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HOUSTON LIGHTING AND POWER COMPANY
SOUTH TEXAS PROJECT
ELECTRIC GENERATING STATION
PLANT PROCEDURES MANUAL



STATION PROCEDURE

NON SAFETY-RELATED (Q)

Equipment History Program

OPGP03-ZA-0503

Rev. 0

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APPROVED: *R. Parley* 10/13/93 10/15/93
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PROCEDURE USE CONTROL: AVAILABLE

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1.0 Purpose and Scope

- 1.1 This procedure describes the responsibilities, requirements, and implementation of the Equipment History Program.
- 1.2 This procedure provides instructions for writing reports to be entered into the Equipment History Database.
- 1.3 This procedure establishes administrative controls for trending and tracking deficiencies (including failures) involving plant structures, systems, and components for the purpose of identifying and correcting repetitive degradation and failures. (IR 93-005) (DR S87-098)
- 1.4 This process applies to plant structures, systems, and components (SSC) which meet any one of the criteria listed in Addendum 1.

2.0 Definitions

- 2.1 CHANNEL: One of two or more signal paths in an instrumentation system. When the principal components needed to perform a system's function are arranged in parallel (such as multiple high pressurizer pressure instrument loops), each is considered a separate channel.
- 2.2 COGNIZANT ENGINEER: The engineer designated by the Plant Engineering Department (PED) Manager or Design Engineering Department (DED) Manager as responsible for overall coordination of design or plant change implementation and Section XI Work Package review.
- 2.3 CORRECTIVE MAINTENANCE: Those activities performed to rework, repair or replace equipment or components that have failed.
- 2.4 DEFICIENCY: A deficiency is any condition where a component, system or structure does not meet its design criteria or cannot perform its intended function. The result of a deficiency identification may be: Rework, Replacement, Repair, Use-As-Is, or Modification. The determination of Repair, Use-As-Is, Replacement Equivalent Change or Modification is made by Engineering via a Plant Change Form (PCF).

- 2.5 **ENVIRONMENT QUALIFICATION:** The generation and maintenance of evidence to assure that the equipment will operate on demand, to meet the system performance requirements in the presence of specified limiting environmental and seismic conditions.
- 2.6 **FAILURE:** A failure is a deficiency that results in the inability of a structure, system, or component to perform one or more of its required functions satisfactorily. The result of a failure identification may be: Rework, Replacement, Repair, or Modification.
- 2.7 **MODIFICATION:** Those activities performed to implement physical design changes to systems, structures and components. Documents used to specify Modifications include Modification Design Packages (MDPs), Temporary Modification Requests and Plant Change Forms (PCFs).
- 2.8 **NONCONFORMANCE:** For purpose of the work process, a deficiency where the component, system or structure cannot perform its intended function or does not meet the original design.
- 2.9 **NUCLEAR PLANT RELIABILITY DATA SYSTEM (NPRDS):** A data system designed to collect engineering data and failure data for Safety-Related components, Quality-Related components and components required for the reliability of the plant. The data system is controlled by the Institute of Nuclear Power Operations (INPO), and is used to provide equipment reliability data for all of the commercial nuclear power plants in the United States.
- 2.10 **OPERABLE:** A system, subsystem, train, component or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified function(s), and when all necessary attendant instrumentation, controls, electrical power, cooling or seal water, lubrication or other auxiliary equipment that are required for the system, subsystem, train, component or device to perform its function(s) are also capable of performing their related support function(s).
- 2.11 **PREVENTIVE MAINTENANCE:** Maintenance activities taken to maintain equipment within designed operation conditions and extend its life. Preventive Maintenance includes Predictive, periodic and planned maintenance activities.
- 2.12 **QUALIFIED MAINTENANCE DATABASE (QMDB):** A database that contains the requirements of the Equipment Qualification Program.

- 2.13 REPAIR: The process of restoring a nonconforming characteristic to a condition such that the capability of an item to function reliably and safely is unimpaired, even though that item still may not conform to the original design requirement.
- 2.14 REPLACEMENT: The installation of spare or renewal parts, components, accessories or subassemblies of a component or system or system changes.
- 2.15 REWORK: The process by which a nonconforming item is made to conform to a prior specified requirement by completion, remachining, reassembling or other corrective means.
- 2.16 SERVICE REQUEST (SR): Form used to document and evaluate the need for a Maintenance work activity and to request general manpower support services.
- 2.17 TRAIN: One of two or more functional paths in a mechanical or electrical system (i.e., a functional path is a group of components, or a single component, that is fully capable of independently performing one of the system's functions.
- 2.18 TREND: A line of general movement in the course of time of a statistically detectable change.
- 2.19 TREND ADVERSE TO QUALITY: Any series of conditions that, due to their recurrent nature, may collectively be symptomatic of a condition adverse to quality.
- 2.20 USE-AS-IS: A disposition which may be imposed for a nonconforming condition when it can be established that the discrepancy will result in no adverse conditions and that the item under consideration will continue to meet all engineering functional requirements including performance, maintainability, fit and safety.
- 2.21 WORK MANAGEMENT SYSTEM (WMS): Computerized system used to retain information pertinent to work document activities, including description, priority and status.
- 2.22 WORK ORDER (WO): Form used to document Work Instructions in a Work Package and to provide approval and completion signoffs for the Work Package.
- 2.23 WORK PACKAGE: A package containing a Service Request or Preventive Maintenance Work Order or Modification Work Order and other information required to perform the work (e.g., drawings, technical manuals, etc.).

3.0 Responsibilities

- 3.1 The Plant Engineering Department (PED) Manager (or designee) is responsible for
 - 3.1.1 The development, maintenance, and implementation of this procedure;
 - 3.1.2 Assigning personnel to write and enter equipment history records, perform trend analyses, and prepare trend reports; and
 - 3.1.3 Issuing trend reports for review by management and independent reviewers.
- 3.2 Maintenance craft personnel who perform work on structures, systems, and components (SSCs) are responsible for providing documentation of work in accordance with step 3.7.2.10 of OPGP03-ZA-0090, Work Process Program.
- 3.3 NPRDS Coordinator is an individual assigned by the Plant Engineering Manager who is responsible for reporting NPRDS component failures to the NPRDS database in accordance with OPGP03-ZA-0038, Nuclear Plant Reliability Data System Program.
- 3.4 History Reporter is an individual assigned by the Plant Engineering Manager who is responsible for:
 - 3.4.1 Reporting Equipment History component maintenance to the Equipment History Database;
 - 3.4.2 Performing failure data trending, tracking, and analyses.
- 3.5 Support Technician is an Engineering Support Technician who is responsible for administrative control of work packages through the review cycle.

4.0 Program Description

4.1 General

4.1.1 The Equipment History Program consists of three areas of responsibility:

4.1.1.1 Nuclear Plant Reliability Data System (NPRDS) Program,

4.1.1.2 Equipment History reporting, and

4.1.1.3 Failure Data Trending.

4.1.2 The NPRDS Program is described in OPGP03-ZA-0038, Nuclear Plant Reliability Data System Program.

4.1.3 Equipment History reporting shall be performed in accordance with Section 4.2. The database contains maintenance and failure data on equipment which meet the guidelines of Addendum 1. This data may be used in the following applications:

4.1.3.1 Failure Data Trending

4.1.3.2 Reliability Centered Maintenance

4.1.3.3 Preventive Maintenance Optimization

4.1.3.4 Maintenance Rule Implementation

4.1.3.5 Probabilistic Risk Assessment

4.1.4 Equipment History Reports shall be derived from Service Requests (SR) and Preventive Maintenance Packages (PM) but may contain applicable information from License Event Reports, Station Problem Reports, Surveillances, and other documents which may contain equipment maintenance or failure data.

4.1.5 Failure Data Trending shall be performed in accordance with Section 4.3.

4.2 Equipment History Reporting

NOTE

Entry of information (i.e., deficiency and failure data) into the NPRDS data base is administratively controlled by OPGP03-ZA-0038, Nuclear Plant Reliability Data System Program, and therefore, is NOT described in this procedure.

- 4.2.1 The NPRDS Coordinator or designee shall review the work package (SR or PM) and perform the following:
 - 4.2.1.1 Determine if a failure report is required in accordance with OPGP03-ZA-0058 (Nuclear Plant Reliability Data System Program).
 - 4.2.1.2 If a report is required, then complete the reporting and then forward the work package, with a copy of the report, to the History Reponer.
 - 4.2.1.3 If a report is not required, then forward work package to the History Reporter.
- 4.2.2 The History Reporter shall perform the following:
 - 4.2.2.1 Determine if a history entry is required in accordance with Addendum 1.
 - 4.2.2.2 Determine if a part listed in the QMDB has been replaced, If a part listed in the QMDB has been replaced, update the start of Qualified Life/Last Replaced Date and enter comments in the QMDB.
 - 4.2.2.3 If a history entry is required, then change the WMS history indicator to Y and complete the Equipment History Report in accordance with Addendum 3. See Addendum 2 for a typical input form.
 - 4.2.2.4 Forward the work package to the Support Technician.

4.2.2.5 Forward a copy of the Equipment History Report as it appears in the Equipment History Database to the Cognizant Engineer.

4.2.3 The Support Technician shall perform the following:

4.2.3.1 Update the work package WMS status to 70.

4.2.3.2 Transmit the work package to Records Management (RM).

4.2.3.3 Upon receipt of transmittal acknowledgement from RM, then update the WMS status to 80.

4.3 Failure Data Trending

4.3.1 PED shall perform, at a minimum, monthly trend analyses. Trend analyses shall, as a minimum, be based on data base sorts for the 12 month period just prior to the calendar month just ended.

4.3.2 Any trend identified during monthly analyses which is determined to be adverse to quality or which identifies repetitive component degradation and failures shall be addressed via a Station Problem Report. (IR-93-005)

4.3.3 PED shall prepare a quarterly trend report summarizing the results of the trend analyses. The content of trend reports shall be as specified by the PED Manager.

4.3.4 PED shall determine the distribution of the quarterly trend report. The trend report should be issued no later than 30 days following the end of the current calendar quarter.

4.3.5 PED shall ensure that trend reports are submitted for record retention in accordance with approved procedures. Trend reports shall be retained for the life of the plant.

5.0 References

5.1 OPGP03-ZA-0090, Work Process Program, Rev. 7

5.2 OPGP03-ZA-0038, Nuclear Plant Reliability Data System Program, Rev. 3

- 5.3 OPGP03-ZM-0002, Preventive Maintenance Program, Rev. 24
- 5.4 OPGP03-ZX-0002, Corrective Action Program, Rev. 1
- 5.5 Operations Quality Assurance Plan (OQAP) Chapter 13.0, Deficiency Control, Rev. 5
- 6.0 Support Documents
 - 6.1 Addendum 1 - Equipment History Reporting Criteria
 - 6.2 Addendum 2 - Equipment History Report (TYPICAL)
 - 6.3 Addendum 3 - Equipment History Report Instructions