

THE DETROIT EDISON COMPANY

ENRICO FERMI UNIT 2

DOCKET NO: 50-341

ENVIRONMENTAL QUALIFICATION OF

HARSH ENVIRONMENT

SAFETY-RELATED MECHANICAL EQUIPMENT

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THE DETROIT EDISON COMPANY  
ENRICO FERMI UNIT 2  
SAFETY-RELATED MECHANICAL EQUIPMENT  
QUALIFICATION PROGRAM

1.0 INTRODUCTION

This report describes the program developed by The Detroit Edison Company for the environmental qualification of the Enrico Fermi Unit 2 safety-related mechanical equipment located in a harsh environment. The Mechanical Equipment Qualification (MEQ) Program was developed to comply with the requirements of 10CFR50, Appendix A, General Design Criteria (GDC) 4, "Environmental and Missile Design Basis". GDC-4 requires, in part, that all equipment important to safety be designed to accommodate the environmental effects of postulated accidents including Loss of Coolant Accidents (LOCA).

The Detroit Edison Company has implemented an environmental qualification program, for Class 1E safety-related electrical equipment<sup>1</sup> for the Enrico Fermi Unit 2 Atomic Power Plant. Safety-related Class 1E electrical equipment qualification requirements are embodied in

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1) Enrico Fermi Atomic Power Plant Unit 2 Environmental Qualification of Safety-Related Electrical Equipment for Harsh Environments", Volumes I, II, and III, July 1983.

## 1.0 INTRODUCTION (Continued)

10CFR50.49 and described in NUREG-0588<sup>2</sup> and proposed revision 1 to Regulatory Guide 1.89<sup>3</sup>. These documents used in conjunction with industry standards (eg. IEEE-323,383, etc.) provided a basis and guidance for implementation of the Detroit Edison Company's electrical equipment qualification program and have been helpful in the MEQ Program.

In order to demonstrate compliance with GDC-4 of Appendix A to 10CFR50 for safety-related mechanical equipment, The Detroit Edison Company implemented an MEQ Program which included the following elements:

- 1) Identification of safety-related mechanical equipment located in harsh environment areas, including required operating time,
- 2) Identification of the non-metallic subcomponents of this equipment,
- 3) Identification of the environmental conditions under which this equipment must operate.

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- 2) Szukiewicz, A. J. "Interim Staff Position on Environmental Qualification of Safety-Related Electrical Equipment", Revision 1, July 1981.
  - 3) "Environmental Qualification of Electrical Equipment Important to Safety for Light-Water-Cooled Nuclear Power Plants", proposed Revision 1 to Regulatory Guide 1.89.

1.0 INTRODUCTION (Continued)

- 4) Identification of non-metallic material capabilities, and
- 5) Evaluation of environmental effects on equipment operability.

To satisfy these elements, the Enrico Fermi 2 MEQ Program consists of five (5) major activities. These activities are:

- 1. Identification of safety-related mechanical equipment located in harsh environments (including identification of non-metallic materials),
- 2. Selection of environmental and process parameters for normal and accident conditions,
- 3. Evaluation of safety-related mechanical equipment
- 4. Preparation of auditable files with supporting documentation and
- 5. Maintenance and Surveillance Program development

## 1.0 INTRODUCTION (Continued)

A description of these activities, the personnel involved, and the methodology are contained in Section 2.0. The format and content of the MEQ Summary Sheets is presented in Section 3.0. Section 4.0 describes The Detroit Edison Company maintenance and surveillance program for MEQ.

Approximately 50 equipment types (identified by manufacturer and model number), representing over 1200 components, have been reviewed and evaluated for use in Enrico Fermi Unit 2. Three of the equipment types reviewed, were found to contain parts that could not meet the environmental requirements imposed by their location or application. The equipment affected are described in MEQ files EQ2-EF2-023, 032 and 051. Corrective actions to upgrade the equipment with qualified replacement parts has been initiated and will be completed by fuel load.

## 2.0 ENRICO FERMI 2 MEQ PROGRAM

The following sections describe The Detroit Edison Company personnel, tasks, and methodology associated with the implementation of the MEQ Program.

## 2.1 Personnel

The personnel involved in the development and implementation of the MEQ program consisted of engineers from The Detroit Edison Company supported by engineering personnel from Bechtel Corporation, DiBenedetto Associates Inc., and Wyle Laboratories.

The project team experience included systems analysis, equipment qualification (electrical and mechanical), material analysis, radiation and thermal aging analysis, and equipment operations. All work was performed under The Detroit Edison Company Quality Assurance Program.

Tasks performed during the MEQ program included:

- Program description preparation
- Work Instructions/procedures development
- Review of The Detroit Edison Company  
EEQ Program
- Review of lists of safety-related equipment
- Review of The Detroit Edison Company  
SQRT List



## 2.1 Personnel (Continued)

- systems review
- mechanical equipment list development
- component identification
- engineering evaluations
- MEQ file generation
- FSAR review
- system/equipment design verification
- plant operating procedures review
- plant emergency procedures review
- maintenance and surveillance program  
development
- environmental parameters establishment
- materials analysis
- performance characteristics review
- process fluids parameters assessment
- MEQ file audit
- System functional analysis
- Equipment/component functional analysis



## 2.2. Identification of Safety-Related Mechanical Equipment

In order to establish a complete list of safety-related mechanical equipment located in a harsh environment, it was first necessary to identify the safety-related system and then each mechanical component within those safety-related systems which must perform safety-related functions during and after a postulated design basis accident. The systems were identified as those required to perform any of the following six (6) safety-related functions:

1. Emergency Reactor Shutdown
2. Containment Isolation
3. Reactor Core Cooling
4. Containment Heat Removal
5. Core Residual Heat Removal
6. Prevention of Significant Release of Radioactivity

## 2.2 Identification of Safety-Related Mechanical Equipment (Continued)

The systems identified were:

<u>System Identification</u>	<u>System Name</u>
B21	Nuclear Boiler System
B31	Reactor Recirculation System
C11	Control Rod Drive Hydraulic System
C41	Standby Liquid Control System
D11	Process Radiation Monitor System
E11	Residual Heat Removal System
E21	Core Spray System
E41	High Pressure Coolant Injection System
E51	Reactor Core Isolation Cooling System
G11	Radwaste System
G33	Reactor Water Cleanup System
G51	Torus Water Management System
N21	Feedwater System
P34	Post Accident Sampling System
P44	Emergency Equipment Cooling Water System
P50	Station and Control Air System

## 2.2 Identification of Safety-Related Mechanical Equipment (Continued)

<u>System Identification</u>	<u>System Name</u>
T23	Primary Containment System
T41	Heating, Ventilation and Air Conditioning System
T46	Standby Gas Treatment System
T47	Reactor Drywell Cooling System
T48	Containment Inerting and Combustible Gas Control System
T49	Primary Containment Pneumatic Supply System
T50	Primary Containment Monitoring System
-	Residual Heat Removal Service Water System (reviewed as part of E11 and P44)

In addition, equipment providing support functions such as lubrication, cooling, and pipe or equipment physical supports were considered. A verification review was performed by The Detroit Edison Company Systems Engineering Group to ensure completeness of the systems list.

## 2.2 Identification of Safety-Related Mechanical Equipment (Continued)

Once the list of systems were identified, systems experienced engineers reviewed each system P&ID and other design documents to identify and physically locate all safety-related mechanical equipment that is exposed to a harsh environment. Additional equipment types, such as snubbers and primary containment seals, were added to the list as a result of considering functions such as system/equipment support devices and leakage/pressure boundary integrity.

The equipment was then evaluated and categorized in accordance with NUREG-0588 Appendix E as 2A, 2B or 2C. Equipment determined to be in a mild environment location (2D categorization) was not considered as part of the scope of this review and therefore is not listed. This equipment is being considered as part of the mild environment program (Appendix B, 10CFR50 and Regulatory Guide 1.33).

Equipment categorized as 2A or 2B was then reviewed against vendor component drawings and manufacturers' technical manuals to identify non-metallic parts. Metallic parts are not listed since the effects of the postulated accident environments, such

### 2.2.1 Identification of Safety-Related Mechanical Equipment (Continued)

as temperature, pressure, radiation, etc. are considered to be negligible. However, the overall design and performance requirements were reviewed to confirm that the metallic components were not required to function outside their design values. Throughout the safety-related system list development, mechanical equipment identification, and subcomponent listing tasks, the results were verified by independent reviews to ensure correctness and completeness.

Components determined to be not essential to mitigate the consequences of an accident or not required to function were listed as 2C and deleted from the program.

### 2.3 Environmental Service Conditions

The accident scenarios considered in the MEQ program are identical to those used to develop the harsh environment profiles for the Class 1E electrical equipment qualification program NUREG-0588 and 10CFR50.49 responses<sup>4</sup>. The environmental qualification

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4) Detroit Edison Company Letter, EF2-66,759, to Director of Nuclear Reactor Regulation, Tauber to Youngblood, "Additional Environmental Qualification Information Requested by the NRC", dated January 16, 1984.



### 2.3 Environmental Service Conditions (Continued)

profiles were derived from the accidents analyzed in Chapter 15 and Appendix C of the Enrico Fermi Unit 2 FSAR. Inside the primary containment, bounding environmental parameters were established by the NSSS Supplier (General Electric Company) by considering the most adverse parameters of the break spectrum of Loss of Coolant Accidents (LOCA's) and combining them to create the environmental envelop used for qualification.

High Energy Line Breaks (HELB) were used as the enveloping accident for equipment located in the secondary containment and main steam tunnel. Radiation values were derived using the accident and post accident source terms previously developed for the Enrico Fermi Unit 2 analyzed accidents. The accident and post-accident radiation values were derived using the source term described in NUREG-0588 and NUREG-0737. Details of the calculation are discussed in App. A of the Electrical Equipment Harsh Environment Submittal dated July, 1983. The environmental zones and parameters are the same as those established for the Class 1E electrical qualification program. The parameters and their application to mechanical equipment qualification are discussed below.



### 2.3.1 Operating Time

Design specifications were reviewed to ensure that operation in the harsh environment had been considered. The operability of the equipment was considered to be established by design, when the equipment specification exceeds the environmental requirements. Additionally, if the results of the review of the non-metallic materials indicated that they were insensitive to the environmental stresses, internal or external, the overall equipment performance was considered to be demonstrated for the required time. All mechanical equipment requiring post accident qualification was qualified for 100 days.

Active mechanical equipment normally requires an outside prime mover such as a pump motor, valve operator, or solenoid. Therefore, by evaluating the mechanical equipment for the environmental conditions it could be determined that the operating times of the prime movers were not affected.

#### 2.3.2 Submergence and Spray

Safety-related mechanical equipment was evaluated generally, regardless of location, to determine the effects of submergence and spray on equipment operability. Equipment types determined to be susceptible to the effects of submergence or spray were individually evaluated for the actual equipment location and mounting orientation. The actual submergence level or potential for spray ingress to impact the safety-related (function) performance of the equipment was then considered. No equipment modification or relocation was required when the equipment functional analyses were completed.

#### 2.3.4 Humidity

The effects of humidity were found, through industry testing and research, not to affect the performance of non-metallic materials in a significant manner. The non-metallic materials in mechanical equipment are for the most part, used as enclosed seals and gaskets. The effects of humidity on these applications were determined not to affect the performance of the non-metallic materials in a significant manner. On this basis, it was concluded that humidity considerations need not be addressed for each mechanical equipment type.

#### 2.3.5 Pressure

The qualification of mechanical equipment, with respect to pressure, is a function of the equipments design and is evaluated as part of the performance characteristics review. Pressure has not been found to adversely impact the qualification of mechanical equipment.

#### 2.3.6 Temperature

Thermal aging has been considered as a mechanism for degradation and has been evaluated for each non-metallic material which performs an essential function within safety-related mechanical equipment.

#### 2.3.7 Radiation

Non-metallic materials which perform essential functions within safety-related mechanical equipment have been evaluated to assess their performance and qualification with respect to radiation aging mechanisms.

#### 2.3.8 Process Fluids

The effects of process fluids were considered for systems which contain, recirculate, or remove radioactive material from containment. During and after a design basis accident, process fluid conditions (eg. temperature, pressure, and radiation) may change. The change may result, in the process fluid parameters becoming more severe than the external accident environment. The changes in these parameters were assessed and compared to the external accident environments. The mechanical equipment qualification program parameters were established based on the most conservative values of temperature, pressure, and radiation (either internal or external) resulting from the postulated accidents. This review was performed to ensure the consideration of worst case conditions for qualification.

#### 2.4 Evaluation of Safety-Related Mechanical Equipment

Following the equipment categorization, non-metallic material identification, and service conditions selection, an evaluation of the non-metallic materials in 2A/2B equipment was performed. Equipment functional evaluations were performed to determine the functional importance of non-metallic components within a

#### 2.4 Evaluation of Safety-Related Mechanical Equipment (Continued)

safety-related piece of equipment. The functional analysis considered whether a component's failure could impact the overall safety function of the equipment. Components classified as safety-related were analyzed against their worst case environmental conditions. Non safety-related materials (ie. determined to have acceptable failure modes) were not analyzed further, however, the basis for the non safety-related determination was provided. This review included consideration of equipment performance characteristics and design specifications.

The analysis of safety-related non-metallic materials concentrated on thermal and radiation aging for normal and accident conditions. Temperature and radiation values assumed during normal operation were used in the analyses to establish or confirm vendor design life values. Linear regression analyses, based on the Arrhenius Methodology, and similarity analyses, based on type tests of identical materials, were the



#### 2.4 Evaluation of Safety-Related Mechanical Equipment (Continued)

analytical techniques utilized in the evaluation of the non-metallic material design life. The results of these analyses were used to establish maintenance and replacement requirements. Each non-metallic material was evaluated, at its end of design life condition, to determine the impact of post accident aging mechanisms on the component's ability to perform its intended function.

Supplementary information was compiled and evaluated for components for which qualification information either was not available or failed to envelop the qualification requirements. The additional information was prepared utilizing industry accepted analytical methods such as radiation reduction and thermal lag to reduce environmental profiles or demonstrate actual conditions.

Modification, relocation, or replacement of non-metallic materials were considered for qualification of essential equipment for which the functional and/or analytical assessment did not support qualification.



#### 2.4 Evaluation of Safety-Related Mechanical Equipment (Continued)

Qualification Evaluation Reports (QER) were prepared which summarize the qualification data for each safety-related mechanical equipment type. Abbreviated QER's were prepared for safety-related mechanical equipment that contain only metallic parts. The QER also served as a checklist which facilitated the completeness and consistency of the review phase.

#### 2.5 Documentation

A Mechanical Equipment Qualification (MEQ) file has been established for each safety-related mechanical equipment type. The MEQ file provides all of the information necessary to determine the qualification status of the equipment. The file is comprised of a QER, a maintenance and surveillance evaluation section, and the appropriate reference material (eg. analysis, as required).

## 2.5 Documentation (Continued)

The QER contains seven (7) sections which describe the salient features of the review process. Section I provides a description of the safety-related mechanical equipment including function, location and a determination as to whether or not submergence/spray can impact the performance of the equipment. An evaluation summary is provided, in Section II, which relates to the environmental qualification status and permissible area(s) of application of the equipment. Section III describes the material identification process and includes Table I, which is a listing of the non-metallic materials, manufacturer, model number, and function within the given equipment. Environmental effects, material properties, and required environmental parameter are included in Section IV and Table II. Qualification status on a material-basis and/or functional analysis-basis is provided in Section IV.C. Equipment performance characteristics are addressed in Section V. Section VI is provided for additional information developed during the review phase which is used to facilitate qualification of the equipment. All references used in the qualification review process are listed in Section VII.

## 2.5 Documentation (Continued)

The maintenance and surveillance evaluation section discusses the engineering assessment performed to determine the need for non-metallic material replacement.

All reference material used to support qualification is provided in the file following maintenance and surveillance. References include test reports (if applicable), supporting analyses, manufacturer technical references, and the vendor drawings used in the equipment evaluation.

## 2.6 Quality Assurance

2.6.1 Quality Assurance controls were established by The Detroit Edison Company prior to the beginning of the Mechanical Equipment Qualification Program. The Detroit Edison Company Quality Assurance Program, which complies with the applicable criteria of 10CFR21, 10CFR50 Appendix B and ANSI N45.2, was implemented throughout the Program.

## 2.6 Quality Assurance (Continued)

A project plan was established prior to the start of work. The areas of responsibility covered under the Project Plan included preparation of a program description, work procedures/instructions, and mechanical equipment qualification files. The procedures were established at Detroit Edison to control various aspects of the work. Specific procedures were written for:

- safety-related mechanical equipment list development
- review and evaluation of safety-related mechanical equipment
- mechanical equipment qualification file generation

In addition, a review was conducted by experienced Detroit Edison Company Personnel. The review included a field walkdown of equipment (location and type) and a review of the MEQ file for content, accuracy, and consistency.

### 3.0 ENVIRONMENTAL QUALIFICATION SUMMARY SHEETS AND PIS/TAG N.J. INDEX

#### 3.1 Summary Sheet Format

The qualification summary sheets for the Mechanical Harsh Environmental Equipment are contained in the section of this report under the tab marked "Summary Sheets". Each equipment type identified to be NUREG-0588, Appendix E Safety Category 2A or 2B has a summary sheet associated with it. The summary sheets are arranged in alphabetical order by manufacturer/model number. The summary sheets are divided into the following major areas:

- 1) Title and Revision Control
- 2) Equipment Description
- 3) Environmental Parameters
- 4) Demonstrated Material Capability
- 5) Design Parameters
- 6) Qualifications Status
- 7) Notes and General comments

These areas are outlined in Figure 3-1 and described in the following sections. The development of the summary sheet is described in the flow chart on Figure 3-2.



EEQ/32/F.1

FIGURE 3-1

DATE: 03/01/84

THE DETROIT EDISON COMPANY

REV. 0

PAGE:

ENRICO FERMI UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER :  
MODEL NO. :  
DESCRIPTION :  
LOCATION(ZONE):

VENDOR :

PURCHASE ORDER #:

DECO DWG. FILE #:

FOREIGN DWG # :

SAFETY CATEGORY :

OPERATING TIME: .

## -----ENVIRONMENTAL PARAMETERS-----

## NORMAL CONDITIONS:

## -----REQUIRED-----

TEMPERATURE: DEG.°F  
PRESSURE : PSIG  
HUMIDITY : PCT-RH  
RADIATION : RADS  
(INTEGRATED OVER 40 YEARS)

## ACCIDENT CONDITIONS:

## -----REQUIRED-----

TEMPERATURE: DEG.°F  
PRESSURE : PSIG  
HUMIDITY : PCT-RH  
SPRAY :  
RADIATION : RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE:

## -----DESIGN PARAMETERS-----

## -----DESIGN-----

## -----APPLICATION-----

MODEL NO.	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
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## -----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
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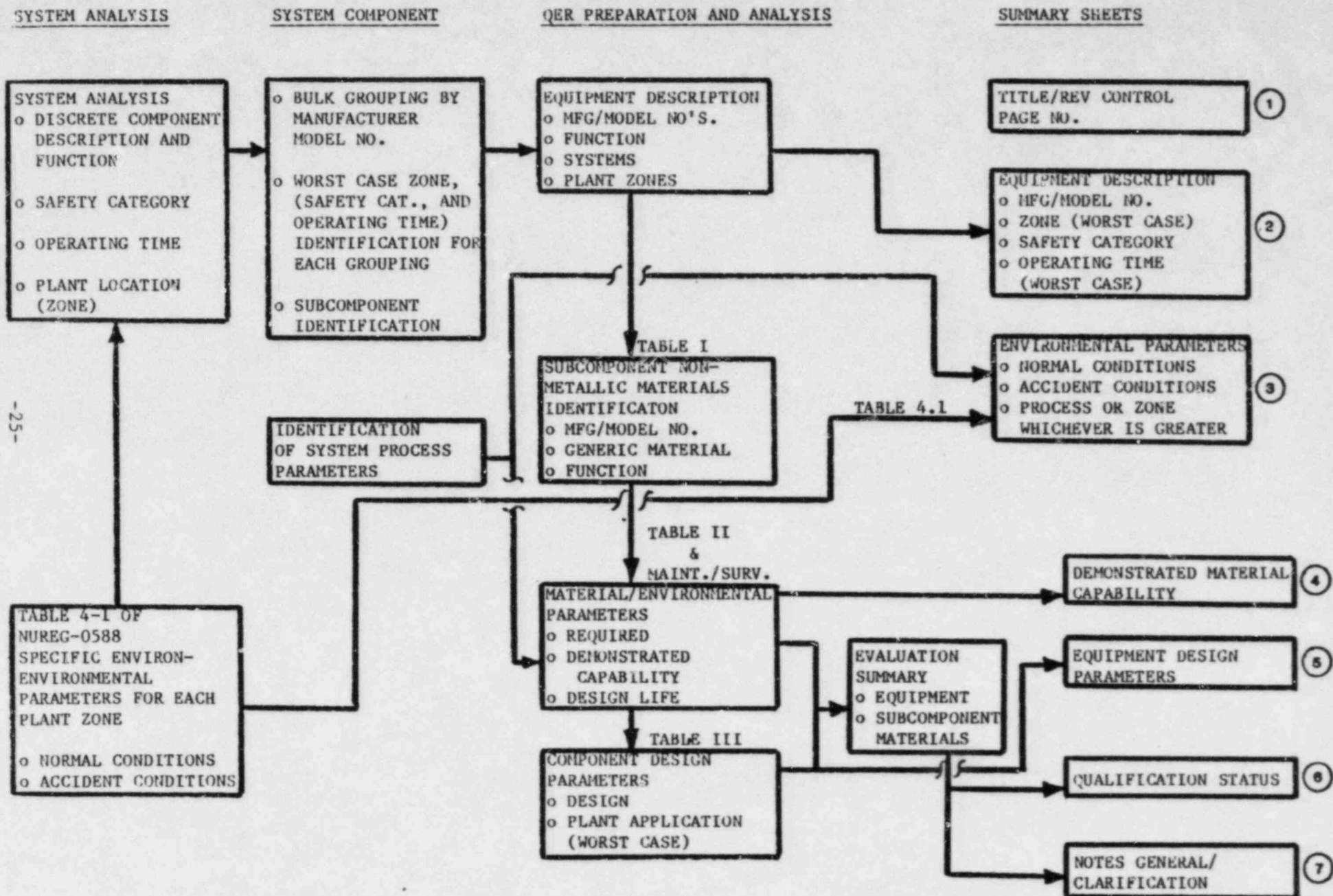
NOTES/GENERAL COMMENTS

REFERENCE FILE: EQ2-EF2-



FIGURE 3-2

MECHANICAL EQUIPMENT QUALIFICATION  
SUMMARY SHEET DEVELOPMENT FLOW CHART



### 3.1.1 Title and Revision Control

This area identifies the title, revision, and consecutive page number of the MEQ summary sheets.

### 3.1.2 Equipment Description

The equipment description section provides the equipment identification, by model number, manufacturer, plant location, safety category and operating time.

The Detroit Edison Company purchase order number is provided, if available, along with the appropriate component drawing number. The location refers to Environmental Zones identified in Table 4.1 of the Electrical Equipment Qualification Program.

The safety category refers to the Category 2A, 2B, 2C, and 2D as defined in Appendix E of NUREG-0588. Only Category 2A and 2B devices are included in the Submittal.

The component operating time, identified in the equipment qualification summary sheets, is used as the basis for determining a component's functional requirements after exposure to the harsh environment (HELB or LOCA). The maximum operational time for Fermi-2 is 100 days.

### 3.1.3 Environmental Parameters

The environmental parameters section specifies the normal and accident conditions, for which the equipment must function in the zone identified. The normal conditions are the required non-accident conditions; average temperature, pressure, humidity, and radiation, for the devices worst case environmental zone location. Radiation values are integrated over a 40-year period. The accident conditions are the required LOCA and HELB accident parameters (either process fluid or ambient), including peak temperature, pressure, humidity, spray and radiation are given for the specified environmental zone locations. Accident radiation values are integrated over a 100-day period. Submergence when required is indicated. N/A indicates that submergence is not applicable; not affected indicates that the equipment may be submerged, following an accident, but the functional analysis indicates that the components operability is not affected.

The required profiles specify maximum values for longer time periods than the actual calculated temperature response curve. Additional information with respect to the assumptions used during the break spectrum analysis is provided in the program for the Enrico Fermi Atomic Power Plant, 2 Environmental Qualification of Safety-Related Electrical Equipment for Harsh Environment, Volume I, July 1983.

#### 3.1.4 Demonstrated Material Capability

The demonstrated material capability section provides information about the application of the non-metallic subcomponents, description of each subcomponent's safety function (e.g., SR-safety-related; NSR-non-safety related), and the material's generic name. The non-metallic material's demonstrated temperature and radiation is provided. A determination of pre-accident design life is provided from analysis or test data of the material.

The designation EQ2-EF2-XXX, at the lower left corner of the summary sheets, refers to the Enrico Fermi-2 Equipment Qualification Central File Number. The central file is located at the Enrico Fermi-2 site.

#### 3.1.5 Design Parameters

The manufacturer's design parameters for equipment and components (temperature and pressure) are provided from the vendor drawings or literature. Additionally, the application pressure and temperatures are provided. These values are obtained from engineering design documents and consider the process fluid values.



#### 3.1.6 Qualification Status

The qualification status section provides the conclusion reached after the assessment. The extent of qualification with respect to design life and replacement intervals is discussed in Section 2.2.4 and 4.0 of the program description.

3.1.7 The notes and general comments section is used for notes, general comments, additional information, and/or clarification.

#### 3.2 PIS/Tag No. Index

The PIS/Tag No. Index is used to correlate specific components (PIS/Equipment Numbers) to its associated qualification central file number (QER No.). Each component (PIS & Equipment Number) identified to be NUREG-0588, Appendix E Safety Category 2A or 2B is listed in this index by system. The Environmental Zone, from Table 4-1 of the NUREG-0588 Submittal dated July 1983, pertaining to the actual plant location of the component is given, along with the manufacturer and model number of the component. The QER number refers to the central file number designation EQ2-EF2-XXX. The cross reference summary located at the beginning of this index correlates the central file number to the actual qualification summary sheet number.



#### 4.0 MAINTENANCE AND SURVEILLANCE

In support of the Equipment Environmental Qualification Program (Mechanical and Electrical), the Enrico Fermi-2 Maintenance and Surveillance Program is intended to provide the following:

- To verify the design life of equipment previously established through test and/or analysis
- To provide for periodic maintenance based on manufacturer recommendations and/or the results of environmental qualification reviews and/or analyses in order to maintain equipment qualification
- To provide for the replacement of equipment or part as it approaches the end of its design life.

#### 4.0 Maintenance and Surveillance Program (Continued)

The program will be applied to that equipment identified as safety-related mechanical equipment located in a harsh environment. The program will be integrated with existing plant programs in such a way that continued equipment qualification will be maintained.

Maintenance and Surveillance requirements, when other than routine, for the purpose of maintaining qualification are identified throughout the review process and are documented in the mechanical equipment qualification file.

## CROSS REFERENCE SUMMARY

<u>CENTRAL FILE NUMBER</u>	<u>MANUFACTURER</u>	<u>MODEL NUMBER</u>	<u>EQUIPMENT QUALIFICATION SUMMARY SHEET (EQSS) PAGE NUMBER</u>
EQ2-EF2-001	ATWOOD & MORRILL	SEE EQSS	002
EQ2-EF2-002	ATWOOD & MORRILL	SEE EQSS	003
EQ2-EF2-003	ANCHOR VALVE CO.	SEE EQSS	004
EQ2-EF2-004	COMSIP-DELPHI	K-IV (PANEL)	020
EQ2-EF2-005	BYRON-JACKSON	DVDS 10x12x14	009
EQ2-EF2-006	CRANE-DEMING CO.	SERIES 5063	014
EQ2-EF2-007	CROSBY	SEE EQSS	015
EQ2-EF2-008	CROSBY	SEE EQSS	016
EQ2-EF2-009	CRYENCO (CTI)	SEE EQSS	018
EQ2-EF2-010	DRAGON	10870	021
EQ2-EF2-011	DRAGON	670N;10950 N	022
EQ2-EF2-012	FROMSON HEAT TRANSFER LTD.	70756-A,-B	025
EQ2-EF2-013	FISHER CONTROLS	SEE EQSS	026
EQ2-EF2-014	ITT HAMMEL DAHL	502	028
EQ2-EF2-015	NOT ASSIGNED	-	-
EQ2-EF2-016	PACIFIC SCIENTIFIC	PSA-#	039
EQ2-EF2-017	POWER PIPING CO.	MODEL MX-2	044
EQ2-EF2-018	WHITELEY BEARING CO	SEE EQSS	059

## CROSS REFERENCE SUMMARY

<u>CENTRAL FILE NUMBER</u>	<u>MANUFACTURER</u>	<u>MODEL NUMBER</u>	EQUIPMENT QUALIFICATION SUMMARY SHEET (EQSS)
			<u>PAGE NUMBER</u>
EQ2-EF2-019	JAMESBURY	SEE EQSS	029
EQ2-EF2-020	JAMESBURY	SEE EQSS	030
EQ2-EF2-021	KEROTEST	SEE EQSS	031
EQ2-EF2-022	LUNKENHEIMER	D-12461	034
EQ2-EF2-023	MAROTTA SCIENTIFIC CONTROLS, INC.	RV74A-N	035
EQ2-EF2-024	METAL BELLOWS CORP.	SEE EQSS	036
EQ2-EF2-025	NATIONAL ANNEALING BOX CO.	SEE EQSS	037
EQ2-EF2-026	NEW YORK BLOWER	262LS	038
EQ2-EF2-027	H. K. PORTER/ MARLO COIL	SEE EQSS	041
EQ2-EF2-028	POWELL	SEE EQSS	042
EQ2-EF2-029	POWELL	SEE EQSS	043
EQ2-EF2-030	PRATT/BETTIS	72"XR70/T520SR1	045
EQ2-EF2-031	ROCKWELL	SEE EQSS	046
EQ2-EF2-032	BUFFALO FORGE/ VARIOUS	32-1CB/ MISC. EQUIP.	008
EQ2-EF 033	SINGER(GPE CONTROLS)	LD-24C-210 LD-240-215	049
EQ2-EF2-034	TARGET ROCK	81M	050
EQ2-EF2-035	TARGET ROCK	78U	051
EQ2-EF2-036	TARGET ROCK	7567F	052

## CROSS REFERENCE SUMMARY

<u>CENTRAL FILE NUMBER</u>	<u>MANUFACTURER</u>	<u>MODEL NUMBER</u>	EQUIPMENT QUALIFICATION SUMMARY SHEET (EQSS)
			<u>PAGE NUMBER</u>
EQ2-EF2-037	TOMPKINS-JOHNSON	STYLE 6	055
EQ2-EF2-038	VELAN	W8254B2TS	057
EQ2-EF2-039	YUBA INDUSTRIES	SIZE 29-476	060
EQ2-EF2-040	FLEXITALLIC GASKET CO.	STYLE CG;R	024
EQ2-EF2-041	ROTRON	DR-313	047
EQ2-EF2-042	BORG-WARNER	10043,10056, 10108	007
EQ2-EF2-043	VARIOUS	VITON	056
EQ2-EF2-044	PARKER SEAL (CB&I)	SEE EQSS	040
EQ2-EF2-045	CHICAGO BRIDGE & IRON	SEE EQSS	012
EQ2-EF2-046	NOT ASSIGNED	-	-
EQ2-EF2-047	CHICAGO BRIDGE & IRON AND PROCESS ENG.	SEE EQSS	013
EQ2-EF2-048	BORG-WARNER	NX-0625-FW	006
EQ2-EF2-049	BYRON-JACKSON	DVDS 16x20x28	010
EQ2-EF2-050	AMERICAN WARMING & VENTILATION	DAAP-5676	002
EQ2-EF2-051	KUNKLE	265-1-601	033
EQ2-EF2-052	CRYENCO	SEE EQSS	019
EQ2-EF2-053	CROSBY	SEE EQSS	017
EQ2-EF2-054	GENERAL ELECTRIC/ VARIOUS	729E950/ MISC. EQUIP.	027
EQ2-EF2-055	SCHUTTE & KOERTING	1900F	048



## CROSS REFERENCE SUMMARY

<u>CENTRAL FILE NUMBER</u>	<u>MANUFACTURER</u>	<u>MODEL NUMBER</u>	<u>EQUIPMENT QUALIFICATION SUMMARY SHEET (EQSS) PAGE NUMBER</u>
EQ2-EF2-056	NOT ASSIGNED	-	-
EQ2-EF2-057	NOT ASSIGNED	-	-
EQ2-EF2-058	NOT ASSIGNED	-	-
EQ2-EF2-059	NOT ASSIGNED	-	-
EQ2-EF2-060	TERRY TURBINE CO./ VARIOUS	TYPE CC3/ MISC. EQUIP.	053
EQ2-EF2-061	WESTERN GEAR CORP.	SERIES 4000	058
EQ2-EF2-062	KOPPERS CO.	SEE EQSS	032
EQ2-EF2-063	BINGHAM WILLAMETTE	6x6x10-1/2CP	005
EQ2-EF2-064	BYRON-JACKSON	SEE EQSS	011
EQ2-EF2-065	TERRY TURBINE CO./ VARIOUS	TYPE GS-Z/ MISC. EQUIP.	054
EQ2-EF2-066	FISHER CONTROLS	TYPE 1008-DBQ	023
EQ2-EF2-067	NOT ASSIGNED	-	-
EQ2-EF2-068	NOT ASSIGNED	-	-
EQ2-EF2-069	NOT ASSIGNED	-	-
EQ2-EF2-070	NOT ASSIGNED	-	-

SYS: B21

.TAG .EQUIPMENT PIS NUMBER	.NUMBER .MANUFACTURER	.MODEL NUMBER	.ZONE	.FILE NO .EQ2-EF2 -XXX
2B21-F010A	ACTUATOR	ATWOOD-MORRILL	ACTUATOR	22 002
2B21-F010A	V12-2008	ATWOOD-MORRILL	-----	22 001
2B21-F010B	ACTUATOR	ATWOOD-MORRILL	ACTUATOR	22 002
2B21-F010B	V12-2007	ATWOOD-MORRILL	-----	22 001
2B21-F013A	V22-2071	TARGET ROCK	7567F	22 036
2B21-F013B	V22-2066	TARGET ROCK	7567F	22 036
2B21-F013C	V22-2060	TARGET ROCK	7567F	22 036
2B21-F013D	V22-2054	TARGET ROCK	7567F	22 036
2B21-F013E	V22-2052	TARGET ROCK	7567F	22 036
2B21-F013F	V22-2050	TARGET ROCK	7567F	22 036
2B21-F013G	V22-2068	TARGET ROCK	7567F	22 036
2B21-F013H	V22-2058	TARGET ROCK	7567F	22 036
2B21-F013J	V22-2064	TARGET ROCK	7567F	22 036
2B21-F013K	V22-2062	TARGET ROCK	7567F	22 036
2B21-F013L	V22-2056	TARGET ROCK	7567F	22 036
2B21-F013M	V22-2046	TARGET ROCK	7567F	22 036
2B21-F013N	V22-2047	TARGET ROCK	7567F	22 036
2B21-F013P	V22-2070	TARGET ROCK	7567F	22 036
2B21-F013R	V22-2048	TARGET ROCK	7567F	22 036
2B21-F016	V17-2009	POWELL	19023WE	22 028
2B21-F017	V17-2062	ROCKWELL	3624T	41 031
2B21-F019	V17-2010	POWELL	19023WE	41 028
2B21-F022A	ACTUATOR	ATWOOD-MORRILL	ACTUATOR	22 002
2B21-F022A	V17-2003	ATWOOD-MORRILL	-----	22 001
2B21-F022B	ACTUATOR	ATWOOD-MORRILL	ACTUATOR	22 002
2B21-F022B	V17-2001	ATWOOD-MORRILL	-----	22 001
2B21-F022C	ACTUATOR	ATWOOD-MORRILL	ACTUATOR	22 002
2B21-F022C	V17-2002	ATWOOD-MORRILL	-----	22 001
2B21-F022D	ACTUATOR	ATWOOD-MORRILL	ACTUATOR	22 002
2B21-F022D	V17-2004	ATWOOD-MORRILL	-----	22 001
2B21-F025A	V17-2052	ROCKWELL	3624T	41 031
2B21-F025B	V17-2056	ROCKWELL	3624T	41 031
2B21-F025C	V17-2059	ROCKWELL	3624T	41 031
2B21-F025D	V17-2076	ROCKWELL	3624T	41 031
2B21-F028A	ACTUATOR	ATWOOD-MORRILL	ACTUATOR	41 002
2B21-F028A	V17-2007	ATWOOD-MORRILL	-----	41 001
2B21-F028B	ACTUATOR	ATWOOD-MORRILL	ACTUATOR	41 002
2B21-F028B	V17-2005	ATWOOD-MORRILL	-----	41 001
2B21-F028C	ACTUATOR	ATWOOD-MORRILL	ACTUATOR	41 002
2B21-F028C	V17-2006	ATWOOD-MORRILL	-----	41 001
2B21-F028D	ACTUATOR	ATWOOD-MORRILL	ACTUATOR	41 002
2B21-F028D	V17-2008	ATWOOD-MORRILL	-----	41 001
2B21-F032A	V12-2004	ANCHOR	-----	09 003
2B21-F032B	V12-2003	ANCHOR	-----	10 003
2B21-F037A	V22-2111	CROSBY	VR (8XB)	22 008
2B21-F037B	V22-2100	CROSBY	VR (8XB)	22 008

SYS: B21

.TAG .EQUIPMENT		.MANUFACTURER		.MODEL NUMBER		.FILE NO .EQ2-EF2 .ZONE. -XXX	
PIS NUMBER	NUMBER						
2B21-F037C	V22-2101	CROSBY		VR (BX8)		22	008
2B21-F037D	V22-2104	CROSBY		VR (BX8)		22	008
2B21-F037E	V22-2105	CROSBY		VR (BX8)		22	008
2B21-F037F	V22-2107	CROSBY		VR (BX8)		22	008
2B21-F037G	V22-2099	CROSBY		VR (BX8)		22	008
2B21-F037H	V22-2098	CROSBY		VR (BX8)		22	008
2B21-F037J	V22-2102	CROSBY		VR (BX8)		22	008
2B21-F037K	V22-2103	CROSBY		VR (BX8)		22	008
2B21-F037L	V22-2106	CROSBY		VR (BX8)		22	008
2B21-F037M	V22-2097	CROSBY		VR (BX8)		22	008
2B21-F037N	V22-2108	CROSBY		VR (BX8)		22	008
2B21-F037P	V22-2110	CROSBY		VR (BX8)		22	008
2B21-F037R	V22-2109	CROSBY		VR (BX8)		22	008
2B21-F431	V5-2291	TARGET ROCK		78U-001		41	035
2B21-F432	V5-2292	TARGET ROCK		78U-002		41	035
2B21-F433	V5-2293	TARGET ROCK		78U-003		41	035
2B21-F434	V5-2294	TARGET ROCK		78U-004		41	035
2B21-F435	V5-2263	TARGET ROCK		78U-002		41	035
2B21-F436	V5-2264	TARGET ROCK		78U-001		41	035
2B21-F437	V5-2297	TARGET ROCK		78U-003		41	035
2B21-F438	V5-2298	TARGET ROCK		78U-003		41	035
2B21-F501A	V13-2301	DRAGON		10870		09	010
2B21-F501B	V13-2302	DRAGON		10870		09	010
2B21-F501C	V13-2303	DRAGON		10870		09	010
2B21-F501D	V13-2304	DRAGON		10870		09	010
2B21-F502A	V13-2305	DRAGON		10870		09	010
2B21-F502B	V13-2306	DRAGON		10870		09	010
2B21-F502C	V13-2307	DRAGON		10870		09	010
2B21-F502D	V13-2308	DRAGON		10870		09	010
2B21-F503A	V13-2309	DRAGON		10870		10	010
2B21-F503B	V13-2310	DRAGON		10870		10	010
2B21-F503C	V13-2311	DRAGON		10870		10	010
2B21-F503D	V13-2312	DRAGON		10870		10	010
2B21-F504A	V13-2313	DRAGON		10870		10	010
2B21-F504B	V13-2314	DRAGON		10870		10	010
2B21-F504C	V13-2315	DRAGON		10870		10	010
2B21-F504D	V13-2316	DRAGON		10870		10	010
2B21-F506	V13-2317	DRAGON		10870		26	010
2B21-F507	V13-2318	DRAGON		10870		26	010
2B21-F508	V13-2319	DRAGON		10870		26	010
2B21-F509	V13-2320	DRAGON		10870		26	010
2B21-F510	V13-2321	DRAGON		10870		26	010
2B21-F511	V13-2322	DRAGON		10870		26	010
2B21-F512	V13-2323	DRAGON		10870		26	010
2B21-F513A	V13-2324	DRAGON		10870		10	010
2B21-F513B	V13-2325	DRAGON		10870		09	010
2B21-F513C	V13-2326	DRAGON		10870		10	010

SYS: B21

.TAG .EQUIPMENT PIS NUMBER	.NUMBER	.MANUFACTURER	.MODEL NUMBER	.ZONE	.FILE NO .EQ2-EF2 -XXX
2B21-F513D	V13-2327	DRAGON	10870	09	010
2B21-F514A	V13-2328	DRAGON	10870	10	010
2B21-F514B	V13-2329	DRAGON	10870	09	010
2B21-F514C	V13-2330	DRAGON	10870	10	010
2B21-F514D	V13-2331	DRAGON	10870	09	010
2B21-F515A	V13-2332	DRAGON	10870	10	010
2B21-F515B	V13-2333	DRAGON	10870	09	010
2B21-F515C	V13-2334	DRAGON	10870	10	010
2B21-F515D	V13-2335	DRAGON	10870	09	010
2B21-F515E	V13-2336	DRAGON	10870	10	010
2B21-F515F	V13-2337	DRAGON	10870	09	010
2B21-F515G	V13-2338	DRAGON	10870	10	010
2B21-F515H	V13-2339	DRAGON	10870	09	010
2B21-F515L	V13-2340	DRAGON	10870	10	010
2B21-F515M	V13-2341	DRAGON	10870	09	010
2B21-F515N	V13-2342	DRAGON	10870	10	010
2B21-F515P	V13-2343	DRAGON	10870	09	010
2B21-F515R	V13-2344	DRAGON	10870	10	010
2B21-F515S	V13-2345	DRAGON	10870	09	010
2B21-F515T	V13-2346	DRAGON	10870	10	010
2B21-F515U	V13-2347	DRAGON	10870	09	010
2B21-F516A	V13-2348	DRAGON	10870	10	010
2B21-F516B	V13-2349	DRAGON	10870	09	010
2B21-F516C	V13-2388	DRAGON	10870	10	010
2B21-F517A	V13-2350	DRAGON	10870	09	010
2B21-F517B	V13-2389	DRAGON	10870	09	010
2B21-F517C	V13-2390	DRAGON	10870	09	010
2B21-F517D	V13-2391	DRAGON	10870	10	010
2B21-F600	V10-2010	POWELL	19051YWE	41	029

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SYS: B31

.TAG .EQUIPMENT PIS NUMBER	NUMBER	.MANUFACTURER	.MODEL NUMBER	.ZONE	.FILE NO .EQ2-EF2 -XXX
2B31-F013A	VB-3769	ROCKWELL	3674T	22	031
2B31-F013B	VB-3770	ROCKWELL	3674T	22	031
2B31-F014A	VB-3710	ROCKWELL	3624MMT	22	031
2B31-F014B	VB-3590	ROCKWELL	3624MMT	22	031
2B31-F016A	VB-3767	ROCKWELL	3624MMT	10	031
2B31-F016B	VB-3768	ROCKWELL	3624MMT	09	031
2B31-F017A	VB-3771	ROCKWELL	3624T	10	031
2B31-F017B	VB-3772	ROCKWELL	3674T	09	031
2B31-F020	V17-2078	ROCKWELL	3624MMT	19	031
2B31-F021	V17-2556	KEROTEST	21506X04(1)	19	021
2B31-F031A	VB-2003	LUNKENHEIMER	D-12461	22	022
2B31-F031B	VB-2004	LUNKENHEIMER	D-12461	22	022
2B31-F501A	V13-2351	DRAGON	10870	09	010
2B31-F501B	V13-2353	DRAGON	10870	09	010
2B31-F501C	V13-2352	DRAGON	10870	09	010
2B31-F501D	V13-2354	DRAGON	10870	09	010
2B31-F502A	V13-2355	DRAGON	10870	09	010
2B31-F502B	V13-2356	DRAGON	10870	09	010
2B31-F502C	V13-2357	DRAGON	10870	09	010
2B31-F502D	V13-2358	DRAGON	10870	09	010
2B31-F503A	V13-2359	DRAGON	10870	23	010
2B31-F503B	V13-2360	DRAGON	10870	23	010
2B31-F504A	V13-2361	DRAGON	10870	23	010
2B31-F504B	V13-2362	DRAGON	10870	23	010
2B31-F505A	V13-2363	DRAGON	10870	23	010
2B31-F505B	V13-2364	DRAGON	10870	23	010
2B31-F506A	V13-2365	DRAGON	10870	23	010
2B31-F506B	V13-2366	DRAGON	10870	23	010
2B31-F510A	V13-2367	DRAGON	10870	23	010
2B31-F510B	V13-2368	DRAGON	10870	23	010
2B31-F511A	V13-2369	DRAGON	10870	23	010
2B31-F511B	V13-2370	DRAGON	10870	23	010
2B31-F512A	V13-2371	DRAGON	10870	23	010
2B31-F512B	V13-2372	DRAGON	10870	23	010
2B31-F515A	V13-2373	DRAGON	10870	23	010
2B31-F515B	V13-2374	DRAGON	10870	23	010
2B31-F516A	V13-2375	DRAGON	10870	23	010
2B31-F516B	V13-2376	DRAGON	10870	23	010
2B31-R004A	-----	SCHUTTE & KOERTING	1900F	22	055
2B31-R004B	-----	SCHUTTE & KOERTING	1900F	22	055

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SYS: C11

.TAG .EQUIPMENT PIS NUMBER	NUMBER	.MANUFACTURER	.MODEL NUMBER	.ZONE	.FILE NO .EQ2-EF2 -XXX
2C11-----	HCU-101	VOGT	532-135628	9,10	054
2C11-----	HCU-102	VOGT	532-135628	9,10	054
2C11-----	HCU-107	HANCOCK	5530W-1-X0SH9	9,10	054
2C11-----	HCU-112	VOGT	103-133760	9,10	054
2C11-----	HCU-114	GENERAL ELECTRIC	BALL CHECK VLV	9,10	054
2C11-----	HCU-115	GENERAL ELECTRIC	BALL CHECK VLV	9,10	054
2C11-----	HCU-120	ASCO	HVA-170-966-2A	9,10	054
2C11-----	HCU-121	ASCO	HVA-170-966-1A	9,10	054
2C11-----	HCU-122	ASCO	HVA-170-966-1A	9,10	054
2C11-----	HCU-123	ASCO	HVA-170-966-2A	9,10	054
2C11-----	HCU-125	GENERAL ELECTRIC	921D595-G001	9,10	054
2C11-----	HCU-126	HAMMEL-DAHL	2500ASAV999Z120	9,10	054
2C11-----	HCU-127	HAMMEL-DAHL	2500ASAV999Z120	9,10	054
2C11-----	HCU-138	GENERAL ELECTRIC	BALL CHECK VLV	9,10	054
2C11-----	HCU-F101	DRAGON	10649-5	9,10	054
2C11-----	HCU-F102	DRAGON	10649-3	9,10	054
2C11-F010	V8-2073	HAMMEL-DAHL	502	10	014
2C11-F011	V8-2086	HAMMEL-DAHL	502	12	014
2C11-F090A	V13-6523	DRAGON	10950N	10	011
2C11-F090B	V13-6524	DRAGON	10950N	10	011
2C11-F090C	V13-6529	DRAGON	10950N	09	011
2C11-F090D	V13-6530	DRAGON	10950N	09	011
2C11-F091A	V13-6510	DRAGON	10950N	10	011
2C11-F091B	V13-6511	DRAGON	10950N	10	011
2C11-F091C	V13-6516	DRAGON	10950N	09	011
2C11-F091D	V13-6517	DRAGON	10950N	09	011
2C11-F092A	V13-6525	DRAGON	10950N	10	011
2C11-F092B	V13-6526	DRAGON	10950N	10	011
2C11-F092C	V13-6531	DRAGON	10950N	09	011
2C11-F092D	V13-6532	DRAGON	10950N	09	011
2C11-F093A	V13-6527	DRAGON	10950N	10	011
2C11-F093B	V13-6533	DRAGON	10950N	09	011
2C11-F103A	V13-6513	DRAGON	10950N	10	011
2C11-F103B	V13-6519	DRAGON	10950N	09	011
2C11-F104A	V13-6528	DRAGON	10950N	10	011
2C11-F104B	V13-6534	DRAGON	10950N	09	011
2C11-F140A	V13-6508	DRAGON	10950N	10	011
2C11-F140B	V13-6509	DRAGON	10950N	10	011
2C11-F140C	V13-6514	DRAGON	10950N	09	011
2C11-F140D	V13-6515	DRAGON	10950N	09	011
2C11-F141A	V13-6512	DRAGON	10950N	10	011
2C11-F141B	V13-6518	DRAGON	10950N	09	011
2C11-F155A	V8-4154	ROCKWELL	848YT	09	031
2C11-F155B	V8-4155	ROCKWELL	848YT	09	031
2C11-F155C	V8-4150	ROCKWELL	848YT	10	031
2C11-F155D	V8-4151	ROCKWELL	848YT	10	031
2C11-F156A	V13-7004	ROCKWELL	848YT	09	031

SYS: C11

.TAG .EQUIPMENT PIS NUMBER	.NUMBER	.MANUFACTURER	.MODEL NUMBER	.ZONE	.FILE NO .EQ2-EF2 -XXX
2C11-F156B	V13-7005	ROCKWELL	848YT	09	031
2C11-F156C	V13-7000	ROCKWELL	848YT	10	031
2C11-F156D	V13-7001	ROCKWELL	848YT	10	031
2C11-F157A	V13-7006	ROCKWELL	848YT	09	031
2C11-F157B	V13-7007	ROCKWELL	848YT	09	031
2C11-F157C	V13-7002	ROCKWELL	848YT	10	031
2C11-F157D	V13-7003	ROCKWELL	848YT	10	031
2C11-F158A	V8-4156	ROCKWELL	848YT	09	031
2C11-F158B	V8-4157	ROCKWELL	848YT	09	031
2C11-F158C	V8-4152	ROCKWELL	848YT	10	031
2C11-F158D	V8-4153	ROCKWELL	848YT	10	031
2C11-F180	V8-3876	HAMMEL-DAHL	502	10	014
2C11-F181	V8-3877	HAMMEL-DAHL	502	12	014

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SYS: C41

.TAG		.FILE NO			
.EQUIPMENT		.EQ2-EF2			
PIS NUMBER	NUMBER	MANUFACTURE	MODEL NUMBER	ZONE	-XXX
2C41-F006	VR4-2011	ANCHOR	-----	19	003
2C41-F026	VR4-2010	ROCKWELL	3624T	19	031

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SYS: E11

.TAG .EQUIPMENT PIS NUMBER, NUMBER	.MANUFACTURER	.MODEL NUMBER	.ZONE.	.FILE NO .EQ2-EF2 -XXX
2E11----- CYCLONE	BORG-WARNER	10043	16	042
2E11----- HEAT EXCH	BORG-WARNER	NX-0625-FW	16	048
2E11-F001A V22-2643	KUNKLE	265-1-601	18	051
2E11-F001B V22-2642	KUNKLE	265-1-601	18	051
2E11-F002A V15-2011	POWELL	1503WE	24	029
2E11-F002B V15-2012	POWELL	1503WE	24	029
2E11-F003A V8-2141	POWELL	3023WE	18	028
2E11-F003B V8-2142	POWELL	3023WE	18	028
2E11-F004A V8-2099	POWELL	3023WE	23	028
2E11-F004B V8-2102	POWELL	3023WE	23	028
2E11-F004C V8-2101	POWELL	3023WE	23	028
2E11-F004D V8-2100	POWELL	3023WE	23	028
2E11-F005A V15-2050	ROCKWELL	B48YT	24	031
2E11-F005B V15-2014	ROCKWELL	B48YT	24	031
2E11-F006A V8-2095	POWELL	3023WE	23	028
2E11-F006B V8-2098	POWELL	3023WE	23	028
2E11-F006C V8-2097	POWELL	3023WE	23	028
2E11-F006D V8-2096	POWELL	3023WE	23	028
2E11-F007A V8-2133	POWELL	3003WE (SIM TO)	23	029
2E11-F007B V8-2134	POWELL	3023WE (SIM TO)	23	028
2E11-F008 V8-2092	POWELL	19023WE	24	028
2E11-F009 V8-2091	POWELL	19023WE	22	028
2E11-F010 V8-2107	POWELL	3023WE	23	028
2E11-F013A V8-3212	ROCKWELL	B48YT	16	031
2E11-F013B V8-4366	ROCKWELL	B48YT	16	031
2E11-F013C V8-3216	ROCKWELL	B48YT	16	031
2E11-F013D V8-4367	ROCKWELL	B48YT	16	031
2E11-F014A V15-2009	POWELL	1503WE	24	029
2E11-F014B V15-2010	POWELL	1503WE	24	029
2E11-F015A V8-2161	POWELL	19023WE	24	028
2E11-F015B V8-2162	POWELL	19023WE	24	028
2E11-F016A V8-2167	POWELL	3051WE (SIM TO)	24	028
2E11-F016B V8-2168	POWELL	3051WE (SIM TO)	18	028
2E11-F017A V8-2159	POWELL	19051YWE	23	029
2E11-F017B V8-2160	POWELL	19051YWE	23	029
2E11-F018A V8-2094	POWELL	3003WE (SIM TO)	16	029
2E11-F018B V8-2130	POWELL	3003WE (SIM TO)	16	029
2E11-F018C V8-2131	POWELL	3003WE (SIM TO)	16	029
2E11-F018D V8-2132	POWELL	3003WE (SIM TO)	16	029
2E11-F020A V15-2021	POWELL	1561AWE	23	028
2E11-F020B V15-2020	POWELL	1561AWE	11	028
2E11-F021A V8-2169	POWELL	3023WE (SIM TO)	24	028
2E11-F021B V8-2170	POWELL	3023WE (SIM TO)	19	028
2E11-F022 V8-2172	POWELL	19023WE	22	028
2E11-F023 V8-2171	POWELL	19051YWE	39	029
2E11-F024A V8-2135	POWELL	3051WE (SIM TO)	23	028
2E11-F024B V8-2136	POWELL	3051WE	23	028



SYS: E11

PIS NUMBER	.TAG EQUIPMENT NUMBER	MANUFACTURER	MODEL NUMBER	.ZONE	.FILE NO EQ2-EF2 -XXX
2E11-F025A	V22-2025	CROSBY	JQ-36STM	23	007
2E11-F025B	V22-2041	CROSBY	JQ-36STM	11	007
2E11-F026B	V8-2152	POWELL	3023WE (SIM TO)	23	028
2E11-F027A	V8-2157	POWELL	3051WE (SIM TO)	23	028
2E11-F027B	V8-2158	POWELL	3051WE (SIM TO)	23	028
2E11-F028A	V8-2155	POWELL	3023WE	23	028
2E11-F028B	V8-2156	POWELL	3023WE	23	028
2E11-F030A	V22-2034	CROSBY	JMB-WR-C	16	053
2E11-F030B	V22-2037	CROSBY	JMB-WR-C	16	053
2E11-F030C	V22-2036	CROSBY	JMB-WR-C	16	053
2E11-F030D	V22-2035	CROSBY	JMB-WR-C	16	053
2E11-F031A	V8-2103	POWELL	3061AWE	23	028
2E11-F031B	V8-2104	POWELL	3061WE	16	028
2E11-F031C	V8-2105	POWELL	3061AWE	16	028
2E11-F031D	V8-2106	POWELL	3061WE	16	028
2E11-F032A	V15-2157	ROCKWELL	848YT	18	031
2E11-F032B	V15-2175	ROCKWELL	848YT	18	031
2E11-F034A	V8-2107	POWELL	3003WE	16	029
2E11-F034B	V8-2108	POWELL	3003WE	16	029
2E11-F034C	V8-2109	POWELL	3003WE	16	029
2E11-F034D	V8-2110	POWELL	3003WE	16	029
2E11-F035A	V8-3244	POWELL	3061AWE	23	028
2E11-F035B	V8-3245	POWELL	3061AWE (SIM)	11	028
2E11-F036A	V8-4405	ROCKWELL	848YT	24	031
2E11-F036B	V8-3187	ROCKWELL	D3624T	18	031
2E11-F037A	V15-2158	ROCKWELL	848YT	23	031
2E11-F037B	V15-2153	ROCKWELL	848YT	23	031
2E11-F039A	V8-3155	POWELL	3061AWE	23	028
2E11-F039B	V8-2153	POWELL	3023WE	11	028
2E11-F041A	V15-2159	ROCKWELL	848YT	23	031
2E11-F041B	V15-2154	ROCKWELL	848YT	23	031
2E11-F044A	V8-3213	ROCKWELL	848YT	16	031
2E11-F044B	V8-3200	ROCKWELL	848YT	16	031
2E11-F044C	V8-3217	ROCKWELL	848YT	16	031
2E11-F044D	V8-3202	ROCKWELL	848YT	16	031
2E11-F046A	V8-2125	POWELL	3061AWE	16	028
2E11-F046B	V8-2126	POWELL	3061AWE	16	028
2E11-F046C	V8-2127	POWELL	3061AWE	16	028
2E11-F046D	V8-2128	POWELL	3061AWE	16	028
2E11-F047A	V8-2137	POWELL	3023WE	18	028
2E11-F047B	V8-2138	POWELL	3023WE	18	028
2E11-F048A	V8-2139	POWELL	3051WE (SIM TO)	10	028
2E11-F048B	V8-2140	POWELL	3051WE (SIM TO)	24	028
2E11-F054B	V8-2150	POWELL	3061AWE (SIM)	23	028
2E11-F056A	V22-2641	KUNKLE	265-1-601	24	051
2E11-F056B	V22-2640	KUNKLE	265-1-601	24	051
2E11-F057A	V15-2155	ROCKWELL	848YT	23	031



SYS: E11

.TAG .EQUIPMENT		.MANUFACTURER		.MODEL NUMBER		.FILE NO .EQ2-EF2 .ZONE. -XXX	
PIS NUMBER	NUMBER						
2E11-F057B	V15-2151	ROCKWELL		848YT		23	031
2E11-F058A	V8-3204	ROCKWELL		D3624T		22	031
2E11-F058B	V8-3188	ROCKWELL		D3624T		24	031
2E11-F060A	V8-2165	POWELL		19003WE		10	028
2E11-F060B	V8-2166	POWELL		19003WE		22	028
2E11-F061	V8-3185	ROCKWELL		D3624T		39	031
2E11-F063	V8-2207	ROCKWELL		D3624T		24	031
2E11-F066	V8-3191	ROCKWELL		848YT		23	031
2E11-F067	V8-2090	POWELL		19003WE		22	028
2E11-F068A	V15-2018	POWELL		1531WE		18	028
2E11-F068B	V15-2019	POWELL		1531WE (SIM TO)		18	028
2E11-F069A	V15-2156	ROCKWELL		848YT		11	031
2E11-F069B	V15-2152	ROCKWELL		848YT		23	031
2E11-F071A	V8-2129	POWELL		3003WE		16	029
2E11-F071B	V8-2112	POWELL		3003WE		16	029
2E11-F071C	V8-2113	POWELL		3003WE		16	029
2E11-F071D	V8-2114	POWELL		3003WE		16	029
2E11-F072A	V8-2115	POWELL		3003WE		16	029
2E11-F072B	V8-2116	POWELL		3003WE		16	029
2E11-F072C	V8-2117	POWELL		3003WE		16	029
2E11-F072D	V8-2118	POWELL		3003WE		16	029
2E11-F073	V15-2015	POWELL		3023WE		24	028
2E11-F074	V8-3195	ROCKWELL		848YT		24	031
2E11-F075	V15-2016	POWELL		3023WE		24	028
2E11-F076	V8-3194	ROCKWELL		848YT		24	031
2E11-F078	V15-2017	ANCHOR		-----		24	003
2E11-F079A	V8-3206	ROCKWELL		3624MMT		18	031
2E11-F079B	V8-3193	ROCKWELL		3624MMT		18	031
2E11-F081	V15-2174	ROCKWELL		848YT		24	031
2E11-F082A	V8-2175	POWELL		3003WE		23	029
2E11-F082B	V8-2174	POWELL		3003WE		23	029
2E11-F084A	V8-3628	ROCKWELL		848YT		18	031
2E11-F084B	V8-3280	ROCKWELL		848YT		24	031
2E11-F086	V8-3575	ROCKWELL		D3624T		22	031
2E11-F089	V8-2179	POWELL		3061AWE (SIM)		18	028
2E11-F090	V8-2180	POWELL		3061AWE (SIM)		18	028
2E11-F092	V8-3574	ROCKWELL		D3624T		22	031
2E11-F094A	V8-3626	ROCKWELL		848YT		23	031
2E11-F094B	V8-3624	ROCKWELL		848YT		23	031
2E11-F105A	V8-3627	ROCKWELL		843YT		16	031
2E11-F105B	V8-3625	ROCKWELL		848YT		16	031
2E11-F107A	V15-2049	ROCKWELL		848YT		24	031
2E11-F107B	V15-2047	ROCKWELL		848YT		24	031
2E11-F109A	V15-2048	ROCKWELL		848YT		24	031
2E11-F109B	V15-2046	ROCKWELL		848YT		24	031
2E11-F112A	V8-3209	ROCKWELL		848YT		24	031
2E11-F112B	V8-3196	ROCKWELL		848YT		24	031

SYS: E11

.TAG .EQUIPMENT PIS NUMBER .NUMBER		.MANUFACTURER	.MODEL NUMBER	.ZONE.	.FILE NO .EQ2-EF2 -XXX
2E11-F114A	V8-3579	ROCKWELL	D3624T	10	031
2E11-F114B	V8-3597	ROCKWELL	D3624T	22	031
2E11-F116A	V8-3577	ROCKWELL	D3624T	18	031
2E11-F116B	V8-3576	ROCKWELL	D3624T	22	031
2E11-F118A	V13-7052	KEROTEST	2150B-(1)	19	021
2E11-F118B	V13-7053	KEROTEST	2150B-(1)	22	021
2E11-F118C	V13-7054	KEROTEST	2150B-(1)	19	021
2E11-F118D	V13-7055	KEROTEST	2150B-(1)	22	021
2E11-F120A	V8-3578	ROCKWELL	D3624T	24	031
2E11-F120B	V8-3598	ROCKWELL	D3624T	24	031
2E11-F122A	V8-3283	ROCKWELL	848YT	24	031
2E11-F122B	V8-3286	ROCKWELL	848YT	18	031
2E11-F124A	V8-3062	ROCKWELL	848YT	24	031
2E11-F124B	V8-3061	ROCKWELL	348YT	18	031
2E11-F126A	V8-3282	ROCKWELL	848YT	23	031
2E11-F126B	V8-3623	ROCKWELL	848YT	23	031
2E11-F128A	V8-3284	ROCKWELL	848YT	16	031
2E11-F128C	V8-3285	ROCKWELL	848YT	16	031
2E11-F131	V8-3411	ROCKWELL	838YT	23	031
2E11-F137	V8-3622	ROCKWELL	848YT	23	031
2E11-F139	V8-3287	ROCKWELL	848YT	23	031
2E11-F141	V8-3642	ROCKWELL	848YT	23	031
2E11-F143	V8-3587	ROCKWELL	D3624T	22	031
2E11-F145	V17-2621	KEROTEST	21506X04(1)	34	021
2E11-F147A	V15-2051	ROCKWELL	848YT	24	031
2E11-F147B	V15-2013	ROCKWELL	848YT	24	031
2E11-F184	V8-2491	ROCKWELL	838YT	23	031
2E11-F185	V8-2492	ROCKWELL	838YT	23	031
2E11-F188A	V8-3972	ROCKWELL	3624T	23	031
2E11-F188B	V8-3971	ROCKWELL	3624T	23	031
2E11-F188C	V8-3973	ROCKWELL	3624T	23	031
2E11-F188D	V8-3974	ROCKWELL	3624T	23	031
2E11-F204B	V8-3621	ROCKWELL	848YT	18	031
2E11-F207	V13-3175	ROCKWELL	848YT	18	031
2E11-F251	V8-3312	ROCKWELL	848YT	39	031
2E11-F411A	V8-4613	ANCHOR	-----	23	003
2E11-F411B	V8-4614	ANCHOR	-----	23	003
2E11-F413	V5-2547	TARGET ROCK	81M-001	18	034
2E11-F414	V5-2548	TARGET ROCK	81M-001	19	034
2E11-F415	V5-2549	TARGET ROCK	81M-001	19	034
2E11-F417	V8-4415	ROCKWELL	848YT	24	031
2E11-F418	V8-4398	TARGET ROCK	81M-001	18	034
2E11-F420	V8-3963	ROCKWELL	D3624T	18	031
2E11-F608	V8-3407	POWELL	19023WE	22	028
2E1101B001	A	FROMSON	70756B	24	012
2E1101B001	B	FROMSON	70756A	24	012
2E1102C002	A PUMP	BYRON-JACKSON	DVDS 16X20X28	16	049

SYS: E11

.TAG	.	.	.	.FILE NO
.EQUIPMENT	.	.	.	.EQ2-EF2
PIS NUMBER.NUMBER	.MANUFACTURER	.MODEL NUMBER	.ZONE.	-XXX
2E1102C002 B PUMP	BYRON-JACKSON	DVDS 16X20X28	16	049
2E1102C002 C PUMP	BYRON-JACKSON	DVDS 16X20X28	16	049
2E1102C002 D PUMP	BYRON-JACKSON	DVDS 16X20X28	16	049

E11

SYS: E21

.TAG	.EQUIPMENT	.MANUFACTURER	.MODEL NUMBER	.ZONE.	.FILE NO
PIS NUMBER	NUMBER				EQ2-EF2
					-XXX

2E21-D004	EXP BEL	PROCESS ENG	EXP BELLOWS	15	047
2E21-F001A	V8-2009	POWELL	3003WE	12	029
2E21-F001B	V8-2012	POWELL	3003WE	12	029
2E21-F001C	V8-2011	POWELL	3003WE	12	029
2E21-F001D	V8-2010	POWELL	3003WE	12	029
2E21-F002A	V8-2013	POWELL	3003WE	15	029
2E21-F002B	V8-2014	POWELL	3003WE	12	029
2E21-F003A	V8-2015	POWELL	3061AWE	12	028
2E21-F003B	V8-2016	POWELL	3061AWE	12	028
2E21-F003C	V8-2017	POWELL	3061AWE	12	028
2E21-F003D	V8-2018	POWELL	3061AWE	12	028
2E21-F004A	V8-2019	POWELL	19023WE	19	028
2E21-F004B	V8-2020	POWELL	19023WE	19	028
2E21-F005A	V8-2021	POWELL	19023WE	19	028
2E21-F005B	V8-2022	POWELL	19023WE	19	028
2E21-F008C	V8-2070	ROCKWELL	848YT	15	031
2E21-F008D	V8-2068	ROCKWELL	848YT	15	031
2E21-F010A	V8-2027	POWELL	3031WE (SIM TO)	15	028
2E21-F010B	V8-2030	POWELL	3031WE (SIM TO)	15	028
2E21-F010C	V8-2046	POWELL	3031WE (SIM TO)	15	028
2E21-F010D	V8-2028	POWELL	3031WE (SIM TO)	15	028
2E21-F011A	V22-2120	CROSBY	J0-35-WR	12	007
2E21-F011B	V22-2119	CROSBY	J0-35-WR	12	007
2E21-F012A	V22-2016	CROSBY	J0-35-WR	12	007
2E21-F012B	V22-2017	CROSBY	J0-35-WR	12	007
2E21-F013B	V8-2065	ROCKWELL	3624T	19	031
2E21-F015A	V8-2033	POWELL	3051WE	12	028
2E21-F015B	V8-2034	POWELL	3051WE	12	028
2E21-F016A	V8-2054	ROCKWELL	848YT	15	031
2E21-F016B	V8-4369	ROCKWELL	848YT	15	031
2E21-F016C	V8-2058	ROCKWELL	848YT	15	031
2E21-F016D	V8-2062	ROCKWELL	848YT	15	031
2E21-F017A	V8-3182	POWELL	3061AWE	23	028
2E21-F017B	V8-3181	POWELL	3061AWE	23	028
2E21-F018A	V8-2071	ROCKWELL	848YT	19	031
2E21-F018B	V8-2072	ROCKWELL	848YT	19	031
2E21-F020A	V8-2042	ROCKWELL	848YT	15	031
2E21-F020B	V8-2037	ROCKWELL	848YT	15	031
2E21-F020C	V8-2043	ROCKWELL	848YT	15	031
2E21-F020D	V8-2036	ROCKWELL	848YT	15	031
2E21-F022A	V8-3582	ROCKWELL	D3624T	19	031
2E21-F022B	V8-3585	ROCKWELL	D3624T	19	031
2E21-F029A	V8-2053	POWELL	3061AWE	10	028
2E21-F029B	V8-2057	POWELL	3061AWE	09	028
2E21-F030A	V8-2051	POWELL	3061AWE	10	028
2E21-F030B	V8-2055	POWELL	3061AWE	09	028
2E21-F031A	V8-2031	POWELL	3023WE (SIM TO)	12	028



SYS: E21

.TAG .EQUIPMENT PIS NUMBER	.NUMBER .MANUFACTURER	.MODEL NUMBER	.ZONE	.FILE NO .EQ2-EF2 -XXX
2E21-F031B	V8-2032 POWELL	3023WE (SIM TO)	12	028
2E21-F032A	V22-2019 CROSBY	JMB-WR-C	15	053
2E21-F032B	V22-2004 CROSBY	JMB-WR-C	15	053
2E21-F034A	V8-2052 ROCKWELL	848YT	15	031
2E21-F034B	V8-2064 ROCKWELL	848YT	15	031
2E21-F034C	V8-2056 ROCKWELL	848YT	15	031
2E21-F034D	V8-2060 ROCKWELL	848YT	15	031
2E21-F036A	V8-2007 POWELL	3023WE	23	028
2E21-F036B	V8-2008 POWELL	3023WE	23	028
2E21-F037A	V8-2047 POWELL	3003WE	15	029
2E21-F037B	V8-2050 POWELL	3003WE	15	029
2E21-F037C	V8-2049 POWELL	3003WE	15	029
2E21-F037D	V8-2048 POWELL	3003WE	15	029
2E21-F038A	V8-2044 POWELL	3061AWE	12	028
2E21-F038B	V8-2041 POWELL	3061AWE	12	028
2E21-F038C	V8-2045 POWELL	3061AWE	12	028
2E21-F038D	V8-2040 POWELL	3061AWE	12	028
2E21-F045A	V8-3346 ROCKWELL	848YT	15	031
2E21-F045B	V8-3695 ROCKWELL	848YT	15	031
2E21-F045C	V8-3347 ROCKWELL	848YT	15	031
2E21-F045D	V8-3694 ROCKWELL	848YT	15	031
2E21-F047	V8-4399 ROCKWELL	848YT	15	031
2E21-F049	V8-3344 ROCKWELL	848YT	15	031
2E21-F051A	V8-3343 ROCKWELL	848YT	23	031
2E21-F051B	V8-3696 ROCKWELL	848YT	15	031
2E21-F053A	V8-3830 ROCKWELL	848YT	15	031
2E21-F053C	V8-3267 ROCKWELL	848YT	15	031
2E21-F055	V8-3342 ROCKWELL	848YT	23	031
2E21-F065	V8-3381 ROCKWELL	848YT	23	031
2E21-F068	V8-4370 ROCKWELL	848YT	15	031
2E21-F069	V8-4371 ROCKWELL	848YT	23	031
2E21-F070	V8-4372 ROCKWELL	848YT	23	031
2E21-F500A	V13-2377 DRAGON	10870	23	010
2E21-F500B	V13-2378 DRAGON	10870	23	010
2E2101C001	A BYRON-JACKSON	DVDS 10X12X14	15	005
2E2101C001	B BYRON-JACKSON	DVDS 10X12X14	15	005
2E2101C001	C BYRON-JACKSON	DVDS 10X12X14	15	005
2E2101C001	D BYRON-JACKSON	DVDS 10X12X14	15	005

E21



SYS: E41

PIS NUMBER	TAG EQUIPMENT NUMBER	MANUFACTURER	MODEL NUMBER	ZONE	FILE NO EQ2-EF2 -XXX
2E41-----	CK VLV	VOGT	705/7/8	17	060
2E41-----	CNTRL VLV	ROBERT SHAW	VL-210	17	060
2E41-----	COUPLING-1	FAST (KOPPER'S CO)	NO.4-1/2	17	062
2E41-----	COUPLING-2	FAST (KOPPER'S CO)	NO.3 & NO.3-1/2	17	062
2E41-----	CYCLONE	BORG-WARNER	10056	17	042
2E41-----	FLEX COUPL	ZURN	AMERIGEAR C	17	060
2E41-----	NEEDLE VLV	WHITNEY	NO. 4	17	060
2E41-----	OIL COOLER	AMERICAN STANDARD	806C-210	17	060
2E41-----	OIL FILTER	NUGENT	1524 FN	17	060
2E41-----	OIL PUMP	DELAVAL	A3DBC	17	060
2E41-----	PIPING RV	FULFLO	VSF-7	17	060
2E41-----	PUMP	WESTERN	SERIES 4000	17	061
2E41-----	REDUCE VLV	FISHER	SIZE 32 655-AR	17	060
2E41-----	RELIEF VLV	FULFLO	VSF-7	17	060
2E41-----	THERMO VLV	AMOT	2BFC	17	060
2E41-B001	CONDENSER	NASH ENG. CO.	CSM 40	17	060
2E41-C001A	MAIN PUMP	BYRON-JACKSON	DVMX 10X12X15	17	064
2E41-C001B	BOOST PUMP	BYRON-JACKSON	DVS 12X14X23	17	064
2E41-C002	TURBINE	TERRY TURBINE	TYPE CSS	17	060
2E41-C003	VAC PUMP	NASH ENG. CO.	MD671	17	060
2E41-C004	COND PUMP	NASH ENG. CO.	S 1-1/4C	17	060
2E41-C005	OIL PUMP	TUTHILL	CEN-5	17	060
2E41-F001	V17-2022	POWELL	19023WE	17	028
2E41-F002	V17-2020	POWELL	19023WE	17	028
2E41-F003	V17-2021	POWELL	19023WE	41	028
2E41-F004	V8-2191	POWELL	3023WE	17	028
2E41-F005	V8-2195	POWELL	16065YWE	17	028
2E41-F006	V8-2194	POWELL	19023WE	41	028
2E41-F007	V8-2193	POWELL	16023WE	17	028
2E41-F008	V8-2198	POWELL	16051YWE	12	028
2E41-F009	V8-2192	POWELL	3061AWE	17	028
2E41-F011	V8-2200	POWELL	16023WE	23	028
2E41-F012	V8-2196	POWELL	16051YWE	17	028
2E41-F013	V11-2004	ROCKWELL	848YT	23	031
2E41-F014	V17-2018	ROCKWELL	D3624T	41	031
2E41-F016	V8-2242	ROCKWELL	D3624T	17	031
2E41-F018	V22-2001	CROSBY	JMBU-C	17	007
2E41-F019	V8-2199	POWELL	16051YWE	23	028
2E41-F020	V22-2044	CROSBY	JD-25-WR	17	007
2E41-F021	V11-2006	POWELL	3084WE	12	028
2E41-F022	V11-2008	ROCKWELL	3664MT	23	031
2E41-F023	V8-3705	ROCKWELL	848YT	17	031
2E41-F025	V8-2213	ROCKWELL	3624MMT	17	031
2E41-F026	V8-2214	ROCKWELL	3624MMT	17	031
2E41-F027	V17-2017	FISHER	1008-DBQ	17	066
2E41-F028	V17-2024	ROCKWELL	3624MMT	17	031
2E41-F029	V17-2025	ROCKWELL	3624MMT	17	031

SYS: E41

.TAG .EQUIPMENT		.MANUFACTURER		.MODEL NUMBER		.FILE NO .EQ2-EF2 .ZONE. -XXX	
PIS NUMBER	NUMBER						
2E41-F030	V17-2094	ROCKWELL		3624T	17	031	
2E41-F031	V17-2093	ROCKWELL		3624T	17	031	
2E41-F032	V8-3275	ROCKWELL		848YT	12	031	
2E41-F035	V8-2209	FISHER		EZ-657NS-3582	17	013	
2E41-F037	V8-3409	ROCKWELL		3624T	27	031	
2E41-F040	V11-2007	ROCKWELL		838YT	23	031	
2E41-F041	V8-2204	POWELL		3023WE	17	028	
2E41-F042	V8-2202	POWELL		3023WE	23	028	
2E41-F043	V8-2241	ROCKWELL		848YT	17	031	
2E41-F044	V8-2257	ROCKWELL		848YT	17	031	
2E41-F045	V8-2203	POWELL		3061AWE (SIM)	17	028	
2E41-F046	V8-2197	POWELL		16065YWE	17	028	
2E41-F047	V11-2009	ROCKWELL		848YT	23	031	
2E41-F048	V8-2208	ROCKWELL		838YT	17	031	
2E41-F049	V11-2005	POWELL		3061WE (SIM TO)	12	028	
2E41-F050	V22-2586	CROSBY		JD-25-WR	17	007	
2E41-F051	V8-3273	ROCKWELL		848YT	17	031	
2E41-F052	V8-2238	ROCKWELL		838YT	17	031	
2E41-F053	V8-2212	ROCKWELL		3624MMT	17	031	
2E41-F054	V17-2033	ROCKWELL		3624MMT	17	031	
2E41-F055	V17-2011	ROCKWELL		D3624T	17	031	
2E41-F057	V8-2236	ROCKWELL		838YT	17	031	
2E41-F058	V8-2237	ROCKWELL		848YT	17	031	
2E41-F059	V8-2218	ROCKWELL		3624MT	17	031	
2E41-F060	V8-2211	ROCKWELL		848YT	17	031	
2E41-F061	V8-2215	ROCKWELL		848YT	17	031	
2E41-F062	V8-2216	ROCKWELL		3624T	17	031	
2E41-F063	V8-2217	ROCKWELL		3624T	17	031	
2E41-F064	V8-2247	ROCKWELL		848YT	15	031	
2E41-F067	V17-2026	SCHUTTE & KOERTING		68-S-193	17	060	
2E41-F068	V17-2027	TERRY TURBINE		-----	17	060	
2E41-F075	V11-2013	POWELL		3023WE	23	028	
2E41-F076	V11-2015	POWELL		3061AWE	23	028	
2E41-F077	V11-2016	POWELL		3061AWE	23	028	
2E41-F079	V11-2019	POWELL		3023WE	23	028	
2E41-F090	V11-2014	ROCKWELL		848YT	23	031	
2E41-F091	V11-2017	ROCKWELL		848YT	23	031	
2E41-F092	V11-2018	ROCKWELL		848YT	23	031	
2E41-F107	V8-3306	ROCKWELL		848YT	17	031	
2E41-F108	V8-3307	ROCKWELL		848YT	17	031	
2E41-F109	V8-3961	ROCKWELL		3624T	17	031	
2E41-F110	V8-3962	ROCKWELL		3624T	17	031	
2E41-F153	V17-2068	ROCKWELL		3624T	22	031	
2E41-F300	V8-2226	FISHER		TYPE 9B-H	17	060	
2E41-F500	V13-2379	DRAGON		10870	23	010	
2E41-F501	V13-2380	DRAGON		10870	23	010	
2E41-F302	V13-2381	DRAGON		10870	23	010	

SYS: E41

.TAG	.	.	.	.FILE NO
.EQUIPMENT	.	.	.	.EQ2-EF2
PIS NUMBER.NUMBER	.MANUFACTURER	.MODEL NUMBER	.ZONE.	-XXX
2E41-F503	V13-2382	DRAGON	10870	23 010
2E41-F600	V17-2088	ROCKWELL	3624MT	41 031

E41

SYS: E51

.TAG .EQUIPMENT PIS NUMBER	NUMBER	MANUFACTURER	MODEL NUMBER	ZONE	FILE NO EQ2-EF2 -XXX
2E51-----	CYCLONE	BORG-WARNER	1010B	15	042
2E51-----	OIL COOLER	WHITLOCK	MHT4S(2-1/2)CB	15	065
2E51-B001	CONDENSER	NASH ENG. CO.	-----	15	065
2E51-C001	RCIC PUMP	BINGHAM WILLAMETTE	6X6X10-1/2 CP	15	063
2E51-C002	TURBINE	TERRY TURBINE	GS-2	15	065
2E51-C003	COND PUMP	NASH ENG. CO.	S 1-1/4C	15	065
2E51-C004	VAC PUMP	NASH ENG. CO.	MD-671 (573)	15	065
2E51-F001	V11-2002	POWELL	3084WE	15	028
2E51-F002	V8-2235	ROCKWELL	3664MT	15	031
2E51-F003	V8-3274	ROCKWELL	848YT	12	031
2E51-F004	V8-2243	ROCKWELL	3624MMT	15	031
2E51-F005	V8-2244	ROCKWELL	3624MMT	15	031
2E51-F007	V17-2030	POWELL	19023WE	22	028
2E51-F008	V17-2031	POWELL	19023WE	41	028
2E51-F009	V8-3271	ROCKWELL	848YT	15	031
2E51-F011	V8-2222	POWELL	3061AWE (SIM)	15	028
2E51-F012	V8-2227	POWELL	16023WE	12	028
2E51-F013	V8-2228	POWELL	19023WE	10	028
2E51-F014	V8-2229	POWELL	16065YWE	12	028
2E51-F015	V8-2240	FISHER	EZ-657NS-3582	15	013
2E51-F016	V8-2280	POWELL	3003WE (SIM TO)	15	029
2E51-F017	V22-2002	CROSBY	JMB-WR-C	15	007
2E51-F018	V22-2587	CROSBY	JD-25-WR	15	007
2E51-F019	V8-2230	ROCKWELL	3624MT	23	031
2E51-F020	V11-2003	POWELL	3003WE (SIM TO)	15	029
2E51-F021	V8-2231	ROCKWELL	838YT	12	031
2E51-F022	V8-2232	POWELL	16051YWE	27	028
2E51-F024	V17-2086	FISHER	1008-DBQ	15	066
2E51-F025	V17-2036	ROCKWELL	3624MMT	15	031
2E51-F026	V17-2037	ROCKWELL	3624MMT	15	031
2E51-F027	V11-2012	ROCKWELL	848YT	15	031
2E51-F028	V8-2234	ROCKWELL	838YT	15	031
2E51-F029	V8-2223	POWELL	3023WE	15	028
2E51-F030	V8-2224	POWELL	3061AWE (SIM)	15	028
2E51-F031	V8-2225	POWELL	3023WE	15	028
2E51-F032	V8-2278	ROCKWELL	848YT	15	031
2E51-F033	V22-2003	CROSBY	JMBU-C	15	007
2E51-F034	V8-3632	ROCKWELL	848YT	12	031
2E51-F036	V8-2259	ROCKWELL	D3624T	10	031
2E51-F038	V17-2091	ROCKWELL	3624T	15	031
2E51-F039	V17-2092	ROCKWELL	3624T	15	031
2E51-F040	V11-2539	ANCHOR	-----	15	003
2E51-F041	V11-2010	ROCKWELL	848YT	23	031
2E51-F044	V17-2029	SCHUTTE & KOERTING	69-S-241	15	065
2E51-F045	V17-2032	POWELL	19051YWE	15	029
2E51-F046	V8-2239	ROCKWELL	3624MT	15	031
2E51-F047	V8-2245	ROCKWELL	838YT	15	031



SYS: E51

.TAG .EQUIPMENT		.MANUFACTURER		.MODEL NUMBER		.FILE NO .EQ?-EF2 .ZONE. -XXX	
PIS NUMBER	NUMBER						
2E51-F048	V8-3219	ROCKWELL		848YT		15	031
2E51-F049	V8-2283	ROCKWELL		848YT		15	031
2E51-F050	V8-2281	ROCKWELL		848YT		15	031
2E51-F051	V8-2282	ROCKWELL		848YT		15	031
2E51-F053	V17-2034	ROCKWELL		D3624T		15	031
2E51-F054	V17-2035	ROCKWELL		3624MMT		15	031
2E51-F055	V8-2279	ROCKWELL		848YT		15	031
2E51-F056	V11-2011	ROCKWELL		848YT		15	031
2E51-F057	V8-2276	ROCKWELL		848YT		12	031
2E51-F059	V17-2023	TERRY TURBINE		-----		15	065
2E51-F062	V11-2020	POWELL		3023WE		23	028
2E51-F063	V11-2022	POWELL		3061AWE		23	028
2E51-F064	V11-2024	POWELL		3061AWE		23	028
2E51-F065	V11-2025	ROCKWELL		848YT		23	031
2E51-F066	V8-3824	ROCKWELL		848YT		12	031
2E51-F069	V8-3631	ROCKWELL		848YT		12	031
2E51-F074	V8-3630	ROCKWELL		848YT		15	031
2E51-F082	V11-2021	ROCKWELL		848YT		23	031
2E51-F083	V11-2023	ROCKWELL		848YT		23	031
2E51-F084	V11-2026	POWELL		3023WE		23	028
2E51-F103	V8-3964	ROCKWELL		3624T		15	031
2E51-F111	V8-3967	ROCKWELL		3624T		15	031
2E51-F112	V17-2069	ROCKWELL		3624T		22	031
2E51-F114	V8-3933	ROCKWELL		848YT		15	031
2E51-F200	V8-4618	FISHER		98H		15	065
2E51-F503	V13-2383	DRAGON		10870		15	010
2E51-F504	V13-2384	DRAGON		10870		23	010
2E51-F505	V13-2385	DRAGON		10870		10	010
2E51-F506	V13-2386	DRAGON		10870		10	010

E51



SYS: G11

PIS NUMBER	.TAG .EQUIPMENT .NUMBER	.MANUFACTURER	.MODEL NUMBER	.ZONE	.FILE NO .EQ2-EF2 -XXX
2G11-F003	ACTUATOR	TOMKINS-JOHNSON	STYLE 6	12	037
2G11-F003	V9-2005	POWELL	3003WE	12	029
2G11-F018	V9-2022	POWELL	3023WE	22	028
2G11-F019	ACTUATOR	TOMKINS-JOHNSON	STYLE 6	12	037
2G11-F019	V9-2023	POWELL	3003WE	12	029
2G11-F600	V9-2044	POWELL	3023WE (SIM TO)	22	028

G11

SYS: G33

.TAG				.FILE NO	
.EQUIPMENT				.EQ2-EF2	
PIS NUMBER	NUMBER	MANUFACTURER	MODEL NUMBER	ZONE	-XXX
2G33-F001	VB-2252	POWELL	19023WE	22	028
2G33-F002	VB-3032	ROCKWELL	3624T	18	031
2G33-F004	VB-2253	POWELL	19023WE	18	028
2G33-F121	VB-2274	ANCHOR	-----	10	003
2G33-F583	V13-2387	DRAGON	10870	23	010

G33

SYS: G51

.TAG .EQUIPMENT PIS NUMBER	NUMBER	MANUFACTURER	MODEL NUMBER	ZONE	FILE NO EQ2-EF2 -XXX
2G51-F014A	V8-3861	ROCKWELL	848YT	23	031
2G51-F014B	V8-3862	ROCKWELL	846YT	23	031
2G51-F018A	V8-3860	ROCKWELL	848YT	23	031
2G51-F018B	V8-3859	ROCKWELL	848YT	23	031
2G51-F600	V8-3832	POWELL	3023WE	23	028
2G51-F601	V8-3834	POWELL	3023WE	23	028
2G51-F602	V8-3831	POWELL	3023WE	23	028
2G51-F603	V8-3833	POWELL	3023WE	23	028
2G51-F604	V8-3849	POWELL	3023WE	23	028
2G51-F605	V8-3847	POWELL	3023WE	23	028
2G51-F606	V8-3850	POWELL	3023WE	23	028
2G51-F607	V8-3848	POWELL	3023WE	23	028

G51

SYS: N21

.TAG	.	.	.FILE NO
.EQUIPMENT	.	.	.EQ2-EF2
PIS NUMBER	NUMBER	MANUFACTURER	MODEL NUMBER
			ZONE. -XXX
2N21-F093A	V13-2392	DRAGON	10870
2N21-F093B	V13-2393	DRAGON	10870

N21

SYS: P34

.TAG .EQUIPMENT		.MANUFACTURER		.MODEL NUMBER		.FILE NO .EQ2-EF2 .ZONE. -XXX	
PIS NUMBER	NUMBER						
2P34-F001	V17-2541	KEROTEST		21506X04(1)	09	021	
2P34-F002	V17-2542	KEROTEST		21506X04(1)	09	021	
2P34-F004	V17-2544	KEROTEST		21506X04(1)	09	021	
2P34-F005	V17-2545	KEROTEST		21506X04(1)	09	021	
2P34-F007	V13-6473	DRAGON		10950N	19	011	
2P34-F008	V13-6474	DRAGON		10950N	19	011	
2P34-F009	V13-6475	DRAGON		10950N	19	011	
2P34-F010	V13-6476	DRAGON		10950N	19	011	
2P34-F012	V13-6478	DRAGON		10950N	19	011	
2P34-F013	V13-6479	DRAGON		10950N	19	011	
2P34-F015	V13-6481	DRAGON		10950N	23	011	
2P34-F016	V13-6482	DRAGON		10950N	23	011	
2P34-F018	V13-6484	DRAGON		10950N	23	011	
2P34-F019	V13-6485	DRAGON		10950N	23	011	
2P34-F021	V13-7434	DRAGON		670N	23	011	
2P34-F023	V13-7431	DRAGON		670N	23	011	
2P34-F401A	V13-736C	TARGET ROCK		81M	09	034	
2P34-F401B	V13-7361	TARGET ROCK		81M	09	034	
2P34-F402A	V13-7362	TARGET ROCK		81M	19	034	
2P34-F402B	V13-7363	TARGET ROCK		81M	19	034	
2P34-F403A	V13-7364	TARGET ROCK		81M	19	034	
2P34-F403B	V13-7365	TARGET ROCK		81M	19	034	
2P34-F404A	V13-7374	TARGET ROCK		81M	19	034	
2P34-F404B	V13-7375	TARGET ROCK		81M	19	034	
2P34-F405A	V13-7366	TARGET ROCK		81M	23	034	
2P34-F405B	V13-7367	TARGET ROCK		81M	23	034	
2P34-F406A	V13-7376	TARGET ROCK		81M	23	034	
2P34-F406B	V13-7377	TARGET ROCK		81M	23	034	
2P34-F407	V13-7368	TARGET ROCK		81M	23	034	
2P34-F408	V13-7369	TARGET ROCK		81M	23	034	
2P34-F409	V13-7378	TARGET ROCK		81M	23	034	
2P34-F410	V13-7379	TARGET ROCK		81M	23	034	
2P34-F411	V13-7432	DRAGON		670N	23	011	
2P34-F412	V13-7433	DRAGON		670N	23	011	

P34



SYS: P44

.TAG .EQUIPMENT .		.MANUFACTURER		.MODEL NUMBER		.FILE NO .EQ2-EF2 .ZONE. -XXX	
PIS NUMBER	NUMBER						
2P44-A001	-----	NABCO		MAKE-UP TANK	18	025	
2P44-A002	-----	NABCO		MAKE-UP TANK	19	025	
2P44-B001	-----	YUBA		SIZE 29-476	18	039	
2P44-B002	-----	YUBA		SIZE 29-476	19	039	
2P44-C001A	-----	CRANE-DEMING		SERIES 5063	18	006	
2P44-C001B	-----	CRANE-DEMING		SERIES 5063	19	006	
2P44-F001A	V13-4118	ROCKWELL		848YT	18	031	
2P44-F001B	V13-4128	ROCKWELL		848YT	19	031	
2P44-F003A	V8-2335	POWELL		3061AWE (SIM TO)	18	028	
2P44-F003B	V8-2333	POWELL		3061AWE	19	028	
2P44-F004A	V8-2319	POWELL		3003WE (SIM TO)	18	029	
2P44-F004B	V8-2316	POWELL		3003WE	19	029	
2P44-F005A	V13-4107	ROCKWELL		848YT	18	031	
2P44-F005B	V13-4127	ROCKWELL		848YT	19	031	
2P44-F006A	V13-4117	ROCKWELL		848YT	18	031	
2P44-F006B	V13-4130	ROCKWELL		848YT	19	031	
2P44-F007A	V8-2409	POWELL		3003WE (SIM TO)	18	029	
2P44-F007B	V8-2371	POWELL		3003WE	19	029	
2P44-F008A	V8-2410	POWELL		3003WE (SIM TO)	18	029	
2P44-F008B	V8-2370	POWELL		3003WE	19	029	
2P44-F009A	V8-2445	POWELL		3023WE	18	028	
2P44-F009B	V8-2444	POWELL		3023WE	19	028	
2P44-F010A	V13-4115	ROCKWELL		848YT	18	031	
2P44-F010B	V13-4129	ROCKWELL		848YT	19	031	
2P44-F011A	V8-3373	ROCKWELL		848YT	18	031	
2P44-F011B	V8-3364	ROCKWELL		848YT	19	031	
2P44-F012A	V8-2321	POWELL		3003WE (SIM TO)	18	029	
2P44-F012B	V8-2318	POWELL		3003WE	19	029	
2P44-F013A	V8-3372	ROCKWELL		848YT	18	031	
2P44-F013B	V8-3365	ROCKWELL		848YT	19	031	
2P44-F014A	V8-2320	POWELL		3003WE (SIM TO)	18	029	
2P44-F014B	V8-2317	POWELL		3003WE	19	029	
2P44-F015	V8-3661	ROCKWELL		848YT	18	031	
2P44-F016A	V8-3662	ROCKWELL		848YT	18	031	
2P44-F016B	V8-3647	ROCKWELL		848YT	19	031	
2P44-F017A	V8-3681	ROCKWELL		848YT	18	031	
2P44-F017B	V8-3679	ROCKWELL		848YT	19	031	
2P44-F018A	V8-3663	ROCKWELL		848YT	18	031	
2P44-F018B	V8-3648	ROCKWELL		848YT	19	031	
2P44-F019A	V8-3682	ROCKWELL		848YT	18	031	
2P44-F019B	V8-3680	ROCKWELL		848YT	19	031	
2P44-F020	V8-3370	ROCKWELL		848YT	18	031	
2P44-F022A	V8-3819	POWELL		3003WE	18	029	
2P44-F022B	V8-3820	POWELL		3003WE	19	029	
2P44-F023A	V8-2368	POWELL		3003WE (SIM TO)	18	029	
2P44-F023B	V8-2367	POWELL		3003WE	19	029	

SYS: P44

.TAG .EQUIPMENT		.FILE NO .EQ2-EF2		
PIS NUMBER	NUMBER	MANUFACTURER	MODEL NUMBER	ZONE. -XXX
2P44-F024	VB-3699	ROCKWELL	848YT	18 031
2P44-F025	VB-3700	ROCKWELL	848YT	19 031
2P44-F026	VB-3701	ROCKWELL	848YT	19 031
2P44-F027	VB-3702	ROCKWELL	848YT	19 031
2P44-F028	VB-3332	ROCKWELL	848YT	19 031
2P44-F029	VB-3331	ROCKWELL	848YT	19 031
2P44-F030	VB-3333	ROCKWELL	848YT	19 031
2P44-F045B	VB-3428	ROCKWELL	848YT	01 031
2P44-F046A	VB-2406	ROCKWELL	848YT	01 031
2P44-F046B	VB-2405	ROCKWELL	848YT	01 031
2P44-F047A	VB-3689	ROCKWELL	848YT	01 031
2P44-F047B	VB-3687	ROCKWELL	848YT	01 031
2P44-F048A	VB-2437	ROCKWELL	848YT	01 031
2P44-F048B	VB-2436	ROCKWELL	848YT	01 031
2P44-F049B	VB-3688	ROCKWELL	848YT	01 031
2P44-F050	VB-3827	ROCKWELL	848YT	19 031
2P44-F051	VB-2431	POWELL	3061AWE (SIM TO)	18 028
2P44-F052	VB-3829	ROCKWELL	848YT	18 031
2P44-F053	VB-2369	POWELL	3003WE (SIM TO)	18 029
2P44-F058A	VB-3424	ROCKWELL	848YT	07 031
2P44-F058B	VB-3423	ROCKWELL	848YT	07 031
2P44-F059A	VB-2393	ROCKWELL	848YT	07 031
2P44-F059B	VB-2394	ROCKWELL	848YT	07 031
2P44-F060A	VB-3683	ROCKWELL	848YT	07 031
2P44-F060B	VB-3685	ROCKWELL	848YT	07 031
2P44-F061A	VB-3684	ROCKWELL	848YT	07 031
2P44-F061B	VB-3686	ROCKWELL	848YT	07 031
2P44-F062A	VB-2439	ROCKWELL	848YT	07 031
2P44-F062B	VB-2438	ROCKWELL	848YT	07 031
2P44-F063A	VB-3421	ROCKWELL	848YT	07 031
2P44-F063B	VB-3422	ROCKWELL	848YT	07 031
2P44-F064A	V13-4108	ROCKWELL	848YT	18 031
2P44-F064B	V13-2408	KEROTEST	20504-(2)	19 021
2P44-F065A	V13-4109	ROCKWELL	848YT	10 031
2P44-F065B	V13-4136	ROCKWELL	848YT	09 031
2P44-F066A	V13-4114	ROCKWELL	848YT	10 031
2P44-F066B	V13-4111	ROCKWELL	848YT	09 031
2P44-F067A	V13-4110	ROCKWELL	848YT	10 031
2P44-F067B	V13-4137	ROCKWELL	848YT	09 031
2P44-F068A	V13-4113	ROCKWELL	848YT	10 031
2P44-F068B	V13-4112	ROCKWELL	848YT	09 031
2P44-F069A	VB-3660	ROCKWELL	848YT	10 031
2P44-F069B	VB-3655	ROCKWELL	848YT	09 031
2P44-F070A	VB-2413	POWELL	3003WE (SIM TO)	16 029
2P44-F070B	VB-3083	POWELL	3023WE	16 028
2P44-F071A	VB-3442	ROCKWELL	848YT	16 031
2P44-F071B	VB-3443	ROCKWELL	848YT	16 031

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.TAG .EQUIPMENT PIS NUMBER	NUMBER	MANUFACTURER	MODEL NUMBER	.ZONE	.FILE NO .EQ2-EF2 -XXX
2P44-F072A	VB-3441	ROCKWELL	848YT	16	031
2P44-F072B	VB-3440	ROCKWELL	848YT	16	031
2P44-F073A	VB-2452	POWELL	3031WE (SIM TO)	16	028
2P44-F073B	VB-2446	POWELL	3031WE	16	028
2P44-F074A	VB-2412	POWELL	3003WE (SIM TO)	10	029
2P44-F074B	VB-2377	POWELL	3003WE	09	029
2P44-F075A	VB-2415	POWELL	3003WE (SIM TO)	16	029
2P44-F075B	VB-2381	POWELL	3003WE	23	029
2P44-F076A	VB-3659	ROCKWELL	848YT	12	031
2P44-F076B	VB-3691	ROCKWELL	848YT	12	031
2P44-F077A	VB-2336	POWELL	3061AWE (SIM TO)	18	028
2P44-F077B	VB-2334	POWELL	3061AWE	19	028
2P44-F078	VR3-2358	POWELL	3003WE (SIM TO)	19	029
2P44-F079B	VB-3408	ROCKWELL	3624MMT	14	031
2P44-F080B	VB-3447	ROCKWELL	848YT	14	031
2P44-F081B	VB-2476	ROCKWELL	848YT	14	031
2P44-F086B	VB-3446	ROCKWELL	848YT	14	031
2P44-F087B	VB-2455	ROCKWELL	848YT	14	031
2P44-F093A	VB-3666	ROCKWELL	848YT	12	031
2P44-F093B	VB-3698	ROCKWELL	848YT	12	031
2P44-F094A	VB-2419	POWELL	3003WE (SIM TO)	23	029
2P44-F094B	VB-2390	POWELL	3003WE	14	029
2P44-F095A	VB-2418	ROCKWELL	848YT	15	031
2P44-F095B	VB-2386	ROCKWELL	848YT	17	031
2P44-F096A	VB-2458	ROCKWELL	848YT	15	031
2P44-F096B	VB-2467	ROCKWELL	848YT	17	031
2P44-F097A	VB-2417	ROCKWELL	848YT	15	031
2P44-F097B	VB-2387	ROCKWELL	848YT	17	031
2P44-F098A	VB-2457	ROCKWELL	848YT	15	031
2P44-F098B	VB-2469	ROCKWELL	848YT	17	031
2P44-F099A	VB-2416	POWELL	3003WE (SIM TO)	12	029
2P44-F099B	VB-2388	POWELL	3003WE	15	029
2P44-F100A	VB-2454	POWELL	3031WE (SIM TO)	15	028
2P44-F100B	VB-2451	POWELL	3031WE	15	028
2P44-F101A	VB-3658	ROCKWELL	848YT	23	031
2P44-F101B	VB-3656	ROCKWELL	848YT	23	031
2P44-F102A	VB-2420	POWELL	3003WE (SIM TO)	16	029
2P44-F102B	V15-2066	VELAN	W8254B2TS	23	038
2P44-F103A	VB-3668	ROCKWELL	848YT	16	031
2P44-F103B	VB-3665	ROCKWELL	848YT	23	031
2P44-F104A	VB-2421	ROCKWELL	848YT	16	031
2P44-F104B	VB-2391	ROCKWELL	848YT	16	031
2P44-F105A	VB-3386	ROCKWELL	848YT	16	031
2P44-F105B	VB-3388	ROCKWELL	848YT	16	031
2P44-F106A	VB-2465	ROCKWELL	848YT	16	031
2P44-F106B	VB-2473	ROCKWELL	848YT	16	031
2P44-F107A	VB-2422	ROCKWELL	848YT	16	031

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.TAG .EQUIPMENT PIS NUMBER	NUMBER	MANUFACTURER	MODEL NUMBER	ZONE	FILE NO .EQ2-EF2 -XXX
2P44-F107B	VB-2375	ROCKWELL	848YT	16	031
2P44-F108A	VB-3385	ROCKWELL	848YT	16	031
2P44-F108B	VB-3389	ROCKWELL	848YT	16	031
2P44-F109A	VB-2466	ROCKWELL	848YT	16	031
2P44-F109B	VB-2471	ROCKWELL	848YT	16	031
2P44-F111A	VB-2433	ROCKWELL	838YT	16	031
2P44-F111B	VB-2430	ROCKWELL	838YT	17	031
2P44-F112A	VB-2423	ROCKWELL	848YT	16	031
2P44-F112B	VB-2372	ROCKWELL	848YT	17	031
2P44-F113A	VB-3667	ROCKWELL	848YT	12	031
2P44-F113B	VB-3643	ROCKWELL	848YT	23	031
2P44-F114A	VB-2424	POWELL	3003WE (SIM TO)	23	029
2P44-F114B	VB-2373	ROCKWELL	848YT	23	031
2P44-F115A	VB-3371	ROCKWELL	848YT	23	031
2P44-F115B	VB-3374	ROCKWELL	848YT	14	031
2P44-F116A	VB-2432	POWELL	3061AWE (SIM TO)	10	028
2P44-F116B	VB-2332	POWELL	3061AWE	09	028
2P44-F117A	V13-2419	KEROTEST	20504-(2)	18	021
2P44-F117B	V13-4153	KEROTEST	20604-(3)	19	021
2P44-F118A	V13-4116	ROCKWELL	848YT	18	031
2P44-F118B	V13-4131	ROCKWELL	848YT	19	031
2P44-F125A	V22-2589	CROSBY	1-9536	18	008
2P44-F125B	V22-2077	CROSBY	1-9536	19	008
2P44-F126A	V22-2075	CROSBY	JMB-WR-C	18	053
2P44-F126B	V22-2076	CROSBY	JMB-WR-C	19	053
2P44-F127A	VB-2408	POWELL	3003WE (SIM TO)	18	029
2P44-F127B	VB-2376	POWELL	3003WE	19	029
2P44-F128A	VB-3349	ROCKWELL	848YT	18	031
2P44-F128B	VB-3352	ROCKWELL	848YT	19	031
2P44-F129A	VB-2407	POWELL	3003WE (SIM TO)	18	029
2P44-F129B	VB-2374	POWELL	3003WE	19	029
2P44-F130A	V13-5145	ROCKWELL	848YT	18	031
2P44-F130B	V13-6457	KEROTEST	20606-(3)	19	021
2P44-F131A	V13-6458	KEROTEST	20606-(3)	18	021
2P44-F131B	V13-6460	KEROTEST	20606-(3)	19	021
2P44-F132A	V13-6461	KEROTEST	20606-(3)	18	021
2P44-F132B	V13-6462	KEROTEST	20606-(3)	19	021
2P44-F133A	V13-2543	KEROTEST	21506X04(1)	18	021
2P44-F133B	V13-2544	KEROTEST	20604-(3)	19	021
2P44-F134A	V13-6456	KEROTEST	20604-(3)	18	021
2P44-F134B	V13-4163	KEROTEST	20604-(3)	19	021
2P44-F135A	V13-6453	KEROTEST	20606-(3)	18	021
2P44-F135B	V13-6455	KEROTEST	20606-(3)	19	021
2P44-F136A	VB-2411	POWELL	3003WE (SIM TO)	10	029
2P44-F136B	VB-2379	POWELL	3003WE	09	029
2P44-F142A	V22-2083	CROSBY	JMB-WR-C	18	053
2P44-F142B	V22-2082	CROSBY	JMB-WR-C	19	053



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.TAG .EQUIPMENT		.MANUFACTURER		.MODEL NUMBER		.FILE NO .EQ2-EF2 .ZONE. -XXX	
PIS NUMBER	NUMBER						
2P44-F150	V8-3269	ROCKWELL	848YT	19	031		
2P44-F151	V8-3437	ROCKWELL	848YT	19	031		
2P44-F152	V8-3435	ROCKWELL	848YT	08	031		
2P44-F153	V8-3433	ROCKWELL	848YT	08	031		
2P44-F154	V8-3431	ROCKWELL	848YT	08	031		
2P44-F155	V8-3430	ROCKWELL	848YT	08	031		
2P44-F156	V8-3432	ROCKWELL	848YT	08	031		
2P44-F157	V8-3434	ROCKWELL	848YT	19	031		
2P44-F158	V8-3436	ROCKWELL	848YT	19	031		
2P44-F159	V8-3270	ROCKWELL	848YT	19	031		
2P44-F165	V8-2428	POWELL	3061AWE	19	028		
2P44-F166	V8-2366	POWELL	3003WE	19	029		
2P44-F167	V8-3823	ROCKWELL	848YT	19	031		
2P44-F168	V8-3369	ROCKWELL	848YT	19	031		
2P44-F169	V8-3368	ROCKWELL	848YT	09	031		
2P44-F170	V8-3367	ROCKWELL	848YT	09	031		
2P44-F171	V8-3366	ROCKWELL	848YT	09	031		
2P44-F172	V8-3676	ROCKWELL	848YT	09	031		
2P44-F173	V15-2087	VELAN	W8254B2TS	09	038		
2P44-F174	V8-3654	ROCKWELL	848YT	09	031		
2P44-F176	V8-3651	ROCKWELL	848YT	09	031		
2P44-F177	V4-2194	ROCKWELL	848YT	09	031		
2P44-F182	V8-2429	ROCKWELL	838YT	13	031		
2P44-F183	V8-2385	ROCKWELL	848YT	17	031		
2P44-F184	V8-3677	ROCKWELL	848YT	17	031		
2P44-F185	V8-3678	ROCKWELL	848YT	17	031		
2P44-F186	V8-2450	ROCKWELL	848YT	17	031		
2P44-F187	V8-2382	POWELL	3003WE	12	029		
2P44-F188	V8-3426	ROCKWELL	848YT	17	031		
2P44-F189	V8-2389	POWELL	3003WE	12	029		
2P44-F190A	V8-3387	ROCKWELL	848YT	16	031		
2P44-F190B	V8-3178	ROCKWELL	848YT	16	031		
2P44-F191A	V8-3384	ROCKWELL	848YT	16	031		
2P44-F191B	V8-3390	ROCKWELL	848YT	16	031		
2P44-F192	V8-3378	ROCKWELL	848YT	09	031		
2P44-F193	V8-3377	ROCKWELL	848YT	09	031		
2P44-F194	V8-3376	ROCKWELL	848YT	09	031		
2P44-F195	V8-3375	ROCKWELL	848YT	19	031		
2P44-F196A	V8-2295	ROCKWELL	3624T	22	031		
2P44-F196B	V8-2298	ROCKWELL	3624T	22	031		
2P44-F197A	V8-2499	ROCKWELL	848YT	22	031		
2P44-F197B	V8-2496	ROCKWELL	848YT	22	031		
2P44-F198A	V8-2461	ROCKWELL	848YT	22	031		
2P44-F198B	V8-2460	ROCKWELL	848YT	22	031		
2P44-F199A	V8-2294	ROCKWELL	848YT	22	031		
2P44-F199B	V8-2497	ROCKWELL	848YT	22	031		
2P44-F200A	V8-2498	ROCKWELL	848YT	22	031		



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.TAG .EQUIPMENT		.MANUFACTURER		.MODEL NUMBER		.FILE NO .EQ2-EF2 .ZONE. -XXX	
PIS NUMBER	NUMBER						
2P44-F200B	V8-2495	ROCKWELL		848YT	22	031	
2P44-F201	V8-3735	ROCKWELL		848YT	22	031	
2P44-F202	V8-3714	ROCKWELL		848YT	22	031	
2P44-F203	V8-3736	ROCKWELL		848YT	22	031	
2P44-F204	V8-3713	ROCKWELL		848YT	22	031	
2P44-F221	V8-3731	ROCKWELL		848YT	22	031	
2P44-F222	V8-3718	ROCKWELL		848YT	22	031	
2P44-F223	V8-3732	ROCKWELL		848YT	22	031	
2P44-F224	V8-3717	ROCKWELL		848YT	22	031	
2P44-F225	V8-3729	ROCKWELL		848Y	22	031	
2P44-F226	V8-3720	ROCKWELL		848YT	22	031	
2P44-F227	V8-3730	ROCKWELL		848YT	22	031	
2P44-F228	V8-3719	ROCKWELL		848YT	22	031	
2P44-F229	V8-3733	ROCKWELL		848YT	22	031	
2P44-F230	V8-3716	ROCKWELL		848YT	22	031	
2P44-F231	V8-3734	ROCKWELL		848YT	22	031	
2P44-F232	V8-3715	ROCKWELL		848YT	22	031	
2P44-F233	V8-3737	ROCKWELL		848YT	22	031	
2P44-F234	V8-3712	ROCKWELL		848YT	22	031	
2P44-F235	V8-3738	ROCKWELL		848YT	22	031	
2P44-F236	V8-3711	ROCKWELL		848YT	22	031	
2P44-F237	V8-3725	ROCKWELL		848YT	22	031	
2P44-F238	V8-3724	ROCKWELL		848YT	22	031	
2P44-F239	V8-3726	ROCKWELL		848YT	22	031	
2P44-F240	V8-3723	ROCKWELL		848YT	22	031	
2P44-F241	V8-3727	ROCKWELL		848YT	22	031	
2P44-F242	V8-3722	ROCKWELL		848YT	22	031	
2P44-F243	V8-3728	ROCKWELL		848YT	22	031	
2P44-F244	V8-3721	ROCKWELL		848YT	22	031	
2P44-F245A	V22-2093	CROSBY		JMB-WR-C	22	053	
2P44-F245B	V22-2094	CROSBY		JMB-WR-C	22	053	
2P44-F246	V8-3056	ROCKWELL		838YT	22	031	
2P44-F247	V8-3755	ROCKWELL		848YT	22	031	
2P44-F248	V8-3750	ROCKWELL		848YT	22	031	
2P44-F249	V8-3756	ROCKWELL		848YT	22	031	
2P44-F250	V8-3749	ROCKWELL		848YT	22	031	
2P44-F251	V8-3753	ROCKWELL		848YT	22	031	
2P44-F252	V8-3752	ROCKWELL		848YT	22	031	
2P44-F253	V8-3754	ROCKWELL		848YT	22	031	
2P44-F254	V8-3751	ROCKWELL		848YT	22	031	
2P44-F255	V8-3765	ROCKWELL		848YT	22	031	
2P44-F256	V8-3740	ROCKWELL		848YT	22	031	
2P44-F257	V8-3766	ROCKWELL		848YT	22	031	
2P44-F258	V8-3739	ROCKWELL		848YT	22	031	
2P44-F259	V8-3757	ROCKWELL		848YT	22	031	
2P44-F260	V8-3748	ROCKWELL		848YT	22	031	
2P44-F261	V8-3758	ROCKWELL		848YT	22	031	

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.TAG .EQUIPMENT PIS NUMBER .NUMBER		.MANUFACTURER	.MODEL NUMBER	.ZONE.	.FILE NO .EQ2-EF2 -XXX
2P44-F262	V8-3747	ROCKWELL	848YT	22	031
2P44-F263	V8-3761	ROCKWELL	848YT	22	031
2P44-F264	V8-3744	ROCKWELL	848YT	22	031
2P44-F265	V8-3762	ROCKWELL	848YT	22	031
2P44-F266	V8-3743	ROCKWELL	848YT	22	031
2P44-F267	V8-3759	ROCKWELL	848YT	22	031
2P44-F268	V8-3746	ROCKWELL	848YT	22	031
2P44-F269	V8-3760	ROCKWELL	848YT	22	031
2P44-F270	V8-3745	ROCKWELL	848YT	22	031
2P44-F271	V8-3277	ROCKWELL	848YT	22	031
2P44-F274	V8-2488	POWELL	3061AWE	22	028
2P44-F275	V8-3281	ROCKWELL	848YT	22	031
2P44-F276	V8-3763	ROCKWELL	848YT	22	031
2P44-F277	V8-3742	ROCKWELL	848YT	22	031
2P44-F278	V8-3764	ROCKWELL	848YT	22	031
2P44-F279	V8-3741	ROCKWELL	848YT	22	031
2P44-F281	VR3-2223	ROCKWELL	848YT	18	031
2P44-F282A	V8-4617	ANCHOR	-----	22	003
2P44-F282B	V8-3897	ANCHOR	-----	12	003
2P44-F283	V8-3649	ROCKWELL	848YT	19	031
2P44-F284A	V8-3664	ROCKWELL	848YT	18	031
2P44-F284B	V8-3653	ROCKWELL	848YT	19	031
2P44-F285	V8-3353	ROCKWELL	848YT	19	031
2P44-F287	VR3-2071	ROCKWELL	848YT	07	031
2P44-F289	V15-2089	VELAN	W8254B2TS	08	038
2P44-F290A	V15-2091	VELAN	W8254B2TS	06	038
2P44-F297A	V15-2077	VELAN	W8254B2TS	06	038
2P44-F298	V15-2070	VELAN	W8254B2TS	08	038
2P44-F300	VR3-2222	ROCKWELL	848YT	18	031
2P44-F301	V5-2533	POWELL	3003WE (SIM TO)	19	029
2P44-F302	V8-3828	ROCKWELL	848YT	19	031
2P44-F303	V17-2073	ROCKWELL	D3624T	16	031
2P44-F304	V17-2074	ROCKWELL	D3624T	16	031
2P44-F306	V17-2071	ROCKWELL	D3624T	12	031
2P44-F307	VR3-2880	ROCKWELL	848YT	15	031
2P44-F308	VR3-2875	ROCKWELL	848YT	15	031
2P44-F309	V9-2052	ROCKWELL	848YT	15	031
2P44-F310	V9-2053	ROCKWELL	848YT	15	031
2P44-F311	V17-2072	ROCKWELL	D3624T	15	031
2P44-F312	V8-4411	ROCKWELL	848YT	23	031
2P44-F314	V8-4409	ROCKWELL	848YT	23	031
2P44-F316	V13-6574	DRAGON	10950N	22	011
2P44-F317	V8-2082	POWELL	19003WE	22	028
2P44-F319	V8-3953	ROCKWELL	848YT	22	031
2P44-F320	V8-3954	ROCKWELL	848YT	22	031
2P44-F350	VR3-2070	ROCKWELL	848YT	26	031
2P44-F351	V15-2101	VELAN	W8254B2TS	19	038

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.TAG .EQUIPMENT		.MANUFACTURER		.MODEL NUMBER		.FILE NO .EQ2-EF2 .ZONE. -XXX	
PIS NUMBER	NUMBER						
2P44-F352	V15-2045	VELAN		W8254B2TS		19	038
2P44-F357	V8-2380	ROCKWELL		848YT		09	031
2P44-F361	VR3-2881	ROCKWELL		848YT		17	031
2P44-F362	VR3-2882	ROCKWELL		848YT		17	031
2P44-F363	V8-4142	ROCKWELL		848YT		16	031
2P44-F364	V8-4143	ROCKWELL		848YT		16	031
2P44-F365	V8-2392	ROCKWELL		848YT		23	031
2P44-F367	V8-2373	ROCKWELL		848YT		12	031
2P44-F369	V8-3951	ROCKWELL		848YT		22	031
2P44-F370	V8-3950	ROCKWELL		848YT		22	031
2P44-F372	V13-6578	DRAGON		10950N		22	011
2P44-F374	V13-2416	KEROTEST		20504-(2)		19	021
2P44-F375	V13-2417	KEROTEST		20504-(2)		19	021
2P44-F376	V13-4154	KEROTEST		20604-(3)		18	021
2P44-F377	V8-3932	ROCKWELL		848YT		23	031
2P44-F400A	V15-2036	FISHER		657NSED SIZE 20		18	013
2P44-F400B	V15-2040	FISHER		657NSED SIZE 20		19	013
2P44-F402A	V8-2364	FISHER		667NSET SIZE 40		18	013
2P44-F402B	V8-2362	FISHER		667NSET SIZE 40		19	013
2P44-F403A	V8-2482	FISHER		667NSED SIZE 70		18	013
2P44-F403B	V8-2481	FISHER		667NSED SIZE 20		19	013
2P44-F601A	V8-2323	POWELL		3023WE (SIM TO)		24	028
2P44-F601B	V8-2314	POWELL		3023WE		09	028
2P44-F602A	V8-2325	POWELL		3023WE (SIM TO)		18	028
2P44-F602B	V8-2322	POWELL		3023WE		19	028
2P44-F603A	V8-2324	POWELL		3023WE (SIM TO)		10	028
2P44-F603B	V8-2315	POWELL		3023WE		09	028
2P44-F604	V8-2425	ROCKWELL		3624MT		13	031
2P44-F605A	V8-2427	ROCKWELL		3624MT		16	031
2P44-F605B	V8-2426	ROCKWELL		3624MT		17	031
2P44-F606A	V8-2486	POWELL		3003WE (SIM TO)		23	029
2P44-F606B	V8-2484	POWELL		3023WE		23	028
2P44-F607A	V8-2485	POWELL		3023WE (SIM TO)		23	028
2P44-F607B	V8-2483	POWELL		3023WE		12	028
2P44-F608	V8-2487	POWELL		3023WE		22	028
2P44-F614	V8-3058	ROCKWELL		3624MT		22	031
2P44-F615	V8-3889	POWELL		1523WE		22	028
2P44-F616	V8-3890	POWELL		1523WE (SIM TO)		22	028

P44

SYS: P45

.TAG .EQUIPMENT PIS NUMBER.NUMBER	.MANUFACTURER	.MODEL NUMBER	.FILE NO .EQ2-EF2 .ZONE. -XXX
2P45-F137A V15-2162	ROCKWELL	848YT	18 031
2P45-F137B V15-2169	ROCKWELL	848YT	23 031
2P45-F138A V15-2161	ROCKWELL	848YT	18 031
2P45-F138B V15-2168	ROCKWELL	848YT	18 031
2P45-F139A V15-2038	POWELL	3003WE	18 029
2P45-F139B V15-2043	POWELL	3003WE	19 029
2P45-F140A V15-2160	ROCKWELL	848YT	18 031
2P45-F140B V15-2167	ROCKWELL	848YT	19 031
2P45-F141A V22-2085	CROSBY	JMB-WR-C	18 053
2P45-F141B V22-2084	CROSBY	JMB-WR-C	19 053
2P45-F143A V15-2163	ROCKWELL	848YT	18 031
2P45-F143B V15-2170	ROCKWELL	848YT	19 031
2P45-F144A V15-2037	POWELL	3003WE	18 029
2P45-F144B V15-2042	POWELL	3003WE	19 029
2P45-F145A V15-2164	ROCKWELL	848YT	18 031
2P45-F145B V15-2171	ROCKWELL	848YT	19 031
2P45-F146A V15-2034	POWELL	3003WE	18 029
2P45-F146B V15-2039	POWELL	3003WE	19 029
2P45-F147A V15-2035	POWELL	3031WE	18 028
2P45-F147B V15-2041	POWELL	3031WE	19 028
2P45-F148A V15-2165	ROCKWELL	848YT	18 031
2P45-F148B V15-2172	ROCKWELL	848YT	18 031
2P45-F149A V15-2166	ROCKWELL	848YT	23 031
2P45-F149B V15-2173	ROCKWELL	848YT	23 031

P45



SYS: P50

.TAG	.	.	.	.FILE NO
.EQUIPMENT	.	.	.	.EQ2-EF2
PIS NUMBER.NUMBER	.MANUFACTURER	.MODEL NUMBER	.ZONE.	-XXX
2P50-F603	V5-2006	ROCKWELL	3624MT	24 031
2P50-F604	V5-2007	ROCKWELL	3624MT	22 031

P50



SYS: T23

.TAG .EQUIPMENT PIS NUMBER	.NUMBER	.MANUFACTURER	.MODEL NUMBER	.ZONE	.FILE NO .EQ2-EF2 -XXX
2T23-----	EXP BEL	CB&I/PROCESS ENG	EXP BELLOWS	22	047
2T23-----	SEALS	PARKER SEAL (CB&I)	SEE EQSS	22	044
2T23-----	TORUS	WHITELEY BEARING	LUBRITE PAD	23	018
2T23-F001	V8-3309	ROCKWELL	848YT	23	031
2T23-F002	V8-3310	ROCKWELL	848YT	23	031
2T23-F050	V5-2569	JAMESBURY	BWS	23	020
2T23-F051	V17-2570	KEROTEST	21508X04	23	021
2T23-F052	V17-2568	KEROTEST	21508X04	23	021
2T23-F053	V17-2580	KEROTEST	21508X04	23	021
2T23-F400A	V21-2001	SINGER (GPE)	LD-240-210	36	033
2T23-F400B	V21-2002	SINGER (GPE)	LD-240-210	36	033
2T23-F400C	V21-2003	SINGER (GPE)	LD-240-210	36	033
2T23-F400D	V21-2004	SINGER (GPE)	LD-240-210	36	033
2T23-F400E	V21-2005	SINGER (GPE)	LD-240-210	36	033
2T23-F400F	V21-2006	SINGER (GPE)	LD-240-210	36	033
2T23-F400G	V21-2007	SINGER (GPE)	LD-240-210	36	033
2T23-F400H	V21-2008	SINGER (GPE)	LD-240-210	36	033
2T23-F400J	V21-2009	SINGER (GPE)	LD-240-210	36	033
2T23-F400K	V21-2010	SINGER (GPE)	LD-240-210	36	033
2T23-F400L	V21-2011	SINGER (GPE)	LD-240-210	36	033
2T23-F400M	V21-2012	SINGER (GPE)	LD-240-210	36	033
2T23-F409	V21-2015	JAMESBURY	8922EX	23	019
2T23-F410	V21-2016	JAMESBURY	8922EX	23	019
2T23-F450A	V21-2013	SINGER (GPE)	LD-240-215	23	033
2T23-F450B	V21-2014	SINGER (GPE)	LD-240-215	23	033

T23

SYS: T41

.TAG	.	.	.	.FILE NO
.EQUIPMENT	.	.	.	.EQ2-EF2
PIS NUMBER,NUMBER	.MANUFACTURER	.MODEL NUMBER	.ZONE.	-XXX
2T41-B016	----- H.K. PORTER/MARLO	FIQ-17.5	01	027
2T41-B017	----- H.K. PORTER/MARLO	FIQ-17.5	01	027
2T41-B018	----- H.K. PORTER/MARLO	F2P-30.67	16	027
2T41-B019	----- H.K. PORTER/MARLO	F2P-30.67	16	027
2T41-B020	----- H.K. PORTER/MARLO	F2M-16.9(K)	15	027
2T41-B021	----- H.K. PORTER/MARLO	CEN-32.3	15	027
2T41-B022	----- H.K. PORTER/MARLO	FIJ-9.75(K)	17	027
2T41-B034	----- CRYENCO (CTI)	-----	18	009
2T41-B035	----- CRYENCO (CTI)	-----	19	009
2T41-B036	----- CRYENCO (CTI)	-----	07	009
2T41-B037	----- CRYENCO (CTI)	-----	07	009
2T41-F009	----- HENRY PRATT/BETTIS	72"XR70/T520SR1	07	030
2T41-F011	----- HENRY PRATT/BETTIS	72"XR70/T520SR1	07	000

T41

SYS: T46

PIS NUMBER	.TAG .EQUIPMENT NUMBER	MANUFACTURER	MODEL NUMBER	.ZONE.	.FILE NO .EQ2-EF2 -XXX
2T46-C003	-----	NEW YORK BLOWER	262LS	01	026
2T46-C004	-----	NEW YORK BLOWER	262LS	01	026
2T46-F002A	-----	AMERICAN W&V	DAAP-5676	01	050
2T46-F002B	-----	AMERICAN W&V	DAAP-5676	01	050
2T46-F004A	-----	AMERICAN W&V	DAAP-5676	01	050
2T46-F004B	-----	AMERICAN W&V	DAAP-5676	01	050
2T46-F007A	-----	AMERICAN W&V	DAAP-5676	01	050
2T46-F007B	-----	AMERICAN W&V	DAAP-5676	01	050
2T46-F008A	-----	AMERICAN W&V	DAAP-5676	01	050
2T46-F008B	-----	AMERICAN W&V	DAAP-5676	01	050
2T46-F009	VR3-2861	ROCKWELL	848YT	26	031
2T46-F010	VR3-2862	ROCKWELL	848YT	19	031
2T46-F018	VR3-2863	ROCKWELL	848YT	18	031
2T46-F019	VR3-2864	ROCKWELL	848YT	24	031
2T46-F400	VR3-3015	JAMESBURY	8922EX	23	019
2T46-F401	VR3-3016	JAMESBURY	8922EX	23	019
2T46-F402	VR3-3023	JAMESBURY	8922EX	26	019
2T46-F406	VR3-3004	ROCKWELL	3624MMT	23	031
2T46-F407	VR3-3022	JAMESBURY	8229EA	26	019
2T46-F410	VR3-3003	JAMESBURY	8229EA	04	019
2T46-F411	VR3-3026	JAMESBURY	8126EA	26	019
2T46-F412	VR3-3019	JAMESBURY	8126EA	23	019
2T46-F418	VR3-3002	JAMESBURY	8229EA	04	019
2T46-F419	VR3-3001	JAMESBURY	8229EA	04	019

T46

SYS: T47

.TAG	.	.	.FILE NO		
.EQUIPMENT	.	.	.EQ2-EF2		
PIS NUMBER	NUMBER	MANUFACTURER	MODEL NUMBER	ZONE	-XXX
2T47-B001	-----	CRYENCO	D27763	22	052
2T47-B002	-----	CRYENCO	D27763	22	052
2T47-B003	-----	CRYENCO	D27763	22	052
2T47-B004	-----	CRYENCO	D27763	22	052
2T47-B005	-----	CRYENCO	D27763	22	052
2T47-B006	-----	CRYENCO	D27763	22	052
2T47-B007	-----	CRYENCO	D27763	22	052
2T47-B008	-----	CRYENCO	D27763	22	052
2T47-B009	-----	CRYENCO	D27763	22	052
2T47-B010	-----	CRYENCO	D27763	22	052
2T47-B011	-----	CRYENCO	D27763	22	052
2T47-B012	-----	CRYENCO	D27763	22	052
2T47-B013	-----	CRYENCO	D27763	22	052
2T47-B014	-----	CRYENCO	D27763	22	052

T47



SYS: T48

.TAG .EQUIPMENT PIS NUMBER	NUMBER	MANUFACTURER	MODEL NUMBER	ZONE	FILE NO .EQ2-EF2 -XXX
2T48-----	STRAINER	NUPRO	SS8F4403	40	032
2T48-----	STRAINERS	NUPRO	SS8F4403	40	032
2T48-B001A	-----	SCHUTTE & KOERTING	COOLER	40	032
2T48-B001B	-----	SCHUTTE & KOERTING	COOLER	40	032
2T48-B002A	-----	HEAT ENGINEERING	H2/02 RX	40	032
2T48-B002B	-----	HEAT ENGINEERING	H2/02 RX	40	032
2T48-C001A	-----	BUFFALO FORGE	32-1CB	40	032
2T48-C001B	-----	BUFFALO FORGE	32-1CB	40	032
2T48-D001A	-----	ROCKWELL	WATER SEPARATOR	40	032
2T48-D001B	-----	ROCKWELL	WATER SEPARATOR	40	032
2T48-F001A	FV8-2002	ROCKWELL	3624AT	40	031
2T48-F001B	FV8-2001	ROCKWELL	3624AT	40	031
2T48-F002A	FV4-2024	ROCKWELL	3628MT	40	031
2T48-F002B	FV4-2025	ROCKWELL	3628MT	40	031
2T48-F003A	FV4-2026	ROCKWELL	3628MT	40	031
2T48-F003B	FV4-2027	ROCKWELL	3628MT	40	031
2T48-F006A	V4-2164	ROCKWELL	848YT	18	031
2T48-F006B	V4-2163	RL WELL	848YT	19	031
2T48-F008A	V4-2158	ROCKWELL	848YT	18	031
2T48-F008B	V4-2157	ROCKWELL	848YT	19	031
2T48-F010A	-----	ROCKWELL	3624AT	40	031
2T48-F010B	-----	ROCKWELL	3624AT	40	031
2T48-F011A	-----	ROCKWELL	3624AT	40	031
2T48-F011B	-----	ROCKWELL	3624AT	40	031
2T48-F012A	-----	ROCKWELL	3624AT	40	031
2T48-F012B	-----	ROCKWELL	3624AT	40	031
2T48-F013A	-----	ROCKWELL	3624AT	40	031
2T48-F013B	-----	ROCKWELL	3624AT	40	031
2T48-F014A	V4-2160	ROCKWELL	848YT	24	031
2T48-F014B	V4-2159	ROCKWELL	848YT	24	031
2T48-F016A	V22-2122	CROSBY	J0-25	24	007
2T48-F016B	V22-2121	CROSBY	J0-25	24	007
2T48-F017A	V4-2146	POWELL	3061AWE	24	028
2T48-F017B	V4-2145	POWELL	3061AWE	24	028
2T48-F091	V8-3821	ROCKWELL	848YT	40	031
2T48-F092	V8-3822	ROCKWELL	848YT	40	031
2T48-F093	V8-3929	ROCKWELL	848YT	23	031
2T48-F094	V8-3930	ROCKWELL	848YT	24	031
2T48-F150A	V4-2161	ROCKWELL	848YT	23	031
2T48-F150B	V4-2162	ROCKWELL	848YT	23	031
2T48-F404	VR3-3013	JAMESBURY	8922EX	23	019
2T48-F405	VR3-3014	JAMESBURY	8922EX	23	019
2T48-F407	VR3-3012	JAMESBURY	8922EX	23	019
2T48-F408	V4-2060	JAMESBURY	8926EX	23	019
2T48-F409	V4-2061	JAMESBURY	8926EX	23	019
2T48-F410	V4-2063	JAMESBURY	8926EX	23	019
2T48-F451	V4-2185	ROCKWELL	3624MMT	19	031

SYS: T48

.TAG	.	.	.	.FILE NO
.EQUIPMENT	.	.	.	.EQ2-EF2
PIS NUMBER	.NUMBER	.MANUFACTURER	.MODEL NUMBER	.ZONE. -XXX
2T48-F453	VR3-2823	ROCKWELL	3624MMT	24 031
2T48-F454	VR3-2824	ROCKWELL	3624MMT	24 031
2T48-F455	VR3-2825	ROCKWELL	3624MMT	22 031
2T48-F456	VR3-2826	ROCKWELL	3624MMT	23 031
2T48-F457	VR3-2827	ROCKWELL	3624MMT	23 031
2T48-F458	VR3-2828	ROCKWELL	3624MMT	23 031
2T48-F601	VR3-3011	JAMESBURY	8222EX	22 019
2T48-F601A	V4-2140	JAMESBURY	8926EA	24 019
2T48-F601B	V4-2139	JAMESBURY	8926EA	24 019
2T48-F602	VR3-3024	JAMESBURY	8222EX	22 019
2T48-F602A	V4-2142	JAMESBURY	8926EA	23 019
2T48-F602B	V4-2141	JAMESBURY	8926EA	23 019
2T48-F603A	V4-2144	JAMESBURY	8926EA	18 019
2T48-F603B	V4-2143	JAMESBURY	8926EA	19 019
2T48-F604A	V4-2148	JAMESBURY	8226EA	24 019
2T48-F604B	V4-2149	JAMESBURY	8226EA	24 019
2T48-F605A	V4-2154	JAMESBURY	8126EA	18 019
2T48-F605B	V4-2153	JAMESBURY	8126EA	19 019
2T48-F606A	V4-2156	JAMESBURY	8126EA	23 019
2T48-F606B	V4-2155	JAMESBURY	8126EA	23 019

T48

SYS: T49

.TAG .EQUIPMENT PIS NUMBER		NUMBER	MANUFACTURER	MODEL NUMBER	ZONE	FILE NO EQ2-EF2 -XXX
2T49-F001	V4-2167	ROCKWELL	838FRYT	24	031	
2T49-F002	V8-4171	ROCKWELL	848YT	24	031	
2T49-F004	V22-2150	CROSBY	J0-25	24	007	
2T49-F006	V4-2228	ROCKWELL	838YT	27	031	
2T49-F007	V4-2172	ROCKWELL	3624RT	24	031	
2T49-F008	V4-2168	ROCKWELL	848YT	24	031	
2T49-F009	V8-4009	KEROTEST	20506-(3)	22	021	
2T49-F010	V4-2237	ROCKWELL	838FRYT	18	031	
2T49-F012	V4-2190	ROCKWELL	838YT	18	031	
2T49-F013	V8-4172	ROCKWELL	848YT	24	031	
2T49-F015	V22-2590	CROSBY	J0-25	18	007	
2T49-F016	V8-4140	ROCKWELL	848YT	19	031	
2T49-F017	V8-3931	ROCKWELL	848YT	18	031	
2T49-F018	V8-4008	KEROTEST	20506-(3)	22	021	
2T49-F019	V4-2238	ROCKWELL	36174F3FJT3	22	031	
2T49-F020	V4-2113	ROCKWELL	848YT	22	031	
2T49-F021	V22-2123	CROSBY	JMBU-C	22	007	
2T49-F022	V4-2241	ROCKWELL	36174F3FJT3	22	031	
2T49-F023	V4-2117	ROCKWELL	848YT	22	031	
2T49-F024	V22-2129	CROSBY	JMBU-C	22	007	
2T49-F025	V4-2240	ROCKWELL	36174F3FJT3	22	031	
2T49-F026	V4-2116	ROCKWELL	848YT	22	031	
2T49-F027	V22-2128	CROSBY	JMBU-C	22	007	
2T49-F028	V4-2239	ROCKWELL	36174F3FJT3	22	031	
2T49-F029	V4-2114	ROCKWELL	848YT	22	031	
2T49-F030	V22-2126	CROSBY	JMBU-C	22	007	
2T49-F031	V4-2242	ROCKWELL	36174F3FJT3	22	031	
2T49-F032	V4-2115	ROCKWELL	848YT	22	031	
2T49-F033	V22-2127	CROSBY	JMBU-C	22	007	
2T49-F034A	V4-2097	ROCKWELL	848YT	22	031	
2T49-F034B	V4-2099	ROCKWELL	848YT	22	031	
2T49-F034C	V4-2110	ROCKWELL	848YT	22	031	
2T49-F034D	V4-2111	ROCKWELL	848YT	22	031	
2T49-F035A	V4-2125	ROCKWELL	848YT	22	031	
2T49-F035B	V4-2126	ROCKWELL	848YT	22	031	
2T49-F035C	V4-2112	ROCKWELL	848YT	22	031	
2T49-F035D	V4-2119	ROCKWELL	848YT	22	031	
2T49-F036A	V22-2138	CROSBY	JMBU-C	22	007	
2T49-F036B	V22-2140	CROSBY	JMBU-C	22	007	
2T49-F036C	V22-2124	CROSBY	JMBU-C	22	007	
2T49-F036D	V22-2131	CROSBY	JMBU-C	22	007	
2T49-F037	V22-2130	CROSBY	JMBU-C	22	007	
2T49-F038	V22-2133	CROSBY	JMBU-C	22	007	
2T49-F039	V4-2260	ROCKWELL	3674F316JT3	22	031	
2T49-F040	V4-2261	ROCKWELL	3674F316JT3	22	031	
2T49-F041	V8-4380	ROCKWELL	848YT	22	031	

SYS: T49

.TAG .EQUIPMENT		.MANUFACTURER		.MODEL NUMBER		.FILE NO .EQ2-EF2 .ZONE. -XXX	
PIS NUMBER	NUMBER						
2T49-F042	V8-4381	ROCKWELL		848YT		22	031
2T49-F461	V5-2995	MAROTTA		RV74A-N		22	023
2T49-F462	V5-3006	MAROTTA		RV74A-N		22	023
2T49-F463	V5-3007	MAROTTA		RV74A-N		22	023
2T49-F464	V5-3008	MAROTTA		RV74A-N		22	023
2T49-F465	V4-2079	ROCKWELL		3624MMT		24	031
2T49-F466	V9-2081	ROCKWELL		3624MMT		24	031
2T49-F467	V5-2610	ROCKWELL		3624MMT		24	031
2T49-F468	V4-2187	ROCKWELL		3624MMT		19	031
2T49-F469	V9-2086	ROCKWELL		3624MMT		19	031
2T49-F601	V4-2080	ROCKWELL		3624MT		22	031
2T49-F602	V4-2188	ROCKWELL		3624MT		22	031
2T49-G001	-----	METAL BELLOWS	CO	FLEX METAL HOSE		22	024
2T49-G002	-----	METAL BELLOWS	CO	FLEX METAL HOSE		22	024
2T49-G003	-----	METAL BELLOWS	CO	FLEX METAL HOSE		22	024
2T49-G004	-----	METAL BELLOWS	CO	FLEX METAL HOSE		22	024
2T49-G005	-----	METAL BELLOWS	CO	FLEX METAL HOSE		22	024
2T49-G006	-----	METAL BELLOWS	CO	FLEX METAL HOSE		22	024
2T49-G007	-----	METAL BELLOWS	CO	FLEX METAL HOSE		22	024
2T49-G008	-----	METAL BELLOWS	CO	FLEX METAL HOSE		22	024
2T49-G009	-----	METAL BELLOWS	CO	FLEX METAL HOSE		22	024
2T49-G010	-----	METAL BELLOWS	CO	FLEX METAL HOSE		22	024
2T49-G011	-----	METAL BELLOWS	CO	FLEX METAL HOSE		22	024
2T49-G012	-----	METAL BELLOWS	CO	FLEX METAL HOSE		22	024
2T49-G013	-----	METAL BELLOWS	CO	FLEX METAL HOSE		22	024
2T49-G014	-----	METAL BELLOWS	CO	FLEX METAL HOSE		22	024
2T49-G015	-----	METAL BELLOWS	CO	FLEX METAL HOSE		22	024
2T49-G016	-----	METAL BELLOWS	CO	FLEX METAL HOSE		22	024
2T49-G017	-----	METAL BELLOWS	CO	FLEX METAL HOSE		22	024

T49



SYS: T50

.TAG	.EQUIPMENT	.MANUFACTURER	.MODEL NUMBER	.ZONE	.FILE NO
PIS NUMBER	NUMBER				EQ2-EF2
					-XXX
2T50-B001A	HEAT EXCH	ROTRON	DR-313	18	041
2T50-B001B	HEAT EXCH	ROTRON	DR-313	26	041
2T50-C001A	PUMP	ROTRON	DR-313	18	041
2T50-C001B	PUMP	ROTRON	DR-313	26	041
2T50-F033A	V5-2181	JAMESBURY	BWS	18	020
2T50-F034A	V5-2182	JAMESBURY	BWS	18	020
2T50-F034B	V5-2190	JAMESBURY	BWS	26	020
2T50-F035A	V5-2183	JAMESBURY	BWS	18	020
2T50-F035B	V5-2191	JAMESBURY	BWS	26	020
2T50-F036A	V5-2184	JAMESBURY	BWS	18	020
2T50-F036B	V5-2192	JAMESBURY	BWS	26	020
2T50-F037A	V5-2185	JAMESBURY	BWS	18	020
2T50-F037B	V5-2193	JAMESBURY	BWS	26	020
2T50-F047A	V5-2619	JAMESBURY	BWS	18	020
2T50-F047B	V5-2620	JAMESBURY	BWS	26	020
2T50-F050A	V5-2188	JAMESBURY	BWS	18	020
2T50-F050B	V5-2196	JAMESBURY	BWS	26	020
2T50-F051A	V5-2186	JAMESBURY	BWS	18	020
2T50-F051B	V5-2194	JAMESBURY	BWS	26	020
2T50-F052A	V5-2187	JAMESBURY	BWS	18	020
2T50-F052B	V5-2195	JAMESBURY	BWS	26	020
2T50-F053A	V5-2224	JAMESBURY	BWS	19	020
2T50-F053B	V5-2225	JAMESBURY	BWS	18	020
2T50-F056A	V5-2948	DRAGON	10950N	18	011
2T50-F056B	V5-2945	DRAGON	10950N	23	011
2T50-F141	V5-2227	JAMESBURY	BWS	18	020
2T50-F142	V5-2229	JAMESBURY	BWS	18	020
2T50-F143	V5-2226	JAMESBURY	BWS	18	020
2T50-F144	V5-2228	JAMESBURY	BWS	18	020
2T50-F401A	V5-2151	JAMESBURY	BWS	18	020
2T50-F401B	V5-2159	JAMESBURY	BWS	26	020
2T50-F402A	V5-2152	JAMESBURY	BWS	18	020
2T50-F402B	V5-2160	JAMESBURY	BWS	26	020
2T50-F403A	V5-2153	JAMESBURY	BWS	18	020
2T50-F403B	V5-2161	JAMESBURY	BWS	26	020
2T50-F404A	V5-2154	JAMESBURY	BWS	18	020
2T50-F404B	V5-2162	JAMESBURY	BWS	26	020
2T50-F405A	V5-2155	JAMESBURY	BWS	18	020
2T50-F405B	V5-2163	JAMESBURY	BWS	26	020
2T50-F406A	V5-2156	JAMESBURY	BWS	18	020
2T50-F406B	V5-2164	JAMESBURY	BWS	26	020
2T50-F407A	V5-2157	JAMESBURY	BWS	18	020
2T50-F407B	V5-2165	JAMESBURY	BWS	26	020
2T50-F408A	V5-2158	JAMESBURY	BWS	18	020
2T50-F408B	V5-2166	JAMESBURY	BWS	26	020
2T50-F420A	V5-2230	JAMESBURY	BWS	19	020
2T50-F420B	V5-2231	JAMESBURY	BWS	18	020

SYS: T50

.TAG	.EQUIPMENT	.MANUFACTURER	.MODEL NUMBER	.ZONE	.FILE NO
PIS NUMBER	NUMBER			-XXX	EQ2-EF2
2T50-F421A	V5-2232	JAMESBURY	BWS	16	020
2T50-F421B	V5-2236	JAMESBURY	BWS	23	020
2T50-F422A	V5-2234	JAMESBURY	BWS	23	020
2T5000HP1	H21P282	COMSIP-DELPHI	K-IV (PANEL)	18	004
2T5000MP2	H21P283	COMSIP-DELPHI	K-IV (PANEL)	26	004

T50

SYS: Z00

.TAG		.FILE NO			
.EQUIPMENT		.EQ2-EF2			
PIS NUMBER	NUMBER	MANUFACTURER	MODEL NUMBER	ZONE	-XXX
2Z00-----	GASKETS	FLEXITALLIC	STYLE CG,R	22	040
2Z00-----	SNUBBERS	POWER PIPING	MX-2	22	017
2Z00-----	SNUBBERS+	PACIFIC SCIENTIFIC	PSA-#	22	016
2Z00-----	STRAINERS	CHICAGO BRIDGE&IRON	-----	36	045
2Z00-----	UNION SEAL	VARIOUS	VITON	22	043

Z00

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THE DETROIT EDISON COMPANY

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ENRICO FERMI UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.50

## EQUIPMENT:

MANUFACTURER : AMER. WARMING & VENTILATING VENDOR : CVI  
MODEL NO. : DAAP-5676  
DESCRIPTION : INLET VANES AND OUTLET SHUTOFF DAMPERS  
LOCATION(ZONE): 1

QUAL. STATUS : QUALIFIED

PURCHASE ORDER #: 1E-87813

DECO DWG. FILE #: R3-548

FOREIGN DWG # : A742-5907

SAFETY CATEGORY : 2A

OPERATING TIME: 100 DAYS

## -----ENVIRONMENTAL PARAMETERS-----

## NORMAL CONDITIONS:

## -----REQUIRED-----

TEMPERATURE: 77 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 48 PCT-RH  
RADIATION : 1.75E2 RADS  
(INTEGRATED OVER 40 YEARS)

## ACCIDENT CONDITIONS:

## -----REQUIRED-----

TEMPERATURE: 150\* DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 15 PCT-RH  
SPRAY : N/A  
RADIATION : (NOTE 3)RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: N/A

## -----DESIGN PARAMETERS-----

## -----DESIGN-----

## -----APPLICATION-----

MODEL NO.	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
DAAP-5676	NOTE 1	600	ATMOSPHERE	250 (NOTE 2)

## -----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
FLANGE GASKETS (OUTLET)	SR	NEOPRENE	300	5E7	10
FLANGE GASKETS (INLET)	NSR	N/A	N/A	N/A	N/A
LUBRICANT- SHAFT BEARING	SR	PARAFFIN BASED GREASE	250	1E7	2

## NOTES

1. PRESSURES IN THE ATMOSPHERIC RANGE TO + 40" WATER HAVE NO EFFECT ON THE DAMPER ASSEMBLY FUNCTION SINCE IT HAS NO PRESSURE RETAINING PARTS.
2. MAXIMUM PROCESS OPERATIONAL TEMPERATURE IS 150°F.
3. MAXIMUM ZONE 1 ACCIDENT RADIATION DOSE HAS BEEN REDUCED TO 2E6 RADS BY EVALUATING EQUIPMENT LOCATION WITH RESPECT TO RADIATION SOURCE.

\* PROCESS PARAMETERS

REFERENCE FILE: EQ2-EF2-050



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ENRICO FERMI UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.1

EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : ATWOOD AND MORRILL CO.  
MODEL NO. : 21150-H, 21217-H; 21389-H  
DESCRIPTION : GLOBE VALVE: CHECK VALVE  
LOCATION(ZONE): 22,41

VENDOR : SEE DWGS.

PURCHASE ORDER #: 1E-83800, 1E-87861

DECO DWG. FILE #: R1-587, 588 & P1-500  
FOREIGN DWG # : SEE DECO DWG.

SAFETY CATEGORY : 2A/2B

OPERATING TIME: 1 MIN/100 DAYS

-----ENVIRONMENTAL PARAMETERS-----

NORMAL CONDITIONS:

-----REQUIRED-----

TEMPERATURE: 135 DEG. °F  
PRESSURE : N/A PSIG  
HUMIDITY : 90 PCT-RH  
RADIATION : 1.8E7 RADS  
(INTEGRATED OVER 40 YEARS)

ACCIDENT CONDITIONS:

-----REQUIRED-----

TEMPERATURE: 540\* DEG. °F  
PRESSURE : 56.2 PSIG  
HUMIDITY : 100 PCT-RH  
SPRAY : DEMIN WTR.  
RADIATION : 1.98E9 RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: NOT AFFECTED

-----DESIGN PARAMETERS-----

-----DESIGN-----

-----APPLICATION-----

MODEL NO.	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
21150-H	1640	600	1250	575
21217-H	1640	600	1250	575
21389-H	1600	600	1250	450

-----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
GASKET	SR	ASBESTOS/SS	800	1E11	40
VALVE PACKING*	SR	ASBESTOS	1200	1E11	40

\*ACCEPTABLE ALTERNATIVES (SEE REF. FILE)

VALVE PACKING	SR	ASBESTOS	1200	1E11	40
VALVE PACKING	SR	GRAPHITE	1000	1E11	40
VALVE PACKING	SR	GRAPHITE	1000	1E11	40
VALVE PACKING	SR	GRAPHITE	1000	1E11	40

\*PROCESS FLUID PARAMETER

REFERENCE FILE: EQ2-EF2-001

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ENRICO FERMI UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.2

## EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : ATWOOD AND MORRILL CO. VENDOR : GENERAL ELECTRIC  
MODEL NO. : 21150H, 21217H AND 21389H  
DESCRIPTION : GLOBE VALVE ACTUATOR, CHECK VALVE EXERCISE ACTUATOR  
LOCATION(ZONE): WORST CASE FOR ZONES 22, 41

PURCHASE ORDER #: 1E-83800

DECO DWG. FILE #: R1-587, R1-588, P1-500  
FOREIGN DWG # : SEE DECO DWGS.

SAFETY CATEGORY : 2A/2B

OPERATING TIME: 1 MIN/100 DAYS

-----ENVIRONMENTAL PARAMETERS-----					
NORMAL CONDITIONS:			ACCIDENT CONDITIONS:		
-----REQUIRED-----			-----REQUIRED-----		
TEMPERATURE:	135	DEG.°F	TEMPERATURE:	340	DEG.°F
PRESSURE :	N/A	PSIG	PRESSURE :	56.2	PSIG
HUMIDITY :	90	PCT-RH	HUMIDITY :	100	PCT-RH
RADIATION :	1.8E7	RADS	SPRAY :	DEMIN WTR.	
(INTEGRATED OVER 40 YEARS)			RADIATION :	(NOTE 1)RADS	
			(INTEGRATED OVER 100 DAYS)		
			SUBMERGENCE: N/A		

-----DESIGN PARAMETERS-----				
MODEL NO.	-----DESIGN-----		-----APPLICATION-----	
	PRESS.	TEMP.	PRESS.	TEMP.
	(PSIG)	(°F)	(PSIG)	(°F)
21389-H	THIS EXERCISE ACTUATOR IS NOT SAFETY RELATED			
21150-H	200	N/A	90-100	150 NORMAL 340 MAX.
21217-H	200	N/A	90-100	150 NORMAL 340 MAX.

-----DEMONSTRATED MATERIAL CAPABILITY-----					
NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
AIR-OPERATOR					
CYL.-PISTON SEAL	NSR	N/A	N/A	N/A	N/A
SEALS	SR	VITON	400	2E8	40
O-RINGS	SR	VITON	400	2E8	40
DASHPOT-					
O-RINGS					
AND SEALS	NSR	N/A	N/A	N/A	N/A
OIL	SR	METHYL ALKYL POLYSILOXANE	450	2E8	NOTE 2

1. RADIATION DOSE IS 1.8E8 RADS (GAMMA) ONLY. SAFETY-RELATED NON-METALLIC SUB COMPONENTS ARE INTERNAL TO THE COMPONENT AND ARE NOT EXPOSED TO BETA RADIATION FROM EITHER THE AMBIENT OR PROCESS CONDITIONS.

2. ROUTINE MAINTENANCE, SEE REFERENCE FILE.

REFERENCE FILE: EQ2-EF2-002

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ENRICO FERMI UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.3

## EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : ANCHOR VALVE COMPANY      VENDOR : SEE DWGS.  
MODEL NO. : SEE MODEL NO. UNDER DESIGN PARAMETERS  
DESCRIPTION : VALVES: GATE, EXERCISABLE CHECK, LIFT CHECK  
LOCATION(ZONE): WORST CASE FOR ZONES 9,10,12,15,19,22,23,24

PURCHASE ORDER #: 1A-87859, 1E-87859  
1A-57803, 1A-57808

DECO DWG. FILE #: SEE REF. FILE  
FOREIGN DWG # : SEE DWGS.

SAFETY CATEGORY : 2B

OPERATING TIME: 100 DAYS

## -----ENVIRONMENTAL PARAMETERS-----

## NORMAL CONDITIONS:

## -----REQUIRED-----

TEMPERATURE: 135 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 90 PCT-RH  
RADIATION : 1.8E7 RADS  
(INTEGRATED OVER 40 YEARS)

## ACCIDENT CONDITIONS:

## -----REQUIRED-----

TEMPERATURE: 340\*\*\* DEG.°F  
PRESSURE : 56.2 PSIG  
HUMIDITY : 100 PCT-RH  
SPRAY : DEMIN WTR.  
RADIATION : 1.98E9 RADS\*\*  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: NOT AFFECTED

## -----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
PACKING RINGS	SR	ASBESTOS	1200	1E11	40
PACKING *	SR	GRAPHITE	1000	1E11	40
GASKET	SR	ASBESTOS/SS	800	1E11	40
RESILIENT SEAT	SR	EP	400	2.05E8	5
AIR CYLINDER	NSR	VARIOUS	N/A	N/A	N/A

\* ACCEPTABLE ALTERNATIVE (SEE REF. FILE)

PACKING SR ASBESTOS 1200 1E11 40

\*\* 1.98E9 INCLUDES BETA. VALVE INTERNAL EVALUATION DOSE IS 1.8E8 RADS (GAMMA ONLY).

\*\*\* THE ASBESTOS/SS GASKET HAS AN ACCIDENT TEMPERATURE REQUIREMENT OF 583°F FROM PROCESS FLUIDS.

REFERENCE FILE: EQ2-EF2-003

## -----DESIGN PARAMETERS-----

## ----DESIGN----

## ----APPLICATION-----

MODEL NO.	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
6"-150# SWING CHECK	200	400	150	350
20"-900# SPR.CLOSE CK.	1995	500	1250	450
20"-900# EXER. SWING CK.	1995	500	1250	450
1.5"-900# EXER. SWING CK.	1475	600	1250	575
4"-900# EXER CHECK	1640	600	1250	575
4"-900# 1"NEU CYL EXER CK.	1640	600	1300	575
20"-900# FLEX WEDGE GATE	1815	600	1717	576
10"-150# LIFT CHECK	150	267	150	267

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ENRICO FERMI UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.63

EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : BINGHAM WILLAMETTE

VENDOR : GENERAL ELECTRIC

PURCHASE ORDER #: 1E-83800

MODEL NO. : 6x6x10-1/2 CP

DESCRIPTION : HORIZONTAL 4 STAGE RCIC PUMP

DECO DWG. FILE #: SEE REF. FILE

LOCATION(ZONE): 15

FOREIGN DWG # : SEE DECO DWG.

SAFETY CATEGORY : 23

OPERATING TIME: 100 DAYS

-----ENVIRONMENTAL PARAMETERS-----

NORMAL CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 77 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 75 PCT-RH  
RADIATION : 5.3E03 RADS  
(INTEGRATED OVER 40 YEARS)

ACCIDENT CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 170\* DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 100 PCT-RH  
SPRAY : N/A  
RADIATION : 1.5E07\* RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: N/A

-----DESIGN PARAMETERS-----

MODEL NO.	-----DESIGN-----		---APPLICATION---	
	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
6x6x10-1/2 CP	1500	212	1280	170

-----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
GASKETS	SR	ASBESTOS/SS	800	1E11	40
SEALS	SR	ETHYLENE PROPYLENE	300	1E08	40

\*PROCESS FLUID PARAMETER

REFERENCE FILE: EQ2-EF2-063



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ENRICO FERMI UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.48

EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : BORG-WARNER

VENDOR : GENERAL ELECTRIC

PURCHASE ORDER #: 1E-83800

MODEL NO. : NX-0625-FW

DESCRIPTION : HIGH PRESSURE DUAL COIL HEAT EXCHANGER

DECO DWG. FILE #: R4-210

LOCATION(ZONE): 16

FOREIGN DWG # : 2C-4970

SAFETY CATEGORY : 2B

OPERATING TIME: 100 DAYS

-----ENVIRONMENTAL PARAMETERS-----

NORMAL CONDITIONS:

-----REQUIRED-----

TEMPERATURE: 77 DEG. °F  
PRESSURE : N/A PSIG  
HUMIDITY : 76 PCT-RH  
RADIATION : 5.3E3 RADS  
(INTEGRATED OVER 40 YEARS)

ACCIDENT CONDITIONS:

-----REQUIRED-----

TEMPERATURE: 150 DEG. °F  
PRESSURE : N/A PSIG  
HUMIDITY : 13 PCT-RH  
SPRAY : N/A  
RADIATION : 5.4E6 RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: NOT AFFECTED

-----DESIGN PARAMETERS-----

-----DESIGN-----

MODEL NO.	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
NX-0625-FW	1200 1650	800 400	450	200

-----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
CASE TO COVER GASKET	SR	NITRILE GS	225	1E7	10

REFERENCE FILE: EQ2-EF2-048



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ENRICO FERMI UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.42

## EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : BORG-WARNER  
MODEL NO. : 10043, 10056, 10108  
DESCRIPTION : CYCLONE AND MAGNETIC SEPARATOR  
LOCATION(ZONE): WORST CASE FOR ZONES 15,16,17

VENDOR : GENERAL ELECTRIC

PURCHASE ORDER #: 1E-83800

DECO DWG. FILE# : SEE REF. FILE  
FOREIGN DWG # : SEE DECO. DWG.

SAFETY CATEGORY : 2A/2B

OPERATING TIME: 1 HOUR/100 DAYS

## -----ENVIRONMENTAL PARAMETERS-----

## NORMAL CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 83 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 76 PCT-RH  
RADIATION : 5.3E3 RADS  
(INTEGRATED OVER 40 YEARS)

## ACCIDENT CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 200\* DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 100 PCT-RH  
SPRAY : N/A  
RADIATION : 1.5E7\* RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: NOT AFFECTED

## -----DESIGN PARAMETERS-----

MODEL NO.	-----DESIGN-----		-----APPLICATION-----	
	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
10043	2000	450	475	200. (NOTE 1)
10056	2000	450	1330	170
10108	2000	450	1280	190

## -----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)	NOTE
HEAD GASKET	SR	VITON OR NITRILE	400 225	2E8 1E8	10 10	1. MAX. PROCESS TEMP. FROM REFUELING SHUTDOWNS FOR A BRIEF PERIOD IS 281°F (RHR ONLY).
HEAD GASKET (MODELS 10056 * 10108)	SR	VITON OR FLEXITALLIC	400 800	2E9 1E11	10 40	

\* PROCESS FLUID PARAMETERS

REFERENCE FILE: EQ2-EF2-042

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ENRICO FERMI UNIT 2 PROJECT

EEQ/33/F.32

DOCKET NO. 50-341

## MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

## EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : BUFFALO FORGE/VARIOUS

VENDOR : ROCKWELL INTERNATIONAL

PURCHASE ORDER #: 1A-92006

MODEL NO. : 32-1CB/MISC. EQUIP.

DESCRIPTION : CENTRIFUGAL BLOWER/FAN ASSEMBLY-MISC. EQUIPMENT

DECO DWG. FILE #: N/A

LOCATION(ZONE): 40

FOREIGN DWG # : N/A

SAFETY CATEGORY : 2A

OPERATING TIME: 100 DAYS

## -----ENVIRONMENTAL PARAMETERS-----

## NORMAL CONDITIONS:

## ACCIDENT CONDITIONS:

## -----REQUIRED-----

## -----REQUIRED-----

TEMPERATURE: 83 DEG. °F

TEMPERATURE: 257\* DEG. °F

PRESSURE : N/A PSIG

PRESSURE : 56.2\* PSIG

HUMIDITY : 63 PCT-RH

HUMIDITY : 100\* PCT-RH

RADIATION : 3.5E02 RADS

SPRAY : N/A

(INTEGRATED OVER 40 YEARS)

RADIATION : 9.44E08\*RADS

(INTEGRATED OVER 100 DAYS)

SUBMERGENCE: N/A

## -----DESIGN PARAMETERS-----

## -----DESIGN-----

## -----APPLICATION-----

PRESS.

TEMP.

PRESS.

TEMP.

MODEL NO.

IN. H2O

(°F)

IN. H2O

(°F)

32-1CB

70

N/A\*\*

54

N/A\*\*

## -----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
BLOWER SLEEVES	SR	EPT	300	2.05E08	40
GASKET	SR	GRAPHITE	1000	1.0E11	40
SHAFT PACKING	SR	EPT	300	2.05E08	40
GASKETS	SR	ASBESTOS/SS	650	1.0E11	40
LUBRICANT (PILLAR BLOCK)	NSR	N/A	N/A	N/A	N/A
INSERT	SR	GRAPHITE	1000	1.0E11	40

## GENERAL NOTE

VARIOUS MISC. EQUIPMENT IDENTIFIED IN THE  
REFERENCE FILE (SPRAY COOLER, H/O REACTOR,  
WATER SEPARATOR & STRAINER) CONTAIN ALL  
METALLIC MATERIALS.

\* PROCESS PARAMETERS

\*\* TEMPERATURE IS NOT A DESIGN PARAMETER FOR THESE BLOWERS.

REFERENCE FILE: EQ2-EF2-032

DATE: 03/01/84

THE DETROIT EDISON COMPANY

REV. 0

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ENRICO FERMI UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.5

EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : BYRON JACKSON      VENDOR : GENERAL ELECTRIC  
MODEL NO. : VERTICAL DVDS, 10x12x14  
DESCRIPTION : SINGLE STAGE CENTRIFUGAL PUMP - CORE SPRAY  
LOCATION(ZONE): 15

PURCHASE ORDER #: 1E-83800  
DECO DWG. FILE #: R4-209  
FOREIGN DWG # : 2C-4966

SAFETY CATEGORY : 2A

OPERATING TIME: 100 DAYS

-----ENVIRONMENTAL PARAMETERS-----

NORMAL CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 77      DEG.°F  
PRESSURE : N/A      PSIG  
HUMIDITY : 75      PCT-RH  
RADIATION : 5.3E3      RADS  
(INTEGRATED OVER 40 YEARS)

ACCIDENT CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 200\*      DEG.°F  
PRESSURE : 475\*      PSIG  
HUMIDITY : 15      PCT-RH  
SPRAY : N/A  
RADIATION : 1.5E7\*      RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: N/A

-----DESIGN PARAMETERS-----

MODEL NO.	-----DESIGN-----		-----APPLICATION-----	
	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
10x12x14 VERTICAL DVDS	500	212	475	200

-----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
GASKETS AND U-CUP (SEE REF. FILE FOR LIST)	SR	ETHYLENE PROPYLENE	300	1E8	10

\* PROCESS FLUID PARAMETERS

REFERENCE FILE: EQ2-EF2-005

DATE: 03/01/84

THE DETROIT EDISON COMPANY

REV. 0

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ENRICO FERMI UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.49

EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : BYRON JACKSON  
MODEL NO. : VERTICAL DVDS, 16x20x28  
DESCRIPTION : SINGLE STAGE CENTRIFUGAL PUMP (RHR)  
LOCATION(ZONE): 16

VENDOR : GENERAL ELECTRIC

PURCHASE ORDER #: 1E-83800

DECO DWG. FILE #: R4-210

FOREIGN DWG # : 2C-4970

SAFETY CATEGORY : 2A

OPERATING TIME: 100 DAYS

-----ENVIRONMENTAL PARAMETERS-----

NORMAL CONDITIONS:

-----REQUIRED-----

TEMPERATURE: NOTE 1 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 76 PCT-RH  
RADIATION : 5.3E3 RADS  
(INTEGRATED OVER 40 YEARS)

ACCIDENT CONDITIONS:

-----REQUIRED-----

TEMPERATURE: 200\* DEG.°F  
PRESSURE : 450\* PSIG  
HUMIDITY : 13 PCT-RH  
SPRAY : N/A  
RADIATION : 1.5E7\* RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: N/A

-----DESIGN PARAMETERS-----

-----DESIGN-----

-----APPLICATION-----

MODEL NO.	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
16x20x28 SINGLE STAGE VERTICAL DVDS PUMP	500	360	450	200

-----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
GASKETS AND U-CUP (SEE REF. FILE FOR LISTING)	SR	ETHYLENE PROPYLENE	300	1E8	10

NOTE

1. MAX. PROCESS TEMP. FROM REFUELING SHUTDOWN FOR A BRIEF PERIOD IS 281°F WITH LONG TERM TEMPERATURE OF APPROX. 125°F. AVERAGE NORMAL AMBIENT TEMP. IS 77°F.

\* PROCESS FLUID PARAMETER

REFERENCE FILE: EQ2-EF2-049



DATE: 03/01/84

THE DETROIT EDISON COMPANY

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ENRICO FERMI UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.52

## EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : BYRON JACKSON                      VENDOR: GENERAL ELECTRIC  
MODEL NO. : TYPE DVS 12x14x23; TYPE DVMX 10x12x15  
DESCRIPTION : SINGLE STAGE AND TWO STAGE CENTRIFUGUAL PUMPS  
LOCATION(ZONE): 17

PURCHASE ORDER #: 1E-83800  
DECO DWG. FILE #: SEE REF. FILE  
FOREIGN DWG # : 45/5020-1F-6519/20

SAFETY CATEGORY : 2A/2B

OPERATING TIME: 1HR/100 DAYS

## -----ENVIRONMENTAL PARAMETERS-----

## NORMAL CONDITIONS:

## ACCIDENT CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 33 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 61 PCT-RH  
RADIATION : 5.3E3 RADS  
(INTEGRATED OVER 40 YEARS)

-----REQUIRED-----  
TEMPERATURE: 170\* DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 100 PCT-RH  
SPRAY : N/A  
RADIATION : 1.5E7\* RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: NOT AFFECTED

## -----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
GASKETS	NOTE 1	WAX PAPER	N/A	N/A	N/A
MECH. SEAL COMPONENTS	SR	BUNA-N	250	2E7	3
LUBRICATION	NOTE 1	PARAFFINIC BASE OIL	N/A	N/A	N/A

## -----DESIGN PARAMETERS-----

## -----DESIGN-----

MODEL NO.	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
12x14x23 SINGE STAGE TYPE DVS	450	212	125	140
10x12x15 DUAL STAGE TYPE DVMX	1500	212	1330	170

## NOTE

1. THE WAX PAPER GASKETS AND LUBRICATION ARE COMPONENTS OF THE PUMP LUBRICATION SYSTEM WHICH IS REQUIRED TO OPERATE FOR ONLY ONE HOUR INTO AN ACCIDENT. THE ONE HOUR ACCIDENT RAD DOSE PLUS 40 YEAR INTEGRATED DOSE IS 5.3E3 RADS. TEMPERATURE IS 170°F. THESE VALUES ARE WELL BELOW THE DOCUMENTED THRESHOLD LEVEL OF NEARLY ALL MATERIALS. FAILURE OF THESE COMPONENTS AFTER THE HOUR WILL NOT AFFECT THE SAFETY FUNCTION OF THE EQUIPMENT.

\*PROCESS FLUID PARAMETER  
REFERENCE FILE: EQ2-EF2-064

DATE: 03/01/84

THE DETROIT EDISON COMPANY

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ENRICO FERMI UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.45

EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : CHICAGO BRIDGE & IRON  
MODEL NO. : N/A  
DESCRIPTION : SUPPRESSION POOL STRAINERS  
LOCATION(ZONE): 36

VENDOR : CHICAGO BRIDGE & IRON, CO. PURCHASE ORDER #: 1C-70020

DECO DWG. FILE #: B2-159, B2-165  
FOREIGN DWG # : 227 REV. 3, 228 REV. 3

SAFETY CATEGORY : 2B

OPERATING TIME: 100 DAYS

-----ENVIRONMENTAL PARAMETERS-----

NORMAL CONDITIONS: (NOTE 1)

-----REQUIRED-----  
TEMPERATURE: 135 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 90 PCT-RH  
RADIATION : 3.5E04 RADS  
(INTEGRATED OVER 40 YEARS)

ACCIDENT CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 300 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 100 PCT-RH  
SPRAY : N/A  
RADIATION : 5.73E08 RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: NOT AFFECTED

-----DESIGN PARAMETERS-----

MODEL NO.	-----DESIGN-----		---APPLICATION---	
	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
SUPPRESSION POOL STRAINERS		NOTE 2		NOTE 2

-----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
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THIS EQUIPMENT CONTAINS NO NON-METALLIC MATERIALS  
(NOTE 1)

NOTES

1. THIS EQUIPMENT IS TOTALLY METALLIC AND IMPERVIOUS TO THE EFFECTS OF PROCESS AND EXTERNAL ENVIRONMENTS PRESENT IN THE SUPPRESSION POOL.
2. THERE ARE NO SPECIFIC DESIGN CRITERIA THAT LIMIT THE PERFORMANCE OF THE STRAINER EXCEPT THE MATERIAL PROPERTIES OF STAINLESS STEEL.

REFERENCE FILE: EQ2-EF2-045

DATE: 03/01/84

THE DETROIT EDISON COMPANY

REV. 0

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ENRICO FERMI UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.47

EQUIPMENT:

MANUFACTURER : CB&I/PROCESS ENG. INC.  
MODEL NO. : VARIOUS  
DESCRIPTION : EXPANSION BELLOWS  
LOCATION(ZONE): WORST CASE FOR ZONES 15,36

VENDOR : SEE DWGS.

QUAL. STATUS : QUALIFIED

PURCHASE ORDER #: SEE DWGS.

DECO DWG. FILE #: 520-109  
FOREIGN DWG # : CB&I - 207 REV. 7  
PROCESS ENG. INC.  
D-41175 REV. 1

SAFETY CATEGORY : 2B

OPERATING TIME: 100 DAYS

-----ENVIRONMENTAL PARAMETERS-----

NORMAL CONDITIONS: (NOTE 1)

-----REQUIRED-----

TEMPERATURE: 135 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 90 PCT-RH  
RADIATION : 3.5E04 RADS  
(INTEGRATED OVER 40 YEARS)

ACCIDENT CONDITIONS:

-----REQUIRED-----

TEMPERATURE: 300 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 100 PCT-RH  
SPRAY : N/A  
RADIATION : 5.73E08 RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: NOT AFFECTED

-----DESIGN PARAMETERS-----

-----DESIGN-----

-----APPLICATION-----

MODEL NO.	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
EXPANSION BELLOWS	125	212	NOTE 2	NOTE 2

-----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
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THIS EQUIPMENT CONTAINS NO NON-METALLIC MATERIALS  
(NOTE 1)

NOTES

1. THIS EQUIPMENT IS TOTALLY METALLIC AND IMPERVIOUS TO THE EFFECTS OF PROCESS AND EXTERNAL ENVIRONMENTS THROUGHOUT THE PLANT.
2. THERE ARE NO SPECIFIC DESIGN CRITERIA THAT LIMIT THE PERFORMANCE OF THE BELLOWS EXCEPT THE MATERIAL PROPERTY LIMITS OF SA-106, SA-240 STEELS.

REFERENCE FILE: EQ2-EF2-047

DATE: 03/01/84

THE DETROIT EDISON COMPANY

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ENRICO FERMI UNIT 2 PROJECT

EEQ/33/F.6

DOCKET NO. 50-341

## MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

## EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : CRANE-DEMING CO.

VENDOR : SEE DWG.

PURCHASE ORDER #: N/A

MODEL NO. : SERIES 5063

DESCRIPTION : HORIZONTAL SPLIT CASE GREASE LUBRICATED PUMP

DECO DWG. FILE #: S24-110

LOCATION(ZONE): WORST CASE FOR ZONES 18, 19

FOREIGN DWG # : SEE DECO DWG.

SAFETY CATEGORY : 2A

OPERATING TIME: 100 DAYS

## -----ENVIRONMENTAL PARAMETERS-----

## NORMAL CONDITIONS:

## ACCIDENT CONDITIONS:

## -----REQUIRED-----

## -----REQUIRED-----

TEMPERATURE: 79 DEG.°F  
 PRESSURE : N/A PSIG  
 HUMIDITY : 71 PCT-RH  
 RADIATION : 3.5E2 RADS  
 (INTEGRATED OVER 40 YEARS)

TEMPERATURE: 130 DEG.°F  
 PRESSURE : N/A PSIG  
 HUMIDITY : 100 PCT-RH  
 SPRAY : N/A  
 RADIATION : 5.4E06 RADS  
 (INTEGRATED OVER 100 DAYS)  
 SUBMERGENCE: N/A

## -----DESIGN PARAMETERS-----

## -----DESIGN-----

## -----APPLICATION-----

MODEL NO.	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
SERIES 5063	175 to 375	250	175	120

## -----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
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MECH. SEAL					
a) BELLOWS SEAL	SR	EPDM	300	1E7	40
b) O-RING	SR	EPDM	300	1E7	40
PARTING GASKET	SR	FIBER/ALKYD RESIN	250	8.5E06	40
SEAL GASKET	SR	FIBER/NITRILE	250	8.5E06	40
LUBRICANT (PUMP)	SR	PARAFFINIC BASED GREASE	250	1E7	40
LUBRICANT (CPLNG.)	SR	SODIUM SOAP OF NAPHTHENIC OIL	250	1E7	NOTE 1
GASKET (PIPE EXPANDER)	SR	ASBESTOS/SS	800	1E11	40

1. ROUTINE MAINTENANCE, SEE REFERENCE FILE

REFERENCE FILE: EQ2-EF2-006



DATE: 03/01/84

THE DETROIT EDISON COMPANY

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ENRICO FERMI UNIT 2 PROJECT

EEQ/33/F.7

DOCKET NO. 50-341

## MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

## EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : CROSBY                      VENDOR : CROSBY  
 MODEL NO. : SEE MODEL NO. UNDER DESIGN PARAMETERS  
 DESCRIPTION : NOZZLE TYPE RELIEF VALVES (SEE SIZE UNDER DESIGN PARAMETERS)  
 LOCATION(ZONE): WORST CASE FOR ZONES 11,12,15,17,18,22,23,24

PURCHASE ORDER #: 1E-87808  
 DECO DWG. FILE #: SEE REF. FILE  
 FOREIGN DWG # : SEE DECO FILE

SAFETY CATEGORY : 2A

OPERATING TIME: 100 DAYS

## -----ENVIRONMENTAL PARAMETERS-----

## NORMAL CONDITIONS:

## -----REQUIRED-----

TEMPERATURE: 135 DEG.°F  
 PRESSURE : N/A PSIG  
 HUMIDITY : 90 PCT-RH  
 RADIATION : 1.8E7 RADS  
 (INTEGRATED OVER 40 YEARS)

## ACCIDENT CONDITIONS:

## -----REQUIRED-----

TEMPERATURE: 340 DEG.°F  
 PRESSURE : 56.2 PSIG  
 HUMIDITY : 100 PCT-RH  
 SPRAY : DEMIN WTR.  
 RADIATION : 1.98E9 RADS  
 (INTEGRATED OVER 100 DAYS)  
 SUBMERGENCE: NOT AFFECTED

## -----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
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THIS EQUIPMENT PROVIDES OVERPRESSURE AND PRESSURE  
 BOUNDARY PROTECTION. IN THIS SPECIFIC PLANT APPLICATION,  
 THE NON-METALLIC SUBCOMPONENTS ARE NOT SAFETY-  
 RELATED.

REFERENCE FILE: EQ2-EF2-007

## -----DESIGN PARAMETERS-----

## -----DESIGN-----

## -----APPLICATION-----

MODEL NO.	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
JMBU-C(.75x1) TYPE E	5000	400	125,170	340
JO-25(2J3) TYPE E	275	450	25	340
JO-36(TM) TYPE E	650	800	450	452
JO-25(1.5F2)	275	450	125	150
JO-35-WP TYPE B	650	800	500	212
JO-25-WR (1-1/2D 2-1/2)	275	450	100	212
JMBU-C (1x1-1/2)	3000	400	100	212
JO-25-WR(3K4)	275	450	125	170
JO-25-WR (1-1/2 G 2-1/2)	275	450	125	170

DATE: 03/01/84

THE DETROIT EDISON COMPANY

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ENRICO FERMI UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.8

EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : CROSBY  
MODEL NO. : VR (8x8), 1-9536 (3/4x1)  
DESCRIPTION : VACUUM RELIEF VALVE  
LOCATION(ZONE): 22

VENDOR : CROSBY

PURCHASE ORDER #: 1E-87808

DECO DWG. FILE #: P1-1863

FOREIGN DWG # : DS-C-58071

SAFETY CATEGORY : 2A

OPERATING TIME: 100 DAYS

-----ENVIRONMENTAL PARAMETERS-----

NORMAL CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 135 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 90 PCT-RH  
RADIATION : 1.8E07 RADS  
(INTEGRATED OVER 40 YEARS)

ACCIDENT CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 340 DEG.°F  
PRESSURE : 56.2 PSIG  
HUMIDITY : 100 PCT-RH  
SPRAY : DEMIN WTR.  
RADIATION : 1.98E09 RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: NOT AFFECTED

-----DESIGN PARAMETERS-----

MODEL NO.	-----DESIGN-----		-----APPLICATION-----	
	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
VR (8x8)	535	475	N/A	340
1-9536 (3/4x1)	150	200	150	200

-----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
GASKETS (2) (VR (8x8) ONLY)	SR	ASBESTOS	650	1.0E11	40
O-RING (1-9536 (3/4x1) ONLY)	NSR	ETHYLENE/ PROPYLENE	N/A	N/A	N/A

REFERENCE FILE: EQ2-EF2-008

DATE: 03/01/84

THE DETROIT EDISON COMPANY

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ENRICO FERMI UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.53

EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : CROSBY  
MODEL NO. : JMB-WR-C, TYPE B,C,D  
DESCRIPTION : 1x1.5", 1.5"x2", 1"x2", 0.75" x 1", NOZZLE TYPE RELIEF VALVES  
LOCATION(ZONE): WORST CASE FOR ZONES 15,16,18,19,22

VENDOR: CROSBY

PURCHASE ORDER #: 1E-87808

DECO DWG. FILE #: SEE REF. FILE  
FOREIGN DWG # : SEE DECO DWGS.

SAFETY CATEGORY : 2A

OPERATING TIME: 100 DAYS

-----ENVIRONMENTAL PARAMETERS-----

NORMAL CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 135 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 90 PCT-RH  
RADIATION : 1.8E07 RADS  
(INTEGRATED OVER 40 YEARS)

ACCIDENT CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 340 DEG.°F  
PRESSURE : 56.2 PSIG  
HUMIDITY : 100 PCT-RH  
SPRAY : DEMIN. WTR.  
RADIATION : 1.98E09 RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: NOT AFFECTED

-----DESIGN PARAMETERS-----

MODEL NO.	-----DESIGN-----		-----APPLICATION-----	
	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
JMB-WR-C	3500	-75 TO	SET 150	340
TYPE B,C,D		400	SET 75	120
			SET 100	150
			SET 125	150
			SET 100	212
			SET 125	212
			SET 100	212
			SET 125	145
			SET 950	240
			SET 100	212

-----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
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CROSBY JMB-WR-C RELIEF VALVES DO NOT  
CONTAIN SAFETY-RELATED METALLIC PARTS

REFERENCE FILE: EQ2-EF2-053

DATE: 03/01/84

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ENRICO FERMI UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.9

## EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : CRYENCO

VENDOR : CTI-NUCLEAR

PURCHASE ORDER #: 1A-95607

MODEL NO. : N/A

DESCRIPTION : SPACE COOLER FAN

DECO DWG. FILE #: B9-659

LOCATION(ZONE): WORST CASE FOR ZONES 7,18,19

FOREIGN DWG # : 27683

SAFETY CATEGORY : 2A

OPERATING TIME: 100 DAYS

## -----ENVIRONMENTAL PARAMETERS-----

## NORMAL CONDITIONS:

## ACCIDENT CONDITIONS:

## -----REQUIRED-----

## -----REQUIRED-----

TEMPERATURE: 83 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 71 PCT-RH  
RADIATION : 3.5E02 RADS  
(INTEGRATED OVER 40 YEARS)

TEMPERATURE: 130 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 15 PCT-RH  
SPRAY : N/A  
RADIATION : 5.4E06 RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: N/A

## -----DESIGN PARAMETERS-----

## -----DESIGN-----

## -----APPLICATION-----

MODEL NO.	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
N/A	N/A	203	N/A	130

## -----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
GASKET	SR	NEOPRENE	300	5.0E07	10
BEARING SEAL	SR	BUNA-N	250	1.0E07	9
RETAINER	SR	NYLON	203	1.0E07	40
LUBRICANT	SR	POLYUREA/ PARAFIN	400	1.0E08	*
FAN BELT PARTS					
o TENSION/COMPR.	SR	SBR	225	9.25E06	5
o TENSION	SR	DACRON	18	1.0E07	5
o JACKETING	SR	NEOPRENE	250	9.25E06	5

\* ROUTINE MAINTENANCE, SEE REF. FILE

REFERENCE FILE: EQ2-EF2-009



DATE: 03/01/84

THE DETROIT EDISON COMPANY

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ENRICO FERMI UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.52

EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : CRYENCO  
MODEL NO. : D27763  
DESCRIPTION : COOLING COILS 304SS WITH COPPER FINS  
LOCATION(ZONE): 22

VENDOR: SEE DWG.

PURCHASE ORDER #: N/A

DECO DWG. FILE #: B9-567

FOREIGN DWG # : D27763

SAFETY CATEGORY : 2B

OPERATING TIME: 100 DAYS

-----ENVIRONMENTAL PARAMETERS-----

NORMAL CONDITIONS:

-----REQUIRED-----

TEMPERATURE: 135 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 90 PCT-RH  
RADIATION : 1.8E7 RADS  
(INTEGRATED OVER 40 YEARS)

ACCIDENT CONDITIONS:

-----REQUIRED-----

TEMPERATURE: 340 DEG.°F  
PRESSURE : 56.2 PSIG  
HUMIDITY : 100 PCT-RH  
SPRAY : DEMIN WTR.  
RADIATION : 1.98E9 RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: NOT AFFECTED

-----DEMONSTRATED MATERIAL CAPABILITY-----

<u>NON-METALLIC</u> <u>SUBCOMPONENTS</u>	<u>SAFETY</u> <u>FUNCTION</u>	<u>GENERIC</u> <u>MATERIAL</u>	<u>TEMP.</u> <u>(°F)</u>	<u>RADIATION</u> <u>(RADS)</u>	<u>DESIGN</u> <u>LIFE (YRS.)</u>
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THIS EQUIPMENT CONTAINS NON-METALLIC MATERIALS (NOTE 1)

REFERENCE FILE: EQ2-EF2-052

-----DESIGN PARAMETERS-----

-----DESIGN-----

PRESS. TEMP.  
(PSIG) (°F)

-----APPLICATION-----

PRESS. TEMP.  
(PSIG) (°F)

MODEL NO.				
CRYENCO	150	350	N/A	85-100
COOLING				
COIL				

NOTE

1. THIS EQUIPMENT IS TOTALLY METALLIC AND IMPERVIOUS TO THE EFFECT OF PROCESS AND EXTERNAL ENVIRONMENT PRESENT IN THE PLANT.

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THE DETROIT EDISON COMPANY

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ENRICO FERMI UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.4

## EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : COMSIP-DELPHI      VENDOR : COMSIP-DELPHI  
MODEL NO. : K-IV  
DESCRIPTION : PRIMARY CONTAINMENT HYDROGEN & OXYGEN MONITORING PANEL  
LOCATION(ZONE): 18,26

PURCHASE ORDER #: 1A-97827

DECO DWG. FILE #: C1-1176, C1-1189  
FOREIGN DWG # : SEE DECO DWGS.

SAFETY CATEGORY : 2B

OPERATING TIME: 100 DAYS

## -----ENVIRONMENTAL PARAMETERS-----

## NORMAL CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 83 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 71 PCT-RH  
RADIATION : 3.5E2 RADS  
(INTEGRATED OVER 40 YEARS)

## ACCIDENT CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 300\* DEC.°F  
PRESSURE : 56.2\* PSIG  
HUMIDITY : 15 PCT-RH  
SPRAY : N/A  
RADIATION : 6.1E5\* RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: N/A

## -----DESIGN PARAMETERS-----

MODEL NO.	-----DESIGN-----		-----APPLICATION-----	
	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
K-IV	56	300	2-56	300

## -----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
SEALS (SEE REF. FILE)	SR	VITON	400	2.2E08	2
SEALS (SEE REF. FILE)	SR	ETHYLENE/ PROPYLENE	300	2.0E08	2
DIAPHRAGM (SEE REF. FILE)	SR	SILICONE & GLASS	300	1.0E06	2
DIAPHRAGM (SEE REF. FILE)	SR	NYLON REINFORCED NEOPRENE	300	1.0E06	2

1. THE SAMPLING FUNCTION OF THIS PANEL HAS BEEN JUSTIFIED FOR INTERIM OPERATION (ELECT. EQUIP. J10) VIA USE OF SYSTEM P34-POST ACCIDENT SAMPLING SYSTEM. THE POST ACCIDENT FUNCTION OF THIS PANEL IS ONLY TO MAINTAIN PRESSURE BOUNDARY INTEGRITY.

\*PROCESS PARAMETERS

REFERENCE FILE: EQ2-EF2-004

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THE DETROIT EDISON COMPANY

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ENRICO FERM1 UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.10

## EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : DRAGON

VENDOR : DRAGON VALVES, INC.

PURCHASE ORDER #: 1A-95026

MODEL NO. : 10870

DESCRIPTION : CHECK VALVES

DECO DWG. FILE #: C1-1061

LOCATION(ZONE): WORST CASE FOR ZONES 9,10,15,23,26 (NOTE 1)

FOREIGN DWG # : 10870

SAFETY CATEGORY : 2B

OPERATING TIME: 100 DAYS

## -----ENVIRONMENTAL PARAMETERS-----

## NORMAL CONDITIONS:

## ACCIDENT CONDITIONS:

## -----REQUIRED-----

## -----REQUIRED-----

TEMPERATURE: 135 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 90 PCT-RH  
RADIATION : 1.8E7 RADS  
(INTEGRATED OVER 40 YEARS)

TEMPERATURE: 583\*\* DEG.°F  
PRESSURE : 56.2 PSIG  
HUMIDITY : 100 PCT-RH  
SPRAY : DEMIN WTR.  
RADIATION : 1.98E9 RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: NOT AFFECTED

## -----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
SEAL	NSR	SILICONE	N/A	N/A	N/A
GASKET	SR	ASBESTOS/316SS	800	1E11	40
GASKET	NSR	NEOPRENE	N/A	N/A	N/A
PACKING*	SR	ASBESTOS	1200	1E11	40
INSULATION	NSR	CERAMIC FIBER	N/A	N/A	N/A
WASHER	NSR	NYLON	N/A	N/A	N/A
LUBRICANT	NSR	NICKEL/OIL	N/A	N/A	N/A

## NOTE

1. EQUIPMENT EVALUATED TO ZONE 22 ENVIRONMENT  
(WORST CASE PLANT CONDITIONS)

\* ACCEPTABLE ALTERNATIVE (SEE REF. FILE)

PACKING	SR	ASBESTOS	1200	1E11	40
PACKING	SR	GRAPHITE	1200	1E11	40

\*\* PROCESS FLUID PARAMETER  
REFERENCE FILE: EQ2-EF2-010

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ENRICO FERMI UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.11

EQUIPMENT:

MANUFACTURER : DRAGON VALVES, INC.  
MODEL NO. : 670N, 10950N  
DESCRIPTION : GLOBE VALVE  
LOCATION(ZONE): WORST CASE FOR ZONES 9, 1, 18, 19, 22, 23

VENDOR : DRAGON VALVES, INC.

PURCHASE ORDER #: 1A-53410

DECO DWG. FILE #: C1-1880, C1-1665  
FOREIGN DWG # : 14229, 14372

QUAL. STATUS : QUALIFIED

SAFETY CATEGORY : 2B OPERATING TIME: 100 DAYS

ENVIRONMENTAL PARAMETERS

NORMAL CONDITIONS:

TEMPERATURE: 135 DEG. °F  
PRESSURE : N/A PSIG  
HUMIDITY : N/A PCT-RH  
RADIATION : 1.8E7 RADS  
(INTEGRATED OVER 40 YEARS)

ACCIDENT CONDITIONS:

TEMPERATURE: 340 DEG. °F  
PRESSURE : 56.2 PSIG  
HUMIDITY : 100 PCT-RH  
SPRAY : DEMIN WTR.  
RADIATION : 1.98E9 RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: NOT AFFECTED

DESIGN PARAMETERS

MODEL NO.	DESIGN		APPLICATION	
	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
670N	1475	600	1120	560
10950N	2460	600	1120	560

DEMONSTRATED MATERIAL CAPABILITY

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
VALVE PACKING*	SR	ASBESTOS	1200	1E11	40
THREAD LUBE	SR	NEVER SEEZ	2600	INSENSITIVE	
GASKET**	SR	(ASBESTOS/SS)	800	1E11	40
* ACCEPTABLE ALTERNATIVE (SEE REF. FILE)					
VALVE PACKING	SR	ASBESTOS	1200	1E11	40
VALVE PACKING	SR	GRAPHITE	1000	1E11	40

\*\* USED ON 10950N ONLY

REFERENCE FILE: EQ2-EF2-011



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ENRICO FERMI UNIT 2 PROJECT  
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MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.66

EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : FISHER CONTROLS  
MODEL NO. : TYPE 1008-DBQ  
DESCRIPTION : 1" MANUAL ACTUATED CONTROL VALVE  
LOCATION(ZONE): 15

VENDOR : FISHER CONTROLS

PURCHASE ORDER #: 1A-95044

DECO DWG. FILE #: SEE REF. FILE  
FOREIGN DWG # : SEE DECO DWG.

SAFETY CATEGORY : 2B

OPERATING TIME: 100 DAYS

-----ENVIRONMENTAL PARAMETERS-----			
NORMAL CONDITIONS:		ACCIDENT CONDITIONS:	
-----REQUIRED-----		-----REQUIRED-----	
TEMPERATURE: 77	DEG. °F	TEMPERATURE: 583*	DEG. °F
PRESSURE : N/A	PSIG	PRESSURE : N/A	PSIG
HUMIDITY : 75	PCT-RH	HUMIDITY : 100	PCT-RH
RADIATION : 5.3E3	RADS	SPRAY : N/A	
(INTEGRATED OVER 40 YEARS)		RADIATION : 1.98E9*	RADS
		(INTEGRATED OVER 100 DAYS)	
		SUBMERGENCE: NOT AFFECTED	

-----DESIGN PARAMETERS-----				
MODEL NO.	-----DESIGN-----		---APPLICATION---	
	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
1008-DBQ	3025	600	1250	575

-----DEMONSTRATED MATERIAL CAPABILITY-----					
NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
PACKING**	SR	ASBESTOS	1200	1E11	40
PACKING**	SR	GRAPHITE	1000	1E11	40
GASKET-BODY TO BONNET	SR	SS/ASBESTOS	650	1E11	40
** ACCEPTABLE ALTERNATIVE		(SEE REF. FILE)			
PACKING	SR	ASBESTOS	1200	1E11	40

\*PROCESS FLUID PARAMETER

REFERENCE FILE: EQ2-EF2-066

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ENRICO FERMI UNIT 2 PROJECT  
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MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.40

EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : FLEXITALLIC GASKET CO.  
MODEL NO. : FLEXITALLIC STYLE CG,R  
DESCRIPTION : FLANGE GASKET MATERIALS  
LOCATION(ZONE): VARIOUS ZONES (NOTE 2)

VENDOR : N/A

PURCHASE ORDER #: N/A

DECO DWG. FILE #: N/A

FOREIGN DWG # : N/A

SAFETY CATEGORY : 2B

OPERATING TIME: 100 DAYS

-----ENVIRONMENTAL PARAMETERS-----

NORMAL CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 135 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 90 PCT-RH  
RADIATION : 1.8E07 RADS  
(INTEGRATED OVER 40 YEARS)

ACCIDENT CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 560\* DEG.°F  
PRESSURE : (NOTE 1)PSIG  
HUMIDITY : 100 PCT-RH  
SPRAY : DEMIN WTR.  
RADIATION : 1.98E9 RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: NOT AFFECTED

-----DESIGN PARAMETERS-----

	-----DESIGN-----		-----APPLICATION-----
MODEL NO.	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)
STYLE CG	NOTE 1	800	NOTE 1
			560

-----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
FLEXITALLIC GASKET	SR	ASBESTOS/SS	800	1E11	40

NOTES

1. PRESSURE RATING IS A FUNCTION OF PROPER INSTALLATION OF THE FLANGE FACE/BOLTS. ALSO, ANSI/ASME B31.1 - SECTION 108.4 STATES "THE USE OF METAL OR METAL-ASBESTOS GASKETS IS NOT LIMITED AS TO PRESSURE PROVIDED THE GASKET MATERIALS ARE SUITABLE FOR THE MAX. FLUID TEMPERATURE
2. EQUIPMENT EVALUATED TO ZONE 22 ENVIRONMENT (WORST CASE PLANT CONDITIONS)

\* PROCESS FLUID PARAMETER

REFERENCE FILE: EQ2-EF2-040

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ENRICO FERMI UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.12

EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : FROMSON HEAT TRANSFER LTD. VENDOR : GENERAL ELECTRIC  
MODEL NO. : SERIAL #70756-A,-B  
DESCRIPTION : RHR HEAT EXCHANGERS  
LOCATION(ZONE): 24

PURCHASE ORDER #: 1E-83800

DECO DWG. FILE #: 84-207

FOREIGN DWG # : 70756-H

SAFETY CATEGORY : 2B

OPERATING TIME: 100 DAYS

-----ENVIRONMENTAL PARAMETERS-----

NORMAL CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: NOTE 1 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 65 PCT-RH  
RADIATION : 3.5E2 RADS  
(INTEGRATED OVER 40 YEARS)

ACCIDENT CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 200\* DEG.°F  
PRESSURE : 415\* PSIG  
HUMIDITY : 15 PCT-RH  
SPRAY : N/A  
RADIATION : 1.5E7\* RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: N/A

-----DESIGN PARAMETERS-----

	-----DESIGN-----		-----APPLICATION-----	
MODEL NO.	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
SERIAL # 70756	450	470	415	200 (335 NOTE 1)

-----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
GASKETS (SEE REF. FILE FOR LIST)	SR	ASBESTOS/304SS	800	1E11	40
GASKETS (SEE REF. FILE FOR LIST)	NSR	RUBBER	N/A	N/A	N/A

NOTE

1. MAX. PROCESS TEMP. FROM REFUELING SHUT-DOWNS FOR A BRIEF PERIOD IS 335°F.  
AVERAGE NORMAL AMBIENT TEMP. IS 82°F.

\* PROCESS FLUID PARAMETERS

REFERENCE FILE: EQ2-EF2-012

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ENRICO FERMI UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.13

## EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : FISHER CONTROLS      VENDOR : FISHER  
MODEL NO. : TYPE 667, 667NS-ED, 667NS-ET, 657NS-ED, 657NS-ES, 657NS-EZ  
DESCRIPTION : DIAPHRAGM ACTUATOR AND CONTROL VALVES  
LOCATION(ZONE): WORST CASE ZONES FOR 15,17,18,19

PURCHASE ORDER #: 1E-85411-3

DECO DWG. FILE #: SEE REF. FILE

FOREIGN DWG # : SEE DECO DWG.

SAFETY CATEGORY : 2A

OPERATING TIME: 100 DAYS

## -----ENVIRONMENTAL PARAMETERS-----

## NORMAL CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 82 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 65 PCT-RH  
RADIATION : 3.5E02 RADS  
(INTEGRATED OVER 40 YEARS)

## ACCIDENT CONDITIONS:

-----REQUIRED-----  
TEMPERATURE:(NOTE 1) DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 15 PCT-RH  
SPRAY : N/A  
RADIATION : (NOTE 2) RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: N/A

## -----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
DIAP. & O-RINGS	SR	NITRILE	250	2.0E07	26
BACKUP RING	SR	ETHYLENE PROPYLENE	300	2.05E08	40
O-RINGS	SR	VITON	400	2.0E07	40
SEAL RING	SR	POLYETHYLENE	221	9.0E07	40
DIAPHRAGM	SR	POLYACRYLATE/ DACRON	350	1.0E07	40
GEAR	SR	NYLON	185	6.0E06	40
GASKET	SR	NEOPRENE	250	9.25E06	40
GASKET	SR	ASBESTOS	650	1.0E11	40
PACKING*	SR	GRAPHITE	1000	1.0E11	40

## -----DESIGN PARAMETERS-----

MODEL NO.	-----DESIGN-----		-----APPLICATION-----	
	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
TYPE 667 & 657 ACTUATOR (ALL MODELS)	ATM	180	ATM	130
VALVE BODY	1350	200	1280	140
VALVE POS.	50	160	35	130
AIR REG.	250	150	100	130

## NOTES

1. ACCIDENT TEMPERATURE IS 200°F FOR COMPONENTS EXPOSED TO SYSTEM E-41 & E-51 PROCESS FLUIDS. WORST CASE ACCIDENT TEMPERATURE IS 130°F FOR OTHER COMPONENTS.
2. ACCIDENT RADIATION IS 1.5E07 FOR COMPONENTS EXPOSED TO SYSTEM E41 & E51 PROCESS FLUIDS. WORST CASE ACCIDENT RADIATION IS 5.4E06 FOR OTHER COMPONENTS.

\*ACCEPTABLE ALTERNATIVES, SEE REF. FILE.  
REFERENCE FILE: EQ2-EF2-013



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ENRICO FERMI UNIT 2 PROJECT  
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MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.54

## EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : GENERAL ELECTRIC/VARIOUS      VENDOR : GENERAL ELECTRIC  
MODEL NO. : 729E950/MISC. EQUIP.  
DESCRIPTION : HYDRAULIC CONTROL UNIT  
LOCATION(ZONE): 9,10

PURCHASE ORDER #: 1E-83800

DECO DWG. FILE #: SEE REF. FILE  
FOREIGN DWG # : SEE DECO DWG.

SAFETY CATEGORY : 2B

OPERATING TIME: 100 DAYS

## -----ENVIRONMENTAL PARAMETERS-----

## NORMAL CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 82      DEG.°F  
PRESSURE : N/A      PSIG  
HUMIDITY : 65      PCT-RH  
RADIATION : 3.5E02 RADS  
(INTEGRATED OVER 40 YEARS)

## ACCIDENT CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 130      DEG.°F  
PRESSURE : N/A      PSIG  
HUMIDITY : 15      PCT-RH  
SPRAY : N/A  
RADIATION : 5.4E06 RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: N/A

## -----DESIGN PARAMETERS-----

MODEL NO.	-----DESIGN-----		-----APPLICATION-----	
	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)

729E950	..... NOTE 1 .....			
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## -----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
PACKING	SR	ASBESTOS	1200	1E11	40
GASKET	SR	ASBESTOS/SS	800	1E11	40
PACKING RINGS	SR	ASBESTOS/W MONEL	750	1E11	40
PACKING RINGS	SR	TEFLON	500	1E7	10
BODY GASKET	SR	TEFLON	500	1E7	10
SEAL RING DISC	SR	TEFLON	500	1E7	10
PISTON SEAL	SR	ETHYLENE PROPYLENE	250	1E7	10
SEALS	SR	BUNA-N	225	7E06	25

1. THE DESIGN PARAMETERS FOR THIS EQUIPMENT ARE PROPRIETARY TO GENERAL ELECTRIC. THESE HCU'S WERE SPECIFICALLY PROVIDED BY GENERAL ELECTRIC TO PERFORM THE CONTROL AND DRIVE FUNCTIONS AS DESCRIBED IN THE REFERENCE FILE.

REFERENCE FILE: EQ2-EF2-054

DATE: 03/01/84

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ENRICO FERMI UNIT 2 PROJECT

EEQ/33/F.14

DOCKET NO. 50-341

MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : ITT HAMMEL DAHL

VENDOR : GENERAL ELECTRIC

PURCHASE ORDER #: 1E-83800

MODEL NO. : 502

DESCRIPTION : 2" CRD DISCHARGE VENT VALVE (AIR OPERATED)

DECO DWG. FILE #: R1-3818,19

LOCATION(ZONE): WORST CASE FOR ZONES 10,12

FOREIGN DWG # : 79/2861-0400

SAFETY CATEGORY : 2B

OPERATING TIME: 100 DAYS

-----ENVIRONMENTAL PARAMETERS-----

NORMAL CONDITIONS:

ACCIDENT CONDITIONS:

-----REQUIRED-----

-----REQUIRED-----

TEMPERATURE: 34 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 65 PCT-RH  
RADIATION : 3.5E2 RADS  
(INTEGRATED OVER 40 YEARS)

TEMPERATURE: 199 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 100 PCT-RH  
SPRAY : N/A  
RADIATION : 5.4E6 RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: N/A

-----DESIGN PARAMETERS-----

-----DESIGN-----

-----APPLICATION-----

MODEL NO.	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
502	1250	650	1250	560

-----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
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THE NON-METALLIC MATERIALS OF THIS VALVE ARE NON-SAFETY RELATED.  
PRESSURE BOUNDARY INTEGRITY IS ACCOMPLISHED BY METALLIC VALVE PLUG  
AND VALVE SEAT.

REFERENCE FILE: EQ2-EF2-014

DATE: 03/01/84

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ENRICO FERMI UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.19

EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : JAMESBURY                      VENDOR : JAMESBURY  
MODEL NO. : 8126-EA, 8222-EX, 8226-EA, 8229-EA, 8922-EX, 8926-EA/EX  
DESCRIPTION : LARGE DIAMETER WAFER SPHERE VALVES  
LOCATION(ZONE): WORST CASE FOR ZONES 4,18,19,22,23,24,26

PURCHASE ORDER #: 1E-86782

DECO DWG. FILE #: SEE REF. FILE

FOREIGN DWG # : SEE REF. FILE

SAFETY CATEGORY : 2A

OPERATING TIME: 100 DAYS

## -----ENVIRONMENTAL PARAMETERS-----

## NORMAL CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 135 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 90 PCT-RH  
RADIATION :1.8E07 RADS  
(INTEGRATED OVER 40 YEARS)

## ACCIDENT CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 340 DEG.°F  
PRESSURE : 56.2 PSIG  
HUMIDITY : 100 PCT-RH  
SPRAY :DEMIN WTR.  
RADIATION :(NOTE 1) RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: NOT AFFECTED

## -----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
VALVE SEAT	SR	ETHYLENE- PROPYLENE	400	1.0E09	5
SHAFT BEARING	SR	NOMEX/FIBERGLAS	400	3.3E08	40
SHAFT SEAL*	SR	ASBESTOS	1200	1.0E11	40
RETAINING WASHER	SR	NOMEX/EPOXY	400	3.3E08	40
PLUG SEAL	SR	ETHYLENE- PROPYLENE	400	1.0E09	5
BONNET O-RING	SR	ETHYLENE- PROPYLENE	400	1.0E09	5

## -----DESIGN PARAMETERS-----

MODEL NO.	-----DESIGN-----		-----APPLICATION-----	
	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
8126-EA	200	400	56.2	340
8222-EX	200	400	56.2	340
8226-EA	200	400	75	340
8229-EA	255	150	2	150
8922-EX	200	400	56.2	340
8926-EA	200	400	56.2	340
8926-EX	200	400	56.2	340

1. RADIATION DOSE IS 1.8E8 RADS (GAMMA) ONLY.  
SAFETY-RELATED NON-METALLIC SUBCOMPONENTS  
ARE INTERNAL TO THE COMPONENT AND ARE NOT  
EXPOSED TO BETA RADIATION FROM EITHER THE  
AMBIENT OR PROCESS CONDITIONS.

\*ACCEPTABLE SUBSTITUTES, SEE REF. FILE

REFERENCE FILE: EQ2-EF2-019

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THE DETROIT EDISON COMPANY

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ENRICO FERMI UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.20

## EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : JAMESBURY                      VENDOR : JAMESBURY  
MODEL NO. : BWS, MOD. A, 3600KK; BWS  
DESCRIPTION : BALL VALVES, W/ST-20MS ACTUATOR  
LOCATION(ZONE): WORST CASE FOR ZONES 16,18,19,23,26

PURCHASE ORDER #: 1E-86782

DECO DWG. FILE #: C11-1134,1135,2096  
FOREIGN DWG # : D-3900,3901,DNC-82275-01

SAFETY CATEGORY : 2A/2B (NOTE 1)                      OPERATING TIME: 100 DAYS

## -----ENVIRONMENTAL PARAMETERS-----

## NORMAL CONDITIONS:

## ACCIDENT CONDITIONS:

## -----REQUIRED-----

## -----REQUIRED-----

TEMPERATURE: 94                      DEG.°F  
PRESSURE : N/A                      PSIG  
HUMIDITY : 76                      PCT-RH  
RADIATION : 3.5E04                      RADS  
(INTEGRATED OVER 40 YEARS)

TEMPERATURE: 201                      DEG.°F  
PRESSURE : N/A                      PSIG  
HUMIDITY : 15                      PCT-RH  
SPRAY : N/A  
RADIATION : 5.4E06                      RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: N/A

## -----DEMONSTRATED MATERIAL CAPABILITY-----

## -----DESIGN PARAMETERS-----

## -----DESIGN-----                      ---APPLICATION---

MODEL NO.	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
BWS, MOD. A, 3600KK	635	400	100	345
BWS	635	400	62	345
ST-20MS ACTUATOR	-	+180	-	201 (NOTE 2)

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)	NOTE
VALVE SEAT	SR	KEL-F	300	2.0E07	40	1. THE VALVE BODY IS CLASSIFICATION 2A FOR 100 DAYS AND THE JAMESBURY ST-20MS ACTUATORS ARE 2B FOR 100 DAYS
STEM BEARING	SR	KEL-F	300	2.0E07	40	
BODY SEAL	SR	KEL-F	300	2.0E07	40	
O-RING	SR	VITON	400	2.238E08	40	2. SEE EQUIPMENT REFERENCE FILE FOR JUSTIFICATION OF DESIGN TEMPERATURE/ APPLICATION TEMPERATURE VALUES.
ACTUATOR SEALS	SR	BUNA-N	250	1.0E07	4	
GASKET	SR	VELLUMOID	250	8.5E06	40	
BEARING	NSR	NYLON	N/A	N/A	N/A	
DRIVE SEAL	NSR	TFE	N/A	N/A	N/A	

REFERENCE FILE: EQ2-EF2-020



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EEQ/33/F.21

## EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : KEROTEST                      VENDOR : KEROTEST  
MODEL NO. : SEE MODEL NO. UNDER "DESIGN PARAMETERS"  
DESCRIPTION : Y-GLOBE VAL.  
LOCATION(ZONE): WORST CASE OF ZONES 9,18,19,22,23,34

PURCHASE ORDER #: 1A-79084, 1A-79643,  
1A-79646  
DECO DWG. FILE #: SEE REF. FILE  
FOREIGN DWG # : SEE DECO DWGS.

SAFETY CATEGORY : 2B

OPERATING TIME: 100 DAYS

## -----ENVIRONMENTAL PARAMETERS-----

## NORMAL CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 135 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 90 PCT-RH  
RADIATION : 1.8E7 RADS  
(INTEGRATED OVER 40 YEARS)

## ACCIDENT CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 340 DEG.°F  
PRESSURE : 56.2 PSIG  
HUMIDITY : 100 PCT-RH  
SPRAY : DEMIN. WTR.  
RADIATION : 1.98E9 RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: NOT AFFECTED

## -----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
PACKING RING	SR	GRAPHITE FILAMENT YARN	1000	1E11	40
PACKING RING	SR	GRAPHITE CORRUGATED RIBBON	1000	1E11	40

REFERENCE FILE: EQ2-EF2-021

## -----DESIGN PARAMETERS-----

MODEL NO.	-----DESIGN-----		-----APPLICATION-----	
	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
20504(2)	305	600	45	85
20506(3)	1095	600	130	150
20604(3)	1065	700	1030	650
21506X04(1)	2255	600	1250	575
21508X04(1)	2255	600	1250	575
20606(-3)	1065	700	1030	650
21508(1)	2255	600	2160	100

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EEQ/33/F.62

## EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : KOPPERS CO.                      VENDOR : GENERAL ELECTRIC  
MODEL NO. : FAST SPACER TYPE SIZES #3, 3-1/2, 4-1/2  
DESCRIPTION : HPCI PUMP COUPLING  
LOCATION(ZONE): 17

PURCHASE ORDER #: 1E-83800

DECO DWG. FILE #: SEE REF. FILE

FOREIGN Dwg # : SEE DECO DWG.

SAFETY CATEGORY : 2A

OPERATING TIME: 1 HOUR

-----ENVIRONMENTAL PARAMETERS-----			
NORMAL CONDITIONS:		ACCIDENT CONDITIONS:	
-----REQUIRED-----		-----REQUIRED-----	
TEMPERATURE:	83 DEG.°F	TEMPERATURE:	130 DEG.°F
PRESSURE :	N/A PSIG	PRESSURE :	N/A PSIG
HUMIDITY :	61 PCT-RH	HUMIDITY :	15 PCT-RH
RADIATION :	5.3E03 RADS	SPRAY :	N/A
(INTEGRATED OVER 40 YEARS)		RADIATION :	5.4E06 RADS
		(INTEGRATED OVER 100 DAYS)	
		SUBMERGENCE: N/A	

-----DESIGN PARAMETERS-----				
MODLL NO.	-----DESIGN-----		-----APPLICATION-----	
	PRESS.	TEMP.	PRESS.	TEMP.
	(PSIG)	(°F)	(PSIG)	(°F)
#3, 3-1/2, 4-1/2	N/A	150	N/A	130

## -----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)	NOTE
GASKET	SR	VELLUMOID	250	8.5E06	40	1. ROUTINE MAINTENANCE, SEE REF. FILE
LUBRICANT	SR	SODIUM SOAP GREASE	250	1E8	NOTE 1	

REFERENCE FILE: EQ2-EF2-062

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EEQ/33/F.51

## EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : KUNKLE  
MODEL NO. : FIGURE NO. 265-1-601  
DESCRIPTION : RELIEF VALVE  
LOCATION(ZONE): WORST CASE FOR ZONES 18,24

VENDOR : KUNKLE

PURCHASE ORDER #: N/A

DECO DWG. FILE #: N/A  
FOREIGN DWG # : 13858

SAFETY CATEGORY : 2A

OPERATING TIME: 100 DAYS

## -----ENVIRONMENTAL PARAMETERS-----

## NORMAL CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 32 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 71 PCT-RH  
RADIATION : 3.5E02 RADS  
(INTEGRATED OVER 40 YEARS)

## ACCIDENT CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 200\* DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 15 PCT-RH  
SPRAY : N/A  
RADIATION : 1.5E07\* RADS  
(INTEGRATED OVER 100 DAYS)  
SUSMERGENCE: N/A

## -----DESIGN PARAMETERS-----

MODEL NO.	-----DESIGN-----	---APPLICATION---		
	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
265-1-601	620	200	450	200

## -----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
HOOD GASKET	SR	SOFT IRON	700	N/A	40
BODY GASKET	SR	SOFT IRON	700	N/A	40

\* PROCESS FLUID PARAMETER

REFERENCE FILE: EQ2-EF2-051

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EEQ/33/F.22

## EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : LUNKENHEIMER  
MODEL NO. : D-12461  
DESCRIPTION : GATE VALVE  
LOCATION(ZONE): 22

VENDOR : GENERAL ELECTRIC

PURCHASE ORDER #: 1E-83800

DECO DWG. FILE #: R1-264  
FOREIGN DWG # : D-12461

SAFETY CATEGORY : 2A/2B

OPERATING TIME: 1 MIN/100 DAYS

## -----ENVIRONMENTAL PARAMETERS-----

## NORMAL CONDITIONS:

## -----REQUIRED-----

TEMPERATURE: 135 DEG. °F  
PRESSURE : N/A PSIG  
HUMIDITY : 90 PCT-RH  
RADIATION : 1.8E7 RADS  
(INTEGRATED OVER 40 YEARS)

## ACCIDENT CONDITIONS:

## -----REQUIRED-----

TEMPERATURE: 340 DEG. °F  
PRESSURE : 56.2 PSIG  
HUMIDITY : 100 PCT-RH  
SPRAY : DEMIN WTR.  
RADIATION : 1.98E9 RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: NOT AFFECTED

## -----DESIGN PARAMETERS-----

## -----DESIGN-----

## -----APPLICATION-----

MODEL NO.	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
D-12461	1640	600	1525	575

## -----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
GASKET	NSR	ASBESTOS/SS	N/A	N/A	N/A
VALVE PACKING*	SR	ASBESTOS	1200	1E11	40
* ACCEPTABLE ALTERNATIVE (SEE REF. FILE)					
VALVE PACKING	SR	ASBESTOS	1200	1E11	40
VALVE PACKING	SR	GRAPHITE	1000	1E11	40

REFERENCE FILE: EQ2-EF2-022



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EEQ/33/F.23

## EQUIPMENT:

MANUFACTURER : MAROTTA SCIENTIFIC CONTROLS, INC. VENDOR: MAROTTA  
MODEL NO. : RV74A-N  
DESCRIPTION : PRESSURE REGULATOR  
LOCATION(ZONE): 22

QUAL. STATUS : QUALIFIED

PURCHASE ORDER #: 1A-79089

DECO DWG. FILE #: C1-1407, 1408

FOREIGN DWG # : 281755-9001, 281755-BASIC

SAFETY CATEGORY : 2B

OPERATING TIME: 100 DAYS

## -----ENVIRONMENTAL PARAMETERS-----

## NORMAL CONDITIONS:

## -----REQUIRED-----

TEMPERATURE: 135 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 90 PCT-RH  
RADIATION : 1.8E7 RADS  
(INTEGRATED OVER 40 YEARS)

## ACCIDENT CONDITIONS:

## -----REQUIRED-----

TEMPERATURE: 340 DEG.°F  
PRESSURE : 56.2 PSIG  
HUMIDITY : 100 PCT-RH  
SPRAY : DEMIN WTR.  
RADIATION : 1.8E8 RADS (NOTE 1)  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: NOT AFFECTED

## -----DESIGN PARAMETERS-----

## -----DESIGN-----

## -----APPLICATION-----

MODEL NO.	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
RV74A-N	195	200	100	120
	195	200	110	150

## -----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
O-RINGS	SR	ETHYLENE PROPYLENE	400	2.05E8	5✓
SEAT VENT	NSR	POLYIMIDE	N/A	N/A	N/A
SEAT(MAIN)	NSR	POLYIMIDE	N/A	N/A	N/A
THREAD LUB	NSR	GRAPHITE	N/A	N/A	N/A
O-RING AND SLIDING SURFACE LUBRICANT	SR	PHENYLMETHYL SILICONE BASE W/CARBON BLACK FILLER	550	5E9	5

## NOTE

1. THE 1.8E8 RAD DOSE IS FOR GAMMA ONLY.  
ALL NON-METALLIC SUBCOMPONENTS ARE  
INTERNAL TO THE EQUIPMENT AND THEREFORE  
THE EXTERNAL BETA DOSE IS CONSIDERED  
NEGLIGIBLE.

REFERENCE FILE: EQ2-EF2-023

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EEQ/33/F.24

EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : METAL BELLOWS CORP.  
MODEL NO. : N/A  
DESCRIPTION : FLEXIBLE ALL METAL HOSE  
LOCATION(ZONE): 22

VENDOR : STONE/MEBCO

PURCHASE ORDER #: 1A-54865

DECO DWG. FILE #: P1-9343  
FOREIGN DWG # : 78897

SAFETY CATEGORY : 2B

OPERATING TIME: 100 DAYS

-----ENVIRONMENTAL PARAMETERS-----

NORMAL CONDITIONS: (NOTE 1)

-----REQUIRED-----

TEMPERATURE: 135 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 90 PCT-RH  
RADIATION : 1.8E07 RADS  
(INTEGRATED OVER 40 YEARS)

ACCIDENT CONDITIONS: (NOTE 1)

-----REQUIRED-----

TEMPERATURE: 340 DEG.°F  
PRESSURE : 150\* PSIG  
HUMIDITY : 100 PCT-RH  
SPRAY : DEMIN WTR.  
RADIATION : 1.98E09 RADS  
(INTEGRATED OVER 100 DAYS)  
SUEMERGENCE: NOT AFFECTED

-----DESIGN PARAMETERS-----

-----DESIGN-----

-----APPLICATION-----

MODEL NO.	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
N/A	150 (NOTE 2)	340	150	340

-----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
-------------------------------	--------------------	---------------------	---------------	---------------------	-----------------------

THIS EQUIPMENT CONTAINS NO NON-METALLIC MATERIALS  
(NOTE 1)

NOTES

1. THIS EQUIPMENT IS TOTALLY METALLIC AND IMPERVIOUS TO THE EFFECT OF PROCESS AND EXTERNAL ENVIRONMENT PRESENT IN THE PLANT.
2. PROOF TESTED TO 225 PSIG

\*PROCESS PARAMETER

REFERENCE FILE: EQ2-EF2-024

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EEQ/33/F.25

EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : NATIONAL ANNEALING BOX CO. VENDOR : NATIONAL ANNEALING  
MODEL NO. : N/A BOX CO.  
DESCRIPTION : EECW MAKE-UP TANK  
LOCATION(ZONE): WORST CASE FOR ZONES 18, 19

PURCHASE ORDER #: 1E-87949

DECO DWG. FILE #: S20-16

FOREIGN DWG # : ND5614

SAFETY CATEGORY : 2B

OPERATING TIME: 100 DAYS

-----ENVIRONMENTAL PARAMETERS-----			
NORMAL CONDITIONS:		ACCIDENT CONDITIONS:	
-----REQUIRED-----		-----REQUIRED-----	
TEMPERATURE:	79 DEG.°F	TEMPERATURE:	130 DEG.°F
PRESSURE :	N/A PSIG	PRESSURE :	N/A PSIG
HUMIDITY :	71 PCT-RH	HUMIDITY :	100 PCT-RH
RADIATION :	3.5E2 RADS	SPRAY :	N/A
(INTEGRATED OVER 40 YEARS)		RADIATION :	5.4E6 RADS
		(INTEGRATED OVER 100 DAYS)	
		SUBMERGENCE: N/A	

-----DESIGN PARAMETERS-----				
MODEL NO.	-----DESIGN-----		-----APPLICATION-----	
	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
EECW MAKE-UP TANK	100	120	100	120

-----DEMONSTRATED MATERIAL CAPABILITY-----					
NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
GASKET	SR	ASBESTOS	650	1E11	40

REFERENCE FILE: EQ2-EF2-025

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EEQ/33/F.26

## EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : NEW YORK BLOWER  
MODEL NO. : 262LS  
DESCRIPTION : GENERAL INDUSTRIAL FANS WITH LONG SHAVING (LS) WHEELS  
LOCATION(ZONE): 1

VENDOR : CVI

PURCHASE ORDER #: 1E-87813

DECO DWG. FILE #: N/A  
FOREIGN DWG # : BULLETIN NO.676-R2

SAFETY CATEGORY : 2A

OPERATING TIME: 100 DAYS

## -----ENVIRONMENTAL PARAMETERS-----

## NORMAL CONDITIONS:

## -----REQUIRED-----

TEMPERATURE: 77 DEG. °F  
PRESSURE : N/A PSIG  
HUMIDITY : 48 PCT-RH  
RADIATION : 1.75E2 RADS  
(INTEGRATED OVER 40 YEARS)

## ACCIDENT CONDITIONS:

## -----REQUIRED-----

TEMPERATURE: 150\* DEG. °F  
PRESSURE : N/A PSIG  
HUMIDITY : 15 PCT-RH  
SPRAY : N/A  
RADIATION : 2E6 RADS (NOTE 3)  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: N/A

## -----DESIGN PARAMETERS-----

## -----DESIGN-----

## -----APPLICATION-----

MODEL NO.	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
262LS	NOTE 1	300	ATMOSPHERIC	150

## -----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
INLET FLANGE	SR	NEOPRENE-	300	5E7	10
GASKET		GRADE SCE-43			
OUTLET FLANGE	SR	"	300	5E7	10
GASKET		"			
CLEAN-OUT DOOR	SR	"	300	5E7	10
GASKET					
SHAFT SEALS	SR	BUNA-N	225	1E7	15
V BELTS	SR	DACRON W/SBR	180/225	1E7/9.25E06	5
#2 GREASE	SR	SODIUM SOAP OR NAPHTHENIC OIL	250	1E7	NOTE 2

## NOTES

1. THE BLOWER (FAN) ASSEMBLY DRAWS SUCTION FROM CONTAINMENT AND OPERATES AT 0 TO 40 IN. WATER. PRESSURE IS NOT A DESIGN CONSIDERATION, PROVIDED SYSTEM OPERATING PRESSURES ARE MAINTAINED TO ALLOW DESIRED FLOW.
2. ROUTINE MAINTENANCE, SEE REFERENCE FILE
3. MAXIMUM ZONE 1 ACCIDENT RADIATION DOSE HAS BEEN REDUCED TO 2E6 RADS BY EVALUATING EQUIPMENT LOCATION WITH RESPECT TO RADIATION SOURCE.

\*PROCESS PARAMETER

REFERENCE FILE: EQ2-EF2-026



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EEQ/33/F.16

## EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : PACIFIC SCIENTIFIC      VENDOR : PACIFIC SCIENTIFIC  
MODEL NO. : PSA-.25, -.5, -1, -3, -10, -35, -100  
DESCRIPTION : MECHANICAL SHOCK ARRESTORS  
LOCATION(ZONE): VARIOUS ZONES: (NOTE 1)

PURCHASE ORDER #: N/A

DECO DWG. FILE #: SEE FOREIGN DWG.  
FOREIGN DWG # : DOCUMENT #PS-192,  
193 AND 194

SAFETY CATEGORY : 2A

OPERATING TIME: 100 DAYS

-----ENVIRONMENTAL PARAMETERS-----					
NORMAL CONDITIONS:			ACCIDENT CONDITIONS:		
-----REQUIRED-----			-----REQUIRED-----		
TEMPERATURE:	135	DEG.°F	TEMPERATURE:	340	DEG.°F
PRESSURE :	N/A	PSIG	PRESSURE :	56.2	PSIG
HUMIDITY :	90	PCT-RH	HUMIDITY :	100	PCT-RH
RADIATION :	1.8E7	RADS	SPRAY :	DEMIN WTR.	
(INTEGRATED OVER 40 YEARS)			RADIATION :	1.98E9	RADS
			(INTEGRATED OVER 100 DAYS)		
			SUBMERGENCE: NOT AFFECTED		

-----DESIGN PARAMETERS-----				
-----DESIGN-----		-----APPLICATION-----		
MODEL NO.	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
PSA-.25, -.5,-1,-3 -10,-35,-100	N/A	NOTE 2	N/A	NOTE 2

-----DEMONSTRATED MATERIAL CAPABILITY-----					
NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
LUBRICANT	SR	SODIUM AMATE GELLING AGENT, SALENIDE OXIDATION INHIBITOR	500	3.0E9	NOTE 3
RETAINING COMPOUND	NSR	LOCTITE RC-40	N/A	N/A	N/A

## NOTES

1. EQUIPMENT EVALUATED TO ZONE 22 ENVIRONMENT (WORST CASE PLANT CONDITIONS)
2. THE MECHANICAL SHOCK SUPPRESSORS ARE FABRICATED FROM ALL METALLIC PARTS AND THEIR LIMITS FOR TEMPERATURE ARE BASED ON THE LUBRICANT (500°F) ENVIRONMENTAL PRESSURES HAVE NO EFFECT ON THE OPERATION OF THIS DEVICE.
3. ROUTINE MAINTENANCE, SEE REFERENCE FILE

REFERENCE FILE: EQ2-EF2-016

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ENRICO FERMI UNIT 2 PROJECT  
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MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.44

## EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : PARKER SEALS  
MODEL NO. : S-418-6, S-604-70, S-613-60 (NOTE 1)  
DESCRIPTION : SILICONE RUBBER COMPOUND PRIMARY CONTAINMENT SEALS  
LOCATION(ZONE): 22

VENDOR : CHICAGO BRIDGE &amp; IRON, CO. PURCHASE ORDER #: 1C-70020

DECO DWG. FILE #: SEE REF. FILE  
FOREIGN DWG # : SEE REF. FILE

SAFETY CATEGORY : 2B

OPERATING TIME: 100 DAYS

## -----ENVIRONMENTAL PARAMETERS-----

## NORMAL CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 135 DEG. °F  
PRESSURE : N/A PSIG  
HUMIDITY : 90 PCT-RH  
RADIATION : 1.8E7 RADS  
(INTEGRATED OVER 40 YEARS)

## ACCIDENT CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 340 DEG. °F  
PRESSURE : 56.2 PSIG  
HUMIDITY : 100 PCT-RH  
SPRAY : DEMIN WTR.  
RADIATION : 1.8E8 RADS (NOTE 2)  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: NOT AFFECTED

## -----DESIGN PARAMETERS-----

MODEL NO.	-----DESIGN-----		-----APPLICATION-----	
	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
S-604-70	NOTE 3	450	62	340
S-418-6	NOTE 3	450	62	340

## -----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
S-604-70	SR	Silicone Rubber	450	1E9	20
S-418-6 or S-613-60 (Note 1)	SR	Silicone Rubber	450	1E9	20

NOTES

1. S-613-60 IS A DIRECT REPLACEMENT FOR S-418-6
2. BETA IS NOT CONSIDERED BASED ON SEAL GASKET SIZE (THICKNESS).
3. EACH PRIMARY CONTAINMENT SEAL IS DESIGNED FOR HIGH PRESSURE APPLICATIONS WITH DOUBLE CONTINUOUS RING FABRICATION. PRESSURE TESTS (70 PSIG FOR 1 HOUR) HAVE BEEN COMPLETED TO VERIFY SEAL SEATING AND INTEGRITY.

REFERENCE FILE: EQ2-EF2-044

DATE: 03/01/84

THE DETROIT EDISON COMPANY

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ENRICO FERMI UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.27

## EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : H. K. PORTER/MARLO      VENDOR : H. K. PORTER  
MODEL NO. : CEN-32.3, F2M-16.9(K), FIJ-9.75(K), F2P-30.67, FIQ-17.5  
DESCRIPTION : SPACE COOLER FAN  
LOCATION(ZONE): WORST CASE FOR ZONES 1,15,16,17

PURCHASE ORDER #: 1A-92060

DECO DWG. FILE #: SEE REF. FILE

FOREIGN DWG # : SEE DECO DWG. IN H20

SAFETY CATEGORY : 2A

OPERATING TIME: 100 DAYS

## -----ENVIRONMENTAL PARAMETERS-----

## NORMAL CONDITIONS:

## ACCIDENT CONDITIONS:

## -----REQUIRED-----

## -----REQUIRED-----

TEMPERATURE: 77 DEG. °F  
PRESSURE : N/A PSIG  
HUMIDITY : 76 PCT-RH  
RADIATION : 5.3E03 RADS  
(INTEGRATED OVER 40 YEARS)

TEMPERATURE: 150 DEG. °F  
PRESSURE : N/A PSIG  
HUMIDITY : 15 PCT-RH  
SPRAY : N/A  
RADIATION : 5.4E06 RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: N/A

## -----DEMONSTRATED MATERIAL CAPABILITY-----

## -----DESIGN PARAMETERS-----

MODEL NO.	-----DESIGN-----		-----APPLICATION-----	
	PRESS. (IN.WTR.)	TEMP. (°F)	PRESS. (IN.WTR.)	TEMP. (°F)
C29-22.3	3.32	148	1.33	148
F2M-16.9(K)	4.08	148	1.45	148
FIJ-9.75(K)	3.34	148	1.35	148
F2P-30.67	3.54	148	1.14	148

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
FAN BEARING LUBRICANT	SR	PARAFFINIC BASED GREASE	250	1.0E07	*
FAN BELT TENSION/ COMPRESSION SECTIONS	SR	SBR	225	9.25E06	5
TENSION MEMBER	SR	DACRON	180	1.0E07	5
JACKETING	SR	NEOPRENE	250	9.25E06	5

\* ROUTINE MAINTENANCE, SEE REFERENCE FILE

REFERENCE FILE: EQ2-EF2-027

DATE: 03/01/84

THE DETROIT EDISON COMPANY

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ENRICO FERM UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.28

## EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : POWELL

VENDOR : SEE DWGS.

PURCHASE ORDER #: N/A

MODEL NO. : SEE MODEL NO. UNDER "DESIGN PARAMETERS"

DESCRIPTION : VALVES: O.S.Y. GATE; GLOVE, SWING CHECK; O.S.Y. GATE WITH AIR CYL.

DECO DWG. FILE #: SEE REF. FILE

LOCATION(ZONE): WORST CASE FOR ZONES 9,10,11,12,15,16,17,18,19,22,23,24,27,41

FOREIGN DWG # : SEE DECO DWGS.

## SAFETY CATEGORY :

## OPERATING TIME:

## -----ENVIRONMENTAL PARAMETERS-----

## NORMAL CONDITIONS:

## -----REQUIRED-----

TEMPERATURE: 135 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 90 PCT-RH  
RADIATION : 1.8E7 RADS  
(INTEGRATED OVER 40 YEARS)

## ACCIDENT CONDITIONS:

## -----REQUIRED-----

TEMPERATURE: 583\* DEG.°F  
PRESSURE : 56.2 PSIG  
HUMIDITY : 100 PCT-RH  
SPRAY : DEMIN WATER  
RADIATION : 1.98E9 RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: NOT AFFECTED

## -----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
VALVE PACKING*	SR	ASBESTOS	1200	1E11	40
GASKET	SR	ASBESTOS/SS	800	1E11	40
GASKET	NSR	TEFLON/SS	N/A	N/A	N/A
AIR CYLINDER - ALL NON-METALLICS ARE NON-SAFETY RELATED (SEE EQ2-EF2-037)					
*ACCEPTABLE ALTERNATIVE (SEE REF. FILE)					
VALVE PACKING	SR	ASBESTOS	1200	1E11	40
VALVE PACKING	SR	GRAPHITE	1000	1E11	40

\* PROCESS FLUID PARAMETER

REFERENCE FILE: EQ2-EF2-028

## -----DESIGN PARAMETERS-----

## -----DESIGN-----

## PRESS.

(PSIG)

## TEMP.

(°F)

## -----APPLICATION-----

## PRESS.

(PSIG)

## TEMP.

(°F)

MODEL NO.	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
1523 WE	635	400	150	350
16023 WE	1350	200	1330	170
16051 WE	1350	200	1300	170
19003 WE	1640	600	1500	575
19023 WE	1640	600	1330	575
3023 WE	655	300	500	212
3031 WE	655	300	500	212
3051 WE	600	500	500	452
3061 AWE	655	300	500	212
3084 WE	635	400	150	366
3061 WE	635	400	150	366
16065 YWE	1350	200	1330	170
1531 WE	260	200	175	155
1561 AWE	260	200	175	155



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ENRICO FERMI UNIT 2 PROJECT  
DOCKET NO. 50-341

EEQ/33/F.29

MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : POWELL  
MODEL NO. : 3003WE, 1503WE, 19051-YWE  
DESCRIPTION : VALVES: O.S.Y GATE, Y-GLOBE  
LOCATION(ZONE): WORST CASE FOR ZONES 9,10,12,14,15,16,18,19,23,24,39,41  
VENDOR : POWELL  
PURCHASE ORDER #: 1E-86734, 1E-86093  
DECO DWG. FILE #: SEE REF. FILE  
FOREIGN DWG #: SEE REF. FILE

SAFETY CATEGORY : 2A

OPERATING TIME: 100 DAYS

-----ENVIRONMENTAL PARAMETERS-----

NORMAL CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 94 DEG. °F  
PRESSURE : N/A PSIG  
HUMIDITY : 75 PCT-RH  
RADIATION : 3.5E4 RADS  
(INTEGRATED OVER 40 YEARS)

ACCIDENT CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: (NOTE 2) DEG. °F  
PRESSURE : N/A PSIG  
HUMIDITY : 100 PCT-RH  
SPRAY : N/A  
RADIATION : (NOTE 2) RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: NOT AFFECTED

-----DESIGN PARAMETERS-----

MODEL NO.	-----DESIGN-----		-----APPLICATION-----	
	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
3003WE	550	600	500	452
1503WE	140	600	175	125
1905-YWE	1640	600	1500	575

-----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)	NOTES
VALVE PACKING*	SR	ASBESTOS	1200	1E11	40	1. AT 1E7 RADS, THE LUBRICANT BEGINS TO SOFTEN. AT 1E8 RADS IT BEGINS TO HARDEN. THE LUBRICANT IN THE SOFTENED STATE WILL NOT IMPEDE THE MOVEMENT OF THE VALVE STEM.
GASKET	SR	ASBESTOS/SS	650	1E11	40	
LUBRICANT	SR	PARAFFINIC BASE	250	1E7 (Note 1)	40	
*ACCEPTABLE ALTERNATIVE (SEE REF. FILE)						
PACKING	SR	ASBESTOS	1200	1E11	40	2. PROCESS FLUID PARAMETER IS 583°F AND 2.0E9 RADS FOR VALVES USING THE PARAFFINIC BASED LUBRICANT, THE PROCESS FLUID PARAMETER IS NOT APPLICABLE. THE TEMPERATURE FOR THOSE VALVES IS 201°F (AMBIENT). THE RADIATION FOR THESE VALVES IS 1.5E7 RADS.
PACKING	SR	GRAPHITE	1000	1E11	40	

REFERENCE FILE: EQ2-EF2-029

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ENRICO FERMI UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.17

## EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : POWER PIPING COMPANY      VENDOR : N/A  
MODEL NO. : SERIES 1900, MODEL MX-2  
DESCRIPTION : HYDRAULIC SHOCK AND SWAY SUPPRESSORS  
LOCATION(ZONE): VARIOUS ZONES: (NOTE 2)

PURCHASE ORDER #: N/A

DECO DWG. FILE #: SEE F2S83-4723  
FOREIGN DWG # : N/A

SAFETY CATEGORY : 2A

OPERATING TIME: 100 DAYS

## -----ENVIRONMENTAL PARAMETERS-----

## NORMAL CONDITIONS:

## -----REQUIRED-----

TEMPERATURE: 135 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 90 PCT-RH  
RADIATION : 1.8E7 RADS  
(INTEGRATED OVER 40 YEARS)

## ACCIDENT CONDITIONS:

## -----REQUIRED-----

TEMPERATURE: 340 DEG.°F  
PRESSURE : 56.2 PSIG  
HUMIDITY : 100 PCT-RH  
SPRAY : DEMIN WTR.  
RADIATION : 1.8E8 RADS (NOTE 3)  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: NOT AFFECTED

## -----DESIGN PARAMETERS-----

## -----DESIGN-----

## -----APPLICATION-----

MODEL NO.	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
-----------	------------------	---------------	------------------	---------------

NOTE 1

## -----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
PISTON ROD SEAL STUD SIDE	SR	ETHYLENE PROPYLENE	400	1E9	5
PISTON ROD SEAL ROD TIE SIDE	SR	ETHYLENE PROPYLENE	400	1E9	5
PISTON ROD SEAL CAP SIDE	SR	ETHYLENE PROPYLENE	400	1E9	5
HYDRAULIC FLUID	SR	METHYL AND PHENYL COPOLYMER	540	5E8	5

## NOTES

1. THE SNUBBER DESIGN AND APPLICATIONS ARE BASED ON THERMAL EXPANSION AND SEISMIC/DYNAMIC PIPE LOADS.
2. EQUIPMENT EVALUATED TO ZONE 22 ENVIRONMENT (WORST CASE PLANT CONDITIONS)
3. THE 1.8E8 RAD DOSE IS FOR GAMMA ONLY. THE BETA CONTRIBUTION IS CONSIDERED NEGLIGIBLE SINCE THE SNUBBER CASING PROVIDES SHIELDING FOR BETA ATTENUATION.

REFERENCE FILE: EQ2-EF2-017

DATE: 03/01/84

THE DETROIT EDISON COMPANY

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ENRICO FERMI UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.30

## EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : PRATT/BETTIS (NOTE 1)      VENDOR : H. PRATT  
MODEL NO. : 72" TRITON XR-70(VALVE)/T-520-SR-1 (OPERATOR)  
DESCRIPTION : VALVE: SPRING OPPOSED CYLINDER OPERATED BUTTERFLY  
LOCATION(ZONE): 7

PURCHASE ORDER #: 1A-95017

DECO DWG. FILE #: B9-490

FOREIGN DWG # : E-1283

SAFETY CATEGORY : 2A/2B

OPERATING TIME: 1HR/100 DAYS

## -----ENVIRONMENTAL PARAMETERS-----

## NORMAL CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 83      DEG. °F  
PRESSURE : N/A      PSIG  
HUMIDITY : 63      PCT-RH  
RADIATION : 3.5E2      RADS  
(INTEGRATED OVER 40 YEARS)

## ACCIDENT CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 130      DEG. °F  
PRESSURE : N/A      PSIG  
HUMIDITY : 15      PCT-RH  
SPRAY : N/A  
RADIATION : 3.7E5      RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: N/A

## -----DESIGN PARAMETERS-----

MODEL NO.	DESIGN	TEMP.	APPLICATION	TEMP.
	PRESS. (PSIG)	(°F)	PRESS. (PSIG)	(°F)
72" TRITON XR-70	25	150	ATMOS + .074	130

## -----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
VALVE COMPONENTS					
VALVE SEAT	SR	BUNA-N OR NATURAL RUBBER	225 180	2E6 2E7	23 5
SLEEVE BEARING	SR	FIBERGLASS/EPOXY	325	2.5E9	40
PACKING	SR	BUNA-N OR ETHYLENE PROPYLENE	225 300	2E6 1E6	23 40
PACKING RETAINER	NSR	N/A	N/A	N/A	N/A
O-RINGS	SR	BUNA-N OR EPT	225 300	2E6 1E6	23 40
CASTING EPOXY	SR	EPOXY	194	2E8	40
ACTUATOR COMPONENTS		SEE NOTE 2			

## NOTES

1. HENRY PRATT COMPANY (VALVE)/G.H. Bettis (OPERATOR)
2. THE NON-METALLICS OF THE ACTUATOR, O-RINGS, SEALS, GASKETS, LUBRICANT, ARE DESIGNATED NON-SAFETY RELATED. THE FUNCTION OF THE VALVE IS TO CLOSE DURING AN ACCIDENT. THE CONDITION OF THE NON-METALLICS WILL NOT PREVENT A COMPRESSED SPRING FROM CLOSING THE VALVE.

REFERENCE FILE: EQ2-EF2-030

DATE: 03/01/84

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ENRICO FERMI UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/P.31

## EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : ROCKWELL                      VENDOR : SEE DWGS.  
MODEL NO. : SEE MODEL NO. UNDER DESIGN PARAMETERS  
DESCRIPTION : VALVES: CHECK, PISTON CHECK, STOP CHECK, STOP, GLOBE STOP  
LOCATION(ZONE): VARIOUS ZONES: (NOTE 1)

PURCHASE ORDER #: 1E-87807  
DECO DWG. FILE #: SEE REF. FILE  
FOREIGN DWG # : SEE DECO DWGS.

SAFETY CATEGORY : 2A

OPERATING TIME: 100 DAYS

## -----ENVIRONMENTAL PARAMETERS-----

## NORMAL CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 135 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 90 PCT-RH  
RADIATION : 1.8E7 RADS  
(INTEGRATED OVER 40 YEARS)

## ACCIDENT CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: (NOTE 2) DEG.°F  
PRESSURE : 56.2 PSIG  
HUMIDITY : 100 PCT-RH  
SPRAY : DEMIN WTR.  
RADIATION : 1.98E9 RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: NOT AFFECTED

## -----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
GASKET	SR	ASBESTOS/SS	800	1E11	40
VALVE SEAT	SR	VESPEL (POLYIMIDE)	500	4E9	40
VALVE PACKING*	SR	ASBESTOS	1200	1E11	40
*ACCEPTABLE ALTERNATIVE (SEE REF. FILE)					
VALVE PACKING	SR	ASBESTOS	1200	1E11	40

## -----DESIGN PARAMETERS-----

MODEL NO.	-----DESIGN-----		-----APPLICATION-----	
	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
848YT	1350	700	1330	452
3624MT	2350	700	1280	575
3624RT	2350	700	1250	575
838YT	1350	700	1280	366
3624MMT	2350	700	1250	575
3624T	2350	700	1330	575
D3624T	2350	700	1250	575
3674T	2240	800	1750	150
838FRYT	1320	400	150	100
3674F316JT3	150	340	150	300
3664MT	2350	700	150	366
31674FJT3	150	340	150	300
3624AT	3060	700	480	452
3628MT	3060	700	75	340

## NOTES

- EQUIPMENT EVALUATED TO ZONE 22 ENVIRONMENT (WORST CASE PLANT CONDITIONS)
- ACCIDENT TEMPERATURE REQUIREMENT OF 583°F IS FROM PROCESS FLUIDS. THE VESPER VALVE SEAT IS NOT USED IN VALVES EXPOSED TO THOSE FLUIDS. WORST CASE ACCIDENT TEMPERATURE FOR THE VESPER VALVE IS 340°F.

REFERENCE FILE: EQ2-EF2-031



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ENRICO FERMI UNIT 2 PROJECT  
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MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.41

## EQUIPMENT:

MANUFACTURER : ROTRON  
MODEL NO. : DR313 PUMP W/DR313 HEAT EXCHANGER  
DESCRIPTION : HYDROGEN/OXYGEN ANALYZER PANEL SAMPLE RETURN PUMP  
LOCATION(ZONE): 18,26

VENDOR : COMSIP-DELPHI

QUAL. STATUS : QUALIFIED

PURCHASE ORDER #: 1A-97827

DECO DWG. FILE #: SEE REF. FILE

FOREIGN DWG # : SEE DECO DWGS.

SAFETY CATEGORY : 2A/2B (NOTE 1)

OPERATING TIME: 100 DAYS

## -----ENVIRONMENTAL PARAMETERS-----

## NORMAL CONDITIONS:

## -----REQUIRED-----

TEMPERATURE: 83 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 71 PCT-RH  
RADIATION : 3.5E02 RADS  
(INTEGRATED OVER 40 YEARS)

## ACCIDENT CONDITIONS:

## -----REQUIRED-----

TEMPERATURE: (NOTE 2)DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 15 PCT-RH  
SPRAY : N/A  
RADIATION : (NOTE 3)RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: N/A

## -----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
O-RING SEAL	SR	ETHYLENE/ PROPYLENE	400 (INTERMIT.)	1E9	40
HOUSING SEAL	SR	ETHYLENE/ PROPYLENE	300	1E9	40

## -----DESIGN PARAMETERS-----

## -----DESIGN-----

	PRESS.	TEMP.	PRESS.	TEMP.
MODEL NO.	(PSIG)	(°F)	(PSIG)	(°F)

DR313 PUMP W/  
DR313 HEAT  
EXCHANGER

-----NOTE 4-----

NOTES

1. THE DR313 PUMP IS REQUIRED FOR 2A/100 DAYS OPERABILITY. THE DR313 HEAT EXCHANGER IS REQUIRED FOR 2B/100 DAYS OPERABILITY.
2. THE O-RING SEALS ARE EXPOSED TO PROCESS FLUIDS FROM THE DRYWELL WITH A MAXIMUM TEMPERATURE OF 340°F. THE HOUSING O-RING IS EXPOSED TO AMBIENT CONDITIONS OF 130°F FOR AN ACCIDENT.
3. THE O-RING SEALS ARE EXPOSED TO PROCESS RADIATION LEVELS OF 1.98E09 (GAMMA & BETA). THE HOUSING O-RING IS EXPOSED TO AMBIENT ACCIDENT RADIATION LEVELS OF 5.4E06.
4. DESIGN PARAMETERS NOT AVAILABLE, JUSTIFICATION FOR USE OF EQUIPMENT PROVIDED IN REF. FILE.

REFERENCE FILE: EQ2-EF2-041

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ENRICO FERMI UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.55

EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : SCHUTTE AND KOERTING  
MODEL NO. : 1900F  
DESCRIPTION : 0.75" FLOW INDICATOR  
LOCATION(ZONE): 22

VENDOR : GENERAL ELECTRIC

PURCHASE ORDER #: 1E-83800

DECO DWG. FILE #: R1-1306  
FOREIGN DWG # : 71-S-004-M

SAFETY CATEGORY : 2B

OPERATING TIME: 100 DAYS

-----ENVIRONMENTAL PARAMETERS-----

NORMAL CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 135 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 90 PCT-RH  
RADIATION : 1.8E7 RADS  
(INTEGRATED OVER 40 YEARS)

ACCIDENT CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 340 DEG.°F  
PRESSURE : 56.2 PSIG  
HUMIDITY : 100 PCT-RH  
SPRAY : DEMIN WTR.  
RADIATION : 1.98E9 RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: NOT AFFECTED

-----DESIGN PARAMETERS-----

MODEL NO.	-----DESIGN-----		---APPLICATION---	
	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
1900F	1860	150	15	95

-----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
GASKET	SR	ASBESTOS/SS	800	1E11	40

REFERENCE FILE: EQ2-EF2-055

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ENRICO FERMI UNIT 2 PROJECT  
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MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.33

EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : SINGER (GPE CONTROLS)      VENDOR : GPE CONTROLS  
MODEL NO. : LD-240-215, LD-240-210  
DESCRIPTION : VACUUM BREAKER VALVE - TESTABLE CHECK  
LOCATION(ZONE): 23,36

PURCHASE ORDER #: 1E-87850  
DECO DWG. FILE #: P1-784, P1-785  
FOREIGN DWG # : LD-240-210, LD-240-215

SAFETY CATEGORY : 2A/2B (NOTE 1)      OPERATING TIME: 100 DAYS

-----ENVIRONMENTAL PARAMETERS-----

NORMAL CONDITIONS:

ACCIDENT CONDITIONS:

-----REQUIRED-----

-----REQUIRED-----

TEMPERATURE: 135 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 90 PCT-RH  
RADIATION : 3.5E4 RADS  
(INTEGRATED OVER 40 YEARS)

TEMPERATURE: 300\* DEG.°F  
PRESSURE : 56.2\* PSIG  
HUMIDITY : 100\* PCT-RH  
SPRAY : N/A  
RADIATION : 5.1E6 RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: N/A

-----DESIGN PARAMETERS-----

-----DESIGN-----      ---APPLICATION---

MODEL NO.	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
LD-240-215	230	300	56.2	300
LD-240-210	230	300	56.2	300

-----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)	NOTES
EXERCISING CYLINDER	NSR	N/A	N/A	N/A	N/A	1. MODEL LD-240-210 REQUIRED FOR POST-LOCA DRYWELL PRESSURE IMPLOSION PROTECTION, WHICH REQUIRES AN OPERABILITY OF 2A FOR 100 DAYS.
O-RING	SR	ETHYLENE PROPYLENE	300	1E7	10	
RETAINING COMPOUND	NSR	DIMETHACRYLATE ADHESIVE	N/A	N/A	N/A	2. ROUTINE MAINTENANCE, SEE REFERENCE FILE
LUBRICANT	SR	GREASE SOAP BASE	320	1E7	NOTE 2	

\*TORUS INTERNAL AIR PARAMETER

REFERENCE FILE: EQ2-EF2-033

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THE DETROIT EDISON COMPANY

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ENRICO FERMI UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.34

## EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : TARGET ROCK  
MODEL NO. : 81M-001;002;003  
DESCRIPTION : SOLENOID VALVE  
LOCATION(ZONE): WORST CASE FOR ZONES 9,18,19,23

VENDOR : TARGET ROCK

PURCHASE ORDER #: 1A-53416

DECO DWG. FILE #: C1-1814; 1816; 1817  
FOREIGN DWG # : SEE DECO DWG.

SAFETY CATEGORY : 2A

OPERATING TIME: 100 DAYS

## -----ENVIRONMENTAL PARAMETERS-----

## NORMAL CONDITIONS:

## ACCIDENT CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 94 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 71 PCT-RH  
RADIATION : 3.5E4 RADS  
(INTEGRATED OVER 40 YEARS)

-----REQUIRED-----  
TEMPERATURE: 201 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 100 PCT-RH  
SPRAY : N/A  
RADIATION : 1.8E5\* RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: NOT AFFECTED

## -----DESIGN PARAMETERS-----

## -----DESIGN-----

## -----APPLICATION-----

MODEL NO.	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
81M-001	2065	400	62	340
81M-	825	400	250	340
81M-003	1800	600	1375	585

## -----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
TARGET ROCK TEST PARAMETERS			350	2.27E7	5
GASKET & O-RING RAD. WITHSTAND (NOT IN CONTACT WITH PROCESS- SEE REF. FILE)			N/A	1E9	N/A

\*PROCESS FLUID PARAMETER

REFERENCE FILE: EQ2-EF2-034



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ENRICO FERMI UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/35/F.35

EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : TARGET ROCK  
MODEL NO. : 78U-001; 002; 003; 004  
DESCRIPTION : SOLENOID VALVE, 1" GLOBE  
LOCATION(ZONE): 41

VENDOR : TARGET ROCK

PURCHASE ORDER #: 1A-79637

DECO DWG. FILE #: SEE REF. FILE

FOREIGN DWG # : SEE DECO DWGS.

SAFETY CATEGORY : 2A

OPERATING TIME: 100 DAYS

-----ENVIRONMENTAL PARAMETERS-----

NORMAL CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 130 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 20 PCT-RH  
RADIATION : 1.8E6 RADS  
(INTEGRATED OVER 40 YEARS)

ACCIDENT CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: N/A DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : N/A PCT-RH  
SPRAY : N/A  
RADIATION : 1.5E7\* RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: N/A

-----DESIGN PARAMETERS-----

MODEL NO.	-----DESIGN-----		---APPLICATION---	
	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
78U-001	125	300	125	300
78U-002	125	300	125	300
78U-003	1250	575	1200	540
78U-004	1250	575	1200	540

-----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
TARGET ROCK TEST PARAMETERS: (SEE REF. FILE)			350	2.27E7	5

\*PROCESS PARAMETER

REFERENCE FILE: EQ2-EF2-035

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ENRICO FERMI UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

## EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : TARGET ROCK  
MODEL NO. : 7567 F  
DESCRIPTION : 6x10 SAFETY RELIEF VALVE  
LOCATION(ZONE): 22

VENDOR : GENERAL ELECTRIC

PURCHASE ORDER #: 1E-83800

DECO DWG. FILE #: R1-3107, R1-3486  
FOREIGN DWG # : 7567-000, 7567-500

SAFETY CATEGORY : 2A

OPERATING TIME: 100 DAYS

## -----ENVIRONMENTAL PARAMETERS-----

## NORMAL CONDITIONS:

## ACCIDENT CONDITIONS:

## -----REQUIRED-----

## -----REQUIRED-----

TEMPERATURE: 135 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 90 PCT-RH  
RADIATION : 1.8E7 RADS  
(INTEGRATED OVER 40 YEARS)

TEMPERATURE: 340 DEG.°F  
PRESSURE : 56.2 PSIG  
HUMIDITY : 100 PCT-RH  
SPRAY : DEMIN WTR.  
RADIATION : 2.48E8 RADS (NOTE 1)  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: N/A

## MODEL NO.

7567F

## -----DESIGN PARAMETERS-----

## -----DESIGN-----

## -----APPLICATION-----

PRESS. TEMP. PRESS. TEMP.  
(PSIG) (°F) (PSIG) (°F)

1640 600 1250 575

## -----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)	NOTE
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DIAPHRAGM	SR	SILICONE/NOMEX	450/428	1E9	20	1. MAXIMUM ZONE 22 ACCIDENT RADIATION DOSE HAS BEEN REDUCED TO 2.48E8 RADS BY EVALUATING EQUIPMENT CONSTRUCTION SHIELDING EFFECTS.
O-RING	SR	SILICONE	450	1E9	20	
GASKETS	SR	ASBESTOS/SS	800	1E11	40	
BACK-UP RINGS	NSR	STEEL/NITRILE	N/A	N/A	N/A	
LUBRICANTS	NSR	CASTOR OIL	N/A	N/A	N/A	
		DAG #156				
		NEVER-SEEZ				

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ENRICO FERMI UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.60

## EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : TERRY STEAM TURBINE CO./VAR. VENDOR : GENERAL ELECTRIC  
MODEL NO. : TYPE CCS/MISC. EQUIP.  
DESCRIPTION : HPCI TURBINE & AUX. EQUIPMENT  
LOCATION(ZONE): 17

PURCHASE ORDER #: 1E-83800

DECO DWG. FILE #: SEE REF. FILE  
FOREIGN DWG # : SEE DECO DWGS.

SAFETY CATEGORY : 2A/2B

OPERATING TIME: 1 HOUR/100 DAYS

## -----ENVIRONMENTAL PARAMETERS-----

## NORMAL CONDITIONS:

## -----REQUIRED-----

TEMPERATURE: 33 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 61 PCT-RH  
RADIATION : 5.3E03 RADS  
(INTEGRATED OVER 40 YEARS)

## ACCIDENT CONDITIONS:

## -----REQUIRED-----

TEMPERATURE:(NOTE 1\*)DEG.°F  
PRESSURE : (NOTE 2\*)PSIG  
HUMIDITY : (NOTE 3\*)PCT-RH  
SPRAY : N/A  
RADIATION : (NOTE 4\*)RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: N/A

## -----DESIGN PARAMETERS-----

## -----DESIGN-----

## -----APPLICATION-----

MODEL NO.	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
TYPE CCS	1250 (SUPPLY)	575 (SUPPLY)	1120 (SUPPLY)	560 (SUPPLY)
	200 (EXHAUST)	382 (EXHAUST)	25-65 (EXHAUST)	311 (EXHAUST)

## -----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
GASKETS	SR	ASBESTOS	650	1E11	40
PACKING	SR	ASBESTOS	1200	1E11	40
ADHESIVE	SR	PHENOLIC	1200	1E09	40
SEALS	SR	CARBON	1000	1E11	40
LUBRICANT	SR	PARAFFINIC GREASE	250	1E07	NOTE 5
GASKET	SR	RUBBER	180	5E08	3.3
GASKET	SR	PAPