCRIPTION OF DATA: HUMIDITY LEVEL IN STATOR CASING

TYPE OF DATA: SURVEILLANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 250

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
HUMIDITY INDICATION MONITORING SYSTEM

COMPONENTS: M/G

USEFULNESS OF DATA:
EVALUATE THE POTENTIAL FOR DEGRADATION OF THE GENERATOR WINDING INSULATION AS A RESULT OF EXCESS MOISTURE IN THE HYDROGEN COOLING GAS.

REMARKS:
NONE

DESCRIPTION OF DATA: CRDM LATCH HOUSING TEMPERATURE

TYPE OF DATA: TRANSIENT SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 251

PILOT PLANT DATA COLLECTION: N PLANT TYPE: PWR

DATA COLLECTION METHOD:
TEMPERATURE MONITORING SYSTEM

COMPONENTS: CRDM

USEFULNESS OF DATA:
EVALUATE THE POTENTIAL FOR THERMAL EMBRITTLEMENT.

REMARKS:
THERMAL EMBRITTLEMENT IS ONLY A CONCERN FOR CAST LATCH HOUSINGS.

DESCRIPTION OF DATA: LP TURBINE CASING INSPECTION

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 252

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
INSPECTION RESULTS PACKAGE

COMPONENTS: TURB

USEFULNESS OF DATA:
DETECTION OF ONSET OF FATIQUE CRACKING TO ALLOW CORRECTIVE ACTION.

REMARKS:
NONE

DESCRIPTION OF DATA: CIRCULATING WATER SULFATE CONTENT

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 253

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
PERIODIC GRAB SAMPLING AND ANALYSIS

COMPONENTS: MC

USEFULNESS OF DATA:
EVALUATION OF THE POTENTIAL FOR CORROSION OF WATER BOXES, TUBESHEETS, AND TUBES.

REMARKS:
SULPHATES CAN CAUSE PITTING OF COPPER ALLOY TUBESHEETS

DESCRIPTION OF DATA: CIRCULATING WATER MICROBIOLOGICAL ASSAY CONTENT

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 254

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
PERIODIC GRAB SAMPLING AND ANALYSIS

COMPONENTS: MC

USEFULNESS OF DATA:
EVALUATION OF THE POTENTIAL FOR CORROSION OF WATER BOXES, TUBESHEETS, AND TUBES.

REMARKS:
MICROBIOLOGICAL ASSAY MAY ALSO LEAD TO TUBE/TUBESHEET BLOCKAGE.

DESCRIPTION OF DATA: MAIN COOLANT PUMP MAINTENANCE RECORDS

TYPE OF DATA: MAINTENANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 255

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: PWR

DATA COLLECTION METHOD:
MAINTENANCE CARDS, LOGS, WORK ORDERS

COMPONENTS: MCP

USEFULNESS OF DATA:
IDENTIFICATION AND EVALUATION OF RECURRING ACTIVITIES PROVIDES INPUT TO SERVICE LIFE.

REMARKS:
NONE

DESCRIPTION OF DATA: MAIN COOLANT PUMP COMPONENT REPAIR AND REPLACEMENT RECORDS

TYPE OF DATA: MAINTENANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 256

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: PWR

DATA COLLECTION METHOD:
MAINTENANCE WORK REQUESTS, REPLACEMENT/REPAIR RECORDS

COMPONENTS: MCP

USEFULNESS OF DATA:
TRENDING WILL AID IN ASSESSING SERVICE LIFE OF PUMP AND PUMP COMPONENTS.

REMARKS:
NONE

DESCRIPTION OF DATA: BOAT SAMPLE ANALYSIS RESULTS OF MC PUMP CASING (NOTCH TOUGHNESS AND OTHER METALLURGIC TESTS)

TYPE OF DATA: MATERIAL/TEST SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 257

PILOT PLANT DATA COLLECTION: N PLANT TYPE: PWR

DATA COLLECTION METHOD:
TEST RESULTS PACKAGE

COMPONENTS: MCP

USEFULNESS OF DATA:
PROVIDE METALLURGICAL DATA TO SUPPORT LIFE PREDICTION IN A REGULATORY ENVIRONMENT.

REMARKS:
THIS DATA NEEDS TO BE COLLECTED ONLY ONCE. THE BOAT SAMPLE SHOULD BE TAKEN CLOSE TO, BUT PRIOR TO THE END OF THE DESIGN LIFE.

DESCRIPTION OF DATA: MC PUMP CASING FERRITE CONTENT TEST RESULTS

TYPE OF DATA: TEST SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 258

PILOT PLANT DATA COLLECTION: N PLANT TYPE: PWR

DATA COLLECTION METHOD:
FERRITE METER

COMPONENTS: MCP

USEFULNESS OF DATA:
COMPARING ACTUAL FERRITE CONTENT TO THE PREDICTED VALUE WILL VERIFY THAT THERMAL EMBRITTLEMENT IS OR IS NOT A LIFE EXTENSION CONCERN.

REMARKS:
THERMAL EMBRITTLEMENT OF 304 STAINLESS STEEL CASTINGS IS DEPENDENT UPON FERRITE CONTENT.

DESCRIPTION OF DATA: DIMENSIONAL CHECK RESULTS OF THE CRITICAL FIT AREAS AND THE GASKET SURFACES OF THE CASINGS

TYPE OF DATA: SURVEILLANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 259

PILOT PLANT DATA COLLECTION: N PLANT TYPE: PWR

DATA COLLECTION METHOD:
INSPECTION RESULTS PACKAGE

COMPONENTS: MCP

USEFULNESS OF DATA:
COMPARISON WITH PRESERVICE CONDITION OF CASING WILL AID IN IDENTIFICATION OF CREEP.

REMARKS:
OVER LONG PERIODS OF STRESS AND TEMPERATURE, THE TIGHT ASSEMBLY CLEARANCES OF THE CASING WILL SLIGHTLY DESTORT.

DESCRIPTION OF DATA: TUBE PLUGGING RECORDS

TYPE OF DATA: MAINTENANCE SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 260

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: PWR

DATA COLLECTION METHOD:
MAINTENANCE WORK REQUESTS, WORK ORDERS, RECORDS

COMPONENTS: SG

USEFULNESS OF DATA:
CHARACTERIZES TUBE FAILURE PATTERNS AND AREAS OF HIGH FAILURE POTENTIAL.

REMARKS:
NONE

DESCRIPTION OF DATA: BORIC ACID CONCENTRATION OF REACTOR COOLANT

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 261

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: PWR

DATA COLLECTION METHOD:
SAMPLING AND ANALYSIS, ON-LINE

COMPONENTS: SG

USEFULNESS OF DATA:
EVALUATE THE POTENTIAL DEGRADATION OF THE PRIMARY (TUBE) SIDE OF THE SG.

REMARKS:
NONE

DESCRIPTION OF DATA: SG REPAIR AND REPLACEMENT RECORDS

TYPE OF DATA: MAINTENANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 262

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: PWR

DATA COLLECTION METHOD:
MAINTENANCE RECORDS, WORK ORDERS

COMPONENTS: SG

USEFULNESS OF DATA:
IDENTIFICATION AND EVALUATION OF RECURRING ACTIVITIES PROVIDE INPUT TO SERVICE LIFE.

REMARKS:
NONE

DESCRIPTION OF DATA: AUXILIARY FEEDWATER FLOW RATE

TYPE OF DATA: TRANSIENT SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 263

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: PWR

DATA COLLECTION METHOD:
LOGS, CHARTS

COMPONENTS: SG

USEFULNESS OF DATA:
EVALUATE SEVERITY OF TRANSIENT EVENTS COMPARED TO DESIGN EVENT SPECIFICATIONS FOR LIMITING LOCATIONS OF SG, ESP. FW NOZZLES. CHARACTERIZATION MAY BE NECESSARY IF THE NUMBER OF TRACKED EVENTS IS PREDICTED TO APPROACH DESIGN LIMITS.

REMARKS:
NONE

DESCRIPTION OF DATA: AUXILIARY FEEDWATER TEMPERATURE

TYPE OF DATA: TRANSIENT SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 264

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: PWR

DATA COLLECTION METHOD:
LOGS, COMPUTER PRINTOUT

COMPONENTS: SG

USEFULNESS OF DATA:
EVALUATE SEVERITY OF TRANSIENT EVENTS COMPARED TO DESIGN EVENT SPECIFICATIONS FOR LIMITING LOCATIONS OF SG, ESP. FW NOZZLES. CHARACTERIZATION MAY BE NECESSARY IF THE NUMBER OF TRACKED EVENTS IS PREDICTED TO APPROACH DESIGN LIMITS.

REMARKS:
NONE

DESCRIPTION OF DATA: ENGINE TEMPERATURE

TYPE OF DATA: SURVEILLANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 265

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
LOCAL TEMPERATURE MONITORS AND INDICATORS, RECORDER

COMPONENTS: EDG

USEFULNESS OF DATA:
EVALUATE ENGINE SERVICE LIFE

REMARKS:
NONE

DESCRIPTION OF DATA: ABNORMAL EVENTS (OVERHEATING, EXHAUST FIRES, LOOSE PARTS, CONTROL/GOVERNER FAILURE, ETC.)

TYPE OF DATA: ABNORMAL SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 266

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
EVENT REPORT, MAINTENANCE/REPAIR RECORDS

COMPONENTS: EDG

USEFULNESS OF DATA:
MONITORING AND TRENDING OF THIS DATA WILL AID IN EVALUATION OF NEED FOR REPLACEMENT OF PARTS, OR TO JUSTIFY THEIR CONTINUED OPERABILITY AND INTEGRITY.

REMARKS:
NONE

DESCRIPTION OF DATA: FUEL OIL ANALYSIS

TYPE OF DATA: SAMPLING SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 267

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
SAMPLING AND ANALYSIS

COMPONENTS: EDG

USEFULNESS OF DATA:
TRENDING WILL AID IN THE ASSESSMENT OF ENGINE CYLINDER BORE CORROSION.

REMARKS:
NONE

DESCRIPTION OF DATA: ENGINE COOLING WATER TEMPERATURE

TYPE OF DATA: SURVEILLANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 268

PILOT PLANT DATA COLLECTION: N PLANT TYPE:

DATA COLLECTION METHOD:
LOCAL TEMPERATURE INDICATORS AND MONITORS, RECORDERS

COMPONENTS: EDG

USEFULNESS OF DATA:
EVALUATE POTENTIAL FOR OVERHEATING.

REMARKS:
NONE

DESCRIPTION OF DATA: ABNORMAL EVENT REPORTS

TYPE OF DATA: ABNORMAL SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 269

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
EVENT REPORTS, SAFETY EVALUATION REPORT

COMPONENTS: RPV

USEFULNESS OF DATA:
EVALUATE FATIGUE OF THE VESSEL AS A RESULT OF SUCH EVENTS.

REMARKS:
EVENTS SHOULD INCLUDE PTS, OVERPRESSURIZATION, SG TUBE FAILURES, BOTTOM HEAD STRATIFICATION, ETC.

DESCRIPTION OF DATA: LOST PARTS REPORTS

TYPE OF DATA: MAINTENANCE SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 270

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
SAFTEY REVIEW ITEMS, SIGNIFICANT OPERATING EVENTS REPORTS

COMPONENTS: RPV RPVI

USEFULNESS OF DATA:
EVALUATE WHETHER FAILURE TO RETREIVE THE PIECE WILL CAUSE ANY SIGNIFICANT DEGRADATION OF PLANT COMPONENTS, OR INCREASE THE SEVERITY OF ANALYZED TRANSIENTS.

REMARKS:
NONE

DESCRIPTION OF DATA: SLUDGE REMOVAL/DECONTAMINATION RECORDS

TYPE OF DATA: SURVEILLANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: LOW SEQUENCE NO: 271

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
HEALTH PHYSICS DATA
COMPONENTS: RPV RPVI RCRP

USEFULNESS OF DATA:
RADIATION BUILDUP IMPACTS PLEX MONITORING AND REFURBISHMENT.

REMARKS:
NONE

DESCRIPTION OF DATA: BORIC ACID LEAKAGE EVENTS

TYPE OF DATA: SURVEILLANCE SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 272

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
MAINTENANCE RECORDS, INSPECTION RESULTS
COMPONENTS: RPV

USEFULNESS OF DATA:
EVALUATE POTENTIAL FOR CORROSION OF FERRITIC STEEL COMPONENTS.

REMARKS:
NONE

DESCRIPTION OF DATA: O-RING REPLACEMENT RECORDS

TYPE OF DATA: MAINTENANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 273

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
MAINTENANCE RECORDS, WORK ORDERS, LOGS
COMPONENTS: RPV

USEFULNESS OF DATA:
VERIFICATION OF O-RING SEAL INTREGITY.

REMARKS:
NONE

DESCRIPTION OF DATA: REPAIR/REPLACEMENT RECORDS (FLANGE, STUDS, NUTS, BOLTS, SAFE ENDS, THERMAL SLEEVES)

TYPE OF DATA: MAINTENANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 274

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
MAINTENANCE WORK REQUESTS, MAINTENANCE RECORDS

COMPONENTS: RPV

USEFULNESS OF DATA:
TRENDING WILL AID IN ASSESSING SERVICE LIFE OF VESSEL AND VESSEL COMPONENTS.

REMARKS:
NONE

DESCRIPTION OF DATA: MAGNETIC OIL PLUG METAL ANALYSIS RESULTS

TYPE OF DATA: SURVEILLANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 275

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BOTH

DATA COLLECTION METHOD:
ANALYSIS RESULTS PACKAGE

COMPONENTS: EDG

USEFULNESS OF DATA:
MONITORING OF QUANTITY, SIZE AND SHAPE OF DEBRIS WILL DETERMINE RATE OF ENGINE WEAR AND IDENTIFY WHICH PART(S) IS WEARING.

REMARKS:
NONE

DESCRIPTION OF DATA: RECORDS OF LOAD ADDITIONS TO THE GENERATOR

TYPE OF DATA: CYCLE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 276

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
OPERATORS LOGS

COMPONENTS: EDG

USEFULNESS OF DATA:
ASSESS GENERATOR SERVICE LIFE.

REMARKS:
NONE

DESCRIPTION OF DATA: RPV FLANGE LEAKAGE MONITORING RESULTS

TYPE OF DATA: SURVEILLANCE SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 277

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
STRIP CHARTS, LOGS

COMPONENTS: RPV

USEFULNESS OF DATA:
IDENTIFY DEGRADATION OF THE INNER O-RING SEAL.

REMARKS:
NONE

DESCRIPTION OF DATA: ECCS INITIATION EVENTS

TYPE OF DATA: CYCLE SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 278

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
LOGS, EVENT REPORTS

COMPONENTS: RPV

USEFULNESS OF DATA:
EVALUATE RESULTING FATIGUE USAGE.

REMARKS:
NONE

DESCRIPTION OF DATA: NEUTRON FLUENCE DATA

TYPE OF DATA: MATERIAL SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 279

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
NEUTRON FLUENCE MONITORING, CALCULATION REPORTS, FLUX WIRE TEST DATA REPORTS

COMPONENTS: RPV RPVI

USEFULNESS OF DATA:
TRENDING WILL AID IN ASSESSING POTENTIAL EMBRITTLEMENT OF VESSEL AND INTERNALS.

REMARKS:
NONE

DESCRIPTION OF DATA: REACTOR WATER HYDROGEN MEASUREMENTS

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 280

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
SAMPLING AND ANALYSIS, ON-LINE MONITORING
COMPONENTS: RPV RPVI RCPBP

USEFULNESS OF DATA:
VERIFY THAT CONDITIONS FOR IGSCC SUPPRESSION HAVE BEEN ACHIEVED.

REMARKS:
NONE

DESCRIPTION OF DATA: FEEDWATER HYDROGEN MEASUREMENTS

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 281

PILOT PLANT DATA COLLECTION: N PLANT TYPE: BWR

DATA COLLECTION METHOD:
SAMPLING AND ANALYSIS, ON-LINE MONITORING
COMPONENTS: RPV RPVI RCPBP

USEFULNESS OF DATA:
VERIFY THAT CONDITIONS FOR IGSCC SUPPRESSION HAVE BEEN ACHIEVED.

REMARKS:
NONE

DESCRIPTION OF DATA: STEAM LINE RADIATION DATA

TYPE OF DATA: AMBIENT SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 282

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
ON-LINE RADIATION MONITOR
COMPONENTS: RPV RPVI RCPBP

USEFULNESS OF DATA:
INCREASED RADIATION LEVELS IMPACTS PLEX MONITORING AND REFURBISHMENT.

REMARKS:
NONE

DESCRIPTION OF DATA: COMPONENT DAMAGE REPORTS (LOAD DROPS, GRAPPLE AND TOOL JAWS)

TYPE OF DATA: MAINTENANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 283

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
REPAIR RECORDS, EVENT REPORTS

COMPONENTS: RPVI

USEFULNESS OF DATA:
EVALUATE CURRENT CONDITION OF COMPONENTS.

REMARKS:
NONE

DESCRIPTION OF DATA: SHUTDOWN COOLING WATER CONDUCTIVITY

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 284

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
GRAB SAMPLING AND ANALYSIS, ON-LINE

COMPONENTS: RPVI

USEFULNESS OF DATA:
EVALUATE THE POTENTIAL FOR IGSCC.

REMARKS:
NONE

DESCRIPTION OF DATA: SHUTDOWN COOLING WATER OXYGEN CONTENT

TYPE OF DATA: CHEMISTRY SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 285

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
GRAB SAMPLING AND ANALYSIS, ON LINE

COMPONENTS: RPVI

USEFULNESS OF DATA:
EVALUATE THE POTENTIAL FOR IGSCC AND GENERAL CORROSION/EROSION.

REMARKS:
NONE

DESCRIPTION OF DATA: CONTROL ROD DRIVE INSPECTION AND MAINTENANCE REPORTS

TYPE OF DATA: INSPECTION/MAINTENANC SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 286

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
INSPECTION RESULTS

COMPONENTS: RPVI

USEFULNESS OF DATA:
IDENTIFICATION AND EVALUATION OF RECURRING ACTIVITIES PROVIDE INPUT TO SERVICE LIFE.

REMARKS:
NONE

DESCRIPTION OF DATA: INTERNALS MODIFICATION AND REPAIR RECORDS

TYPE OF DATA: MAINTENANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 287

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
MAINTENANCE RECORDS, WORK ORDERS

COMPONENTS: RPVI

USEFULNESS OF DATA:
IDENTIFICATION AND EVALUATION OF RECURRING ACTIVITIES PROVIDES INPUT TO SERVICE LIFE.

REMARKS:
NONE

DESCRIPTION OF DATA: CRD REPLACEMENT AND PARTS REPLACEMENT RECORDS

TYPE OF DATA: MAINTENANCE SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 288

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
MAINTENANCE CARDS, WORK ORDERS

COMPONENTS: RPVI

USEFULNESS OF DATA:
TRENDING WILL AID IN ASSESSING SERVICE LIFE.

REMARKS:
NONE

DESCRIPTION OF DATA: SLC INJECTION TRANSIENTS AND BORON MEASUREMENTS

TYPE OF DATA: CYCLE/CHEMISTRY SAFETY SIGNIFICANT: Y RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 289

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BWR

DATA COLLECTION METHOD:
EVENT REPORTS, OPERATOR LOGS, SAMPLING AND ANALYSIS

COMPONENTS: RPVI

USEFULNESS OF DATA:
EVALUATE THE POTENTIAL FOR DEGRADATION OF THE INTERNALS DUE TO BORIC ACID.

REMARKS:
NONE

DESCRIPTION OF DATA: INSPECTION OF RADIAL KEYS, CLEVIS INSERTS AND ALIGNMENT PINS

TYPE OF DATA: INSPECTION SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: HIGH SEQUENCE NO: 290

PILOT PLANT DATA COLLECTION: N PLANT TYPE: PWR

DATA COLLECTION METHOD:
INSPECTION RECORDS

COMPONENTS: RPVI

USEFULNESS OF DATA:
DETERMINE RATE OF DEGRADATION BY WEAR/FRETTING.

REMARKS:
NONE

DESCRIPTION OF DATA: HYDROGEN COOLING GAS IMPURITY SAMPLING

TYPE OF DATA: SAMPLING SAFETY SIGNIFICANT: N RELATIVE IMPORTANCE OF DATA: MED SEQUENCE NO: 291

PILOT PLANT DATA COLLECTION: Y PLANT TYPE: BOTH

DATA COLLECTION METHOD:
SAMPLING AND ANALYSIS

COMPONENTS: M/G

USEFULNESS OF DATA:
EVALUATE POTENTIAL FOR DEGRADATION OF THE GENERATOR WINDINGS DUE TO IMPURITIES IN THE COOLING GAS.

REMARKS:
NONE

APPENDIX B

PLEX CHEMISTRY DATA MATRIX AND SURVEY RESULTS

APPENDIX B
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
REACTOR WATER			
Oxygen			
a. Currently measured?	N/A	Yes.	N/A
b. How is it measured?		Process instrumentation.	
c. Collection frequency.		3/day.	
d. Method for recording, preserving, and retaining data.		Computerized data base and microfilm.	
e. Data transmitted offsite?		No.	
f. Feedback or benefit from offsite transmittal?		N/A	

APPENDIX B (Cont'd)
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
REACTOR WATER			
pH, Silica, Chloride			
a. Currently measured?	N/A	Yes.	N/A
b. How is it measured?		Grab sample from recirc line or RWCU inlet.	
c. Collection frequency.		Daily.	
d. Method for recording, preserving and retaining data.		Computerized data base and microfilm.	
e. Data transmitted offsite?		No.	
f. Feedback or benefit from offsite transmittal?		N/A	

APPENDIX B (Cont'd)
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
REACTOR WATER			
Sulfate, Conductivity			
a. Currently measured?	N/A	Yes.	N/A
b. How is it measured?		Grab sample from recirc line or RWCU inlet.	
c. Collection frequency.		3/day.	
d. Method for recording, preserving and retaining data.		Computerized data base and microfilm.	
e. Data transmitted offsite?		No.	
f. Feedback or benefit from offsite transmittal?		N/A	

APPENDIX B (Cont'd)
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
REACTOR WATER			
Fluoride			
a. Currently measured?	N/A	Yes.	N/A
b. How is it measured?		Grab sample from recirc line or RWCU inlet.	
c. Collection frequency.		Weekly.	
d. Method for recording, preserving and retaining data.		Computerized data base and microfilm.	
e. Data transmitted offsite?		No.	
f. Feedback or benefit from offsite transmittal?		N/A	

APPENDIX B (Cont'd)
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
REACTOR WATER			
Hydrogen, Carbonate			
a. Currently measured?	N/A	No. (no hydrogen water chemistry)	N/A
b. How is it measured?			
c. Collection frequency.			
d. Method for recording, preserving and retaining data.			
e. Data transmitted offsite?			
f. Feedback or benefit from offsite transmittal?			

APPENDIX B (Cont'd)
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
FEEDWATER			
Oxygen, Conductivity			
a. Currently measured?	N/A	Yes.	N/A
b. How is it measured?		Process instrumentation.	
c. Collection frequency.		3/day.	
d. Method for recording, preserving and retaining data.		Computerized data base and microfilm.	
e. Data transmitted offsite?		No.	
f. Feedback or benefit from offsite transmittal?		N/A	

APPENDIX B (Cont'd)
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
FEEDWATER			
Hydrogen			
a. Currently measured?	N/A	No. (no hydrogen water chemistry)	N/A
b. How is it measured?			
c. Collection frequency.			
d. Method for recording, preserving and retaining data.			
e. Data transmitted offsite?			
f. Feedback or benefit from offsite transmittal?			

APPENDIX B (Cont'd)
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
SUPPRESSION POOL			
Millipore Crud, pH, Conductivity			
a. Currently measured?	N/A	Yes.	N/A
b. How is it measured?		Grab sample taken from RHR line.	
c. Collection frequency.		Monthly.	
d. Method for recording, preserving and retaining data.		Computerized data base and microfilm.	
e. Data transmitted offsite?		No.	
f. Feedback or benefit from offsite transmittal?		N/A	

APPENDIX B (Cont'd)
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
SUPPRESSION POOL			
Qxygen			
a. Currently measured?	N/A	No.	N/A
b. How is it measured?			
c. Collection frequency.			
d. Method for recording, preserving and retaining data.			
e. Data transmitted offsite?			
f. Feedback or benefit from offsite transmittal?			

APPENDIX B (Cont'd)
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
CONDENSATE			
Oxygen, Conductivity			
a. Currently measured?	N/A	Yes.	N/A
b. How is it measured?		Process instrumentation.	
c. Collection frequency.		3/day.	
d. Method for recording, preserving and retaining data.		Computerized data base and microfilm.	
e. Data transmitted offsite?		No.	
f. Feedback or benefit from offsite transmittal?		N/A	

APPENDIX B (Cont'd)
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
CONDENSATE			
Sodium			
a. Currently measured?	N/A	Yes.	N/A
b. How is it measured?		Grab sample.	
c. Collection frequency.		Daily	
d. Method for recording, preserving and retaining data.		Computerized data base and microfilm (Value input is the differential from steam to condensate).	
e. Data transmitted offsite?		No.	
f. Feedback or benefit from offsite transmittal?		N/A	

APPENDIX B (Cont'd)
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
REACTOR WATER CLEANUP INLET/OUTLET			
Conductivity			
a. Currently measured?	N/A	Yes.	N/A
b. How is it measured?		Process computer.	
c. Collection frequency.		3/day.	
d. Method for recording, preserving and retaining data.		Computerized data base and microfilm.	
e. Data transmitted offsite?		No.	
f. Feedback or benefit from offsite transmittal?		N/A	

APPENDIX B (Cont'd)
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
REACTOR WATER CLEANUP INLET/OUTLET			
Isotopics			
a. Currently measured?	N/A	No.	N/A
b. How is it measured?			
c. Collection frequency.			
d. Method for recording, preserving and retaining data.			
e. Data transmitted offsite?			
f. Feedback or benefit from offsite transmittal?			

APPENDIX B (Cont'd)
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
REACTOR WATER CLEANUP INLET/OUTLET			
Silica			
a. Currently measured?	N/A	Yes.	N/A
b. How is it measured?		Grab sample.	
c. Collection frequency.		Not specified	
d. Method for recording, preserving and retaining data.		Computerized data base and microfilm.	
e. Data transmitted offsite?		No.	
f. Feedback or benefit from offsite transmittal?		N/A	

APPENDIX B (Cont'd)
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
STANDBY LIQUID CONTROL			
Boron			
a. Currently measured?	N/A	Yes.	N/A
b. How is it measured?		Grab sample.	
c. Collection frequency.		Not specified	
d. Method for recording, preserving and retaining data.		Computerized data base and microfilm.	
e. Data transmitted offsite?		No.	
f. Feedback or benefit from offsite transmittal?		N/A	

APPENDIX B (Cont'd)
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
DRYWELL SAND POCKET MATERIAL TEST			
a. Currently measured?	N/A	No.	N/A
b. How is it measured?			
c. Collection frequency.			
d. Method for recording, preserving and retaining data.			
e. Data transmitted offsite?			
f. Feedback or benefit from offsite transmittal?			

APPENDIX B (Cont'd)
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
CRD COOLING WATER			
Conductivity, Oxygen			
a. Currently measured?	N/A	Assumed to be same as CST.	N/A
b. How is it measured?			
c. Collection frequency.			
d. Method for recording, preserving and retaining data.			
e. Data transmitted offsite?			
f. Feedback or benefit from offsite transmittal?			

APPENDIX B (Cont'd)
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
CIRCULATING WATER			
Turbidity			
a. Currently measured?	Yes.	Yes.	Yes.
b. How is it measured?	Grab sample taken from inlet.	Grab sample from pump discharge.	Grab sample.
c. Collection frequency.	Upon request.	Weekly.	Weekly.
d. Method for recording, preserving and retaining data.	Computerized data base and microfilm.	Computerized data base and microfilm.	Computerized data base.
e. Data transmitted offsite?	Yes-State collects data to support NPDES regulatory requirements.	Yes-State collects data to support NPDES regulatory requirements.	No.
f. Feedback or benefit from offsite transmittal?	No.	No.	No.

APPENDIX B (Cont'd)
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
CIRCULATING WATER			
Microbiological Assay			
a. Currently measured?	No.	Yes.	No.
b. How is it measured?		Grab sample taken from pump discharge, analysis performed by outside agency.	
c. Collection frequency.		Quarterly.	
d. Method for recording, preserving and retaining data.		Hardcopy/microfilm.	
e. Data transmitted offsite?		Yes-State collects data to support NPDES regulatory requirements.	
f. Feedback or benefit from offsite transmittal?		No.	

APPENDIX B (Cont'd)
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
CIRCULATING WATER			
Chloride			
a. Currently measured?	Yes.	No.	Yes.
b. How is it measured?	Grab sample taken from river.		Grab sample.
c. Collection frequency.	Bi-weekly.		Weekly.
d. Method for recording, preserving and retaining data.	Computerized data base.		Computerized data base.
e. Data transmitted offsite?	Yes-State collects data to support NPDES regulatory requirements.		
f. Feedback or benefit from offsite transmittal?	No.		

APPENDIX B (Cont'd)
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
CIRCULATING WATER			
Sulfate			
a. Currently measured?	Yes.	No.	No.
b. How is it measured?	Grab sample taken from river.		
c. Collection frequency.	Quarterly.		
d. Method for recording, preserving and retaining data.	Computerized data base.		
e. Data transmitted offsite?	Yes-State collects data to support NPDES regulatory requirements.		
f. Feedback or benefit from offsite transmittal?	No.		

APPENDIX B (Cont'd)
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
CIRCULATING WATER			
Suspended Solids			
a. Currently measured?	Yes.	Yes.	No.
b. How is it measured?	Grab sample.	Grab sample from pump discharge.	
c. Collection frequency.	Upon request.	Weekly.	
d. Method for recording, preserving and retaining data.	Computerized data base.	Computerized data base and microfilm.	
e. Data transmitted offsite?	Yes-State collects data to support NPDES regulatory requirements.	Yes-State collects data to support NPDES regulatory requirements.	
f. Feedback or benefit from offsite transmittal?	No.	No.	

APPENDIX B (Cont'd)
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
GROUNDWATER			
Sulfate, Chlorides, pH			
a. Currently measured?	Yes.	No.	No.
b. How is it measured?	Sample and analysis performed by outside agency.		
c. Collection frequency.	Quarterly.		
d. Method for recording, preserving and retaining data.	Hardcopy maintained in chemistry department.		
e. Data transmitted offsite?	No.		
f. Feedback or benefit from offsite transmittal?	N/A		

APPENDIX B (Cont'd)
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
STATOR COOLING WATER			
Copper Content			
a. Currently measured?	No.	No.	No.
b. How is it measured?			
c. Collection frequency.			
d. Method for recording, preserving and retaining data.			
e. Data transmitted offsite?			
f. Feedback or benefit from offsite transmittal?			

APPENDIX B (Cont'd)
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
FUEL POOL CHEMISTRY			
a. Currently measured?	Yes.	Yes.	Yes.
b. How is it measured?	Grab samples.	Grab samples.	Grab samples.
c. Collection frequency.	Weekly.	Weekly.	Monthly/ Weekly.
d. Method for recording, preserving and retaining data.	Computerized data base.	Computerized data base and microfilm.	Computerized data base.
e. Data transmitted offsite?	No.	No.	No.
f. Feedback or benefit from offsite transmittal?	N/A	N/A	N/A

APPENDIX B (Cont'd)
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
CONDENSATE STORAGE TANK CHEMISTRY			
a. Currently measured?	Yes	Yes	No
b. How is it measured?	Grab sample.	Grab sampling taken from tank return line.	
c. Collection frequency.	Weekly.	Weekly.	
d. Method for recording, preserving and retaining data.	Computerized data base.	Computerized data base.	
e. Data transmitted offsite?	No.	No.	
f. Feedback or benefit from offsite transmittal?	N/A	N/A	

APPENDIX B (Cont'd)
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
REACTOR BUILDING CLOSED COOLING WATER CHEMISTRY AND ACTIVITY LEVELS			
a. Currently measured?	N/A	Yes	N/A
b. How is it measured?		Grab sample taken from circulation line.	
c. Collection frequency.		Monthly.	
d. Method for recording, preserving and retaining data.		Computerized data base.	
e. Data transmitted offsite?		No.	
f. Feedback or benefit from offsite transmittal?		N/A	

APPENDIX B (Cont'd)
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
TURBINE BUILDING CLOSED COOLING WATER CHEMISTRY			
a. Currently measured?	N/A	No-assumed to be same as RBCCW.	N/A
b. How is it measured?			
c. Collection frequency.			
d. Method for recording, preserving and retaining data.			
e. Data transmitted offsite?			
f. Feedback or benefit from offsite transmittal?			

APPENDIX B (Cont'd)
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
SHUTDOWN SYSTEM COOLING WATER CHEMISTRY			
a. Currently measured?	No-assumed to be same as component cooling water system chemistry.	No-assumed to be same as RBCCW system chemistry.	No-assumed to be same as component cooling water system chemistry.
b. How is it measured?			
c. Collection frequency.			
d. Method for recording, preserving and retaining data.			
e. Data transmitted offsite?			
f. Feedback or benefit from offsite transmittal?			

APPENDIX B (Cont'd)
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
PRIMARY WATER			
Oxygen, Chloride, pH Fluoride, Boron			
a. Currently measured?	Yes.	N/A	Yes.
b. How is it measured?	Grab sample.		Grab sample.
c. Collection frequency.	6/Week.		Weekly.
d. Method for recording, preserving and retaining data.	Computerized data base.		Computerized data base.
e. Data transmitted offsite?	No.		No.
f. Feedback or benefit from offsite transmittal?	N/A		N/A

APPENDIX B (Cont'd)
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
PRIMARY WATER			
Sulfate			
a. Currently measured?	Yes.	N/A	Yes.
b. How is it measured?	Grab sample.		Grab sample.
c. Collection frequency.	6/Week.		Monthly.
d. Method for recording, preserving and retaining data.	Computerized data base.		Computerized data base.
e. Data transmitted offsite?	No.		No.
f. Feedback or benefit from offsite transmittal?	N/A		N/A

APPENDIX B (Cont'd)
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
PRIMARY WATER			
Hydrogen			
a. Currently measured?	Yes.	N/A	Yes.
b. How is it measured?	Grab sample.		Grab sample.
c. Collection frequency.	2/Week.		2/Week.
d. Method for recording, preserving and retaining data.	Computerized data base.		Computerized data base.
e. Data transmitted offsite?	No.		No.
f. Feedback or benefit from offsite transmittal?	N/A		N/A

APPENDIX B (Cont'd)
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
PRIMARY WATER			
Activity Level			
a. Currently measured?	Yes.	N/A	Yes.
b. How is it measured?	Grab sample.		Grab sample.
c. Collection frequency.	Liquids-daily Gases-2/week.		3/Week.
d. Method for recording, preserving and retaining data.	Computerized data base.		Computerized data base.
e. Data transmitted offsite?	No.		No.
f. Feedback or benefit from offsite transmittal?	N/A		N/A

APPENDIX B
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
PRIMARY WATER			
Suspended Solids			
a. Currently measured?	Yes.	N/A	Yes.
b. How is it measured?	Grab sample.		Grab sample.
c. Collection frequency.	Upon request.		Weekly.
d. Method for recording, preserving, and retaining data.	Computerized data base.		Computerized data base.
e. Data transmitted offsite?	No.		No.
f. Feedback or benefit from offsite transmittal?	N/A		N/A

APPENDIX B
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
COMPONENT COOLING			
Water Chemistry			
a. Currently measured?	Yes.	N/A	Yes.
b. How is it measured?	Grab sample.		Grab sample.
c. Collection frequency.	Weekly/Monthly.		Weekly.
d. Method for recording, preserving, and retaining data.	Computerized data base.		Computerized data base.
e. Data transmitted offsite?	No.		No.
f. Feedback or benefit from offsite transmittal?	N/A		N/A

APPENDIX B
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
SECONDARY WATER			
Ammonia			
a. Currently measured?	Yes	N/A	Yes
b. How is it measured?	Grab sample.		Grab sample.
c. Collection frequency.	6/Week.		Weekly.
d. Method for recording, preserving, and retaining data.	Computerized data base.		Computerized data base.
e. Data transmitted offsite?	No.		No.
f. Feedback or benefit from offsite transmittal?	N/A		N/A

APPENDIX B
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
SECONDARY WATER			
Sulfate			
a. Currently measured?	Yes.	N/A	Yes.
b. How is it measured?	Grab sample.		Grab sample.
c. Collection frequency.	6/Week.		Daily.
d. Method for recording, preserving, and retaining data.	Computerized data base.		Computerized data base.
e. Data transmitted offsite?	No.		No.
f. Feedback or benefit from offsite transmittal?	N/A		N/A

APPENDIX B
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
SECONDARY WATER			
pH, Hydrazine, Oxygen, Specific Conductivity, Sodium			
a. Currently measured?	Yes.	N/A	Yes.
b. How is it measured?	Process instrumentation and grab sample.		Process instrumentation grab sample.
c. Collection frequency.	3/Day.		3/Day.
d. Method for recording, preserving, and retaining data.	Computerized data base.		Computerized data base.
e. Data transmitted offsite?	No.		No.
f. Feedback or benefit from offsite transmittal?	N/A		N/A

APPENDIX B
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
SECONDARY WATER			
Chloride			
a. Currently measured?	Yes.	N/A	Yes
b. How is it measured?	Grab sample.		Grab sample.
c. Collection frequency.	7/Week.		Daily.
d. Method for recording, preserving, and retaining data.	Computerized data base.		Computerized data base.
e. Data transmitted offsite?	No.		No.
f. Feedback or benefit from offsite transmittal?	N/A		N/A

APPENDIX B
PART I

INDUSTRY COLLECTED CHEMISTRY PARAMETERS

CHEMISTRY PARAMETERS	PRAIRIE ISLAND PWR	MONTICELLO BWR	SOUTHERN PWR
SECONDARY WATER			
Morpholine			
a. Currently measured?	Yes	N/A	No-Morpholine is not used for pH control
b. How is it measured?	Grab sample.		
c. Collection frequency.	6/Week.		
d. Method for recording, preserving, and retaining data.	Computerized data base.		
e. Data transmitted offsite?	No.		
f. Feedback or benefit from offsite transmittal?	N/A		

APPENDIX B
PART II

RESPONSES TO GENERAL QUESTIONS

QUESTIONS	PRAIRIE ISLAND (PWR)
a. Value of industry data bases relative to the function and success of the chemistry program.	There exist no actual industry chemistry data bases. INPO does collect limited data for the performance indicator program. These reports are reviewed, but the plant does not generally review or share data with other plants on a regular basis.
b. How are the industry chemistry reports analyzed and used in modifying the plant chemistry program?	Reports are obtained and analyzed to provide input to the program. EPRI reports are used most frequently. Interaction with the industry through meetings and seminars has also proven to be a beneficial source of information.
c. Has the plant identified a liquid chemistry program specifically oriented towards component or structure service life preservation?	The focus of the chemistry program has always been towards plant longevity. There is no individual program for this cause. Keeping up to date with chemistry practices and the effects on plant components is accomplished through the review of industry reports, and meetings and seminars.
d. Specific problems, component replacements, or refurbishments linked with chemistry issues.	There have been no plant specific problems associated with chemistry issues. The generic industry concerns of steam generator and feedwater piping corrosion exist.

APPENDIX B
PART II

RESPONSES TO GENERAL QUESTIONS

QUESTIONS	MONTICELLO (BWR)
a. Value of industry data bases relative to the function and success of chemistry program.	No actual industry chemistry data bases exist. The plant sends fuel warranty information to the vendor, but the data is proprietary and not distributed. The plant considers that an industry data base distributing means, averages, etc., would be beneficial.
b. How are the industry chemistry reports analyzed and used in modifying the plant chemistry program?	EPRI reports are utilized quite extensively. They are especially valuable for plant lay up, radiation control and hydrogen water chemistry (HWC).
c. Has the plant identified a liquid chemistry program specifically oriented towards component or structure service life preservation?	The plant is considering upgrading the Reactor and Turbine Building sample systems to include new sample components, process monitors, and data acquisition.
d. Specific problems, component replacements, or refurbishments linked with chemistry issues.	Radiation buildup problems, HWC and plant lay up programs, sample systems upgrade, and chemical control.

APPENDIX B
PART II

RESPONSES TO GENERAL QUESTIONS

QUESTIONS	SOUTHERN PWR
a. Value of industry data bases relative to the function and success of the chemistry program.	Existence of any actual industry data base is unknown. The vendors do have a lot of chemistry data. However, they do not supply the information to the utilities. INPO does collect some data.
b. How are the industry chemistry reports analyzed and used in modifying the plant chemistry program?	Primary sources of chemistry information are EPRI and INPO. Industry report summaries and actual reports are obtained and reviewed for applicability. Conference papers are sometimes more helpful because they are current and more focused.
c. Has the plant identified a liquid chemistry program specifically oriented towards component or structure service life preservation?	The plant's main focus is postponement of SG repair and replacement. Primary water SCC is a major SG concern. However, this is more of a heat treatment problem, not a chemistry problem. Consequently, the focus is on secondary side water chemistry.
d. Specific problems, component replacements, or refurbishments linked with chemistry issues.	Steam generator integrity is of greatest concern. Secondary concerns are dose rate minimization and fuel reliability.

APPENDIX C

DATA BASE QUESTIONNAIRE

1. What is the purpose(s) of the data base?

2. Who are the primary contributors of information to the data base? Please also specify the number of such contributors.

3. What are the data input requirements and in what form is the data supplied? (A data input form and associated instructions would be ideal, if possible.) Please be detailed.

4. Is information supplied for the data base screened and/or reviewed by you prior to entry?

5. How often is information reported for entry into the data base?

6. What percentage of the information which is pertinent to the data base do you feel is actually being reported/collected?

7. Is chemistry data collected? If so, please specify in detail the parameters collected if not already supplied with question 3.

8. Please specify if and to what extent maintenance, repair and replacement data is collected. Please be specific.

9. Is component failure data included in the data base? If so, what information is collected regarding individual failures if not already supplied with question 3.

10. What are the methods of sorting, searching and presenting the data base information?

11. Who has access to the data base?

12. Please provide any additional information you feel may be useful.

DISTRIBUTION:

DOE-TIC (UC-523 120 copies)

DOE

D. L. Harrison (10 copies)
U.S. Department of Energy
19901 Germantown Road
Germantown, MD 20852

D. F. Giessing
U.S. Department of Energy
19901 Germantown Road
Germantown, MD 20852

D. J. McGoff
U.S. Department of Energy
19901 Germantown Road
Germantown, MD 20874

NUMARC NUPLEX Working Group:

G. H. Neils
Northern States Power Company
414 Nicollet Mall
Minneapolis, MN 55401

D. E. Hostetler
Virginia Power Company
Post Office Box 26666
Richmond, VA 23261

D. W. Edwards
Yankee Atomic Electric Company
580 Main Street
Bolton, MA 01740-1398

J. S. Chardos
GPU Nuclear
One Upper Pond Road
Parsippany, NJ 07054

J. DeVincentis
Yankee Atomic Electric Company
580 Main Street
Bolton MA 01740-1398

T. Heroux
NUMARC
1776 Eye Street, N.W., Suite 300
Washington, DC 20006-2496

William Rasin
NUMARC
1776 Eye Street, N.W., Suite 300
Washington, DC 20006-2496

Monticello Lead Plant Project:

T. L. Bailey (2 copies)
Northern States Power Company
Post Office Box 600
Monticello, MN 55362

T. Pickens
Northern States Power Company
414 Nicollet Mall
Minneapolis, MN 55401

P. P. Stancavage
General Electric Company
175 Curtner Avenue, M/C 779
San Jose, CA 95125

Raymnond M. Berg (20 copies)
Multiple Dynamics Corporation
29200 Southfield Road, Suite 103
Southfield, MI 4806

Yankee Lead Plant Project:

W. D. Hinkle
Yankee Atomic Electric Company
580 Main Street
Bolton, MA 01740-1398

J. McCumber
Yankee Atomic Electric Company
580 Main Street
Bolton, MA 01740-1398

ASME Special Working Group on PLEX:

L. Chockie
221 Condon Lane
Port Ludlow, WA 98365

L. R. Katz
Westinghouse Electric Corporation
Post Office Box 355
Pittsburgh, PA 15230

DISTRIBUTION: (Continued)

DOE Reactor Facilities:

J. Hunter
Westinghouse Hanford Company
Post Office Box 1970
Richland, WA 99352

E. Leitz
Westinghouse Hanford Company
Post Office Box 1970
Richland, WA 99352

M. Zentner
Westinghouse Hanford Company
Post Office Box 1970
Richland, WA 99352

EPRI Programs:

J. Carey
Electric Power Research Institute
Post Office Box 10412
Palo Alto, CA 94304

R. W. Burke
Electric Power Research Institute
Post Office Box 10412
Palo Alto, CA 94304

M. Lapides
Electric Power Research Institute
Post Office Box 10412
Palo Alto, CA 94304

T. Law
Electric Power Research Institute
Post Office Box 10412
Palo Alto, CA 94304

Institute of Nuclear Power Opns:

G. Fader
Institute of Nuclear Power Opns
1100 Circle 75 Parkway, Suite 1500
Atlanta, GA 30339

P. Evans
Institute of Nuclear Power Opns
1100 Circle 75 Parkway, Suite 1500
Atlanta, GA 30339

IEEE Power Engineering Society, Nuclear Power Engineering Cmte:

SC-3, Operations, Surveillance, and Testing:

D. C. Lamken
Commonwealth Edison Company
Post Office Box 767, Room 35 FN West
Chicago, IL 60690

SC-3 Working Group 3.4 (PLEX):

S. Kasturi
Consultant, MOS
25 Piermont Drive
Melville, NY 11747

R. P. McCoy
Yankee Atomic Electric Company
580 Main Street
Bolton, MA 01740-1398

A. J. Wolford
EG&G Idaho, Inc.
Post Office Box 1625
Idaho Falls, ID 83415

SC-6, Safety-Related Systems:

J. E. Thomas
Duke Power Company
Post Office Box 33189
Charlotte, NC 28242

NRC Programs:

J. P. Vora
U.S. Nuclear Regulatory Commission
5650 Nicholson Lane
Rockville, MD 20852

W. Farmer
U.S. Nuclear Regulatory Commission
5650 Nicholson Lane
Rockville, MD 20852

B. Johnson
Pacific Northwest Laboratory
Post Office Box 999
Richland, WA 99352

DISTRIBUTION: (Continued)

NRC Programs: (Continued)

S. Aggarwal
U.S. Nuclear Regulatory Commission
5650 Nicholson Lane
Rockville, MD 20852

D. Eissenberg
Oak Ridge National Laboratory
Bear Creek Road
Oak Ridge, TN 37830

K. R. Hoopingarner
Pacific Northwest Laboratory
Post Office Box 999
Richland, WA 99352

J. Dukelow, Jr.
Pacific Northwest Laboratory
Post Office Box 999
Richland, WA 99352

Others:

R. Remshaw
Consolidated Edison Co. of New York
4 Irving Place, Room 1325
New York, NY 10003-3598

C. J. Hudson
Babcock & Wilcox Company
3315 Old Forest Road
Lynchburg, VA 24506-0935

T. A. Caine
General Electric Company
175 Curtner Avenue
San Jose, CA 95125

R. Wells
Northeast Utilities
Post Office Box 270
Hartford, CT 06101

J. W. Pfeifer
Combustion Engineering, Inc.
1000 Prospect Hill Road
Windsor, CT 06095-0500

L. Makovich
DRI Energy Service
24 Hartwell Avenue
Lexington, MA 02173

L. Forrest
DRI Project Consulting
1750 K Street, N.W.
Washington, DC 20006

T. Fletcher
DRI Product Consulting
1750 K Street, N.W.
Washington, DC 20006

J. P. Burn
Washington Public Power Supply
3040 George Washington Way, MS-580
Richland, WA 99352

A. E. Curtis, III
Rochester Gas & Electric
89 East Avenue
Rochester, NY 14649

R. A. Deiterich
Sacramento Municipal Utility Dist.
6201 South Street
Sacramento, CA 95852-1830

E. P. O'Donnell
GPU Nuclear
One Upper Pond Road
Parsippany, NJ 07054

M. Farber
Temple, Barker & Sloane
33 Hayden Avenue
Lexington, MA 02173

T. Lordi
Westinghouse Electric Corporation
Post Office Box 355
Pittsburgh, PA 15230-0355

Harry Paduano
Florida Power & Light Company
700 Universe Boulevard
Juno Beach, FL 33408

DISTRIBUTION: (Continued)

Others: (Continued)

L. T. Gucwa
Georgia Power Company
333 Piedmont Avenue
Atlanta, GA 30302

W. J. Lippold
Baltimore Gas & Electric Company
Route 214
Lusby, MD 20657

J. Delene
Oak Ridge National Laboratory
Bldg 9104-1, Post Office Box Y
Oak Ridge, TN 37831

J. A. Naser
Electric Power Research Institute
Post Office Box 10412
Palo Alto, California 94304

B. L. Peale
Duke Power Company
Post Office Box 33189
Charlotte, NC 28242

J. G. Lewis
Consumers Power Company
27780 Blue Star Hwy, Rm P-26-411A
Covert, MI 49043

A. L. Reimer
Wisconsin Electric
231 West Michigan Street
Milwaukee, WI 53201

W. Gallman
Duke Power Company
422 South Church Street
Charlotte, NC 28242

R. Phelps
Southern California Edison
2244 Walnut Grove Avenue
Rosemead, CA 91170

Sandia (Internal):

3141 S. A. Landenberger (5 copies)
3151 W. I. Klein (3 copies)
6419 D. A. Brosseau
6419 L. D. Bustard
6500 A. W. Snyder
6510 J. V. Walker
6520 G. G. Weigand
6521 D. D. Carlson
6521 H. R. Bundy
6521 A. R. DuCharme (20 copies)
6521 B. J. Roscoe
6521 S. T. Rosinski
6524 W. R. Dawes
6524 D. H. Loescher
8524 J. A. Wackerly

☆ U.S. GOVERNMENT PRINTING OFFICE: 1989—673-049/81066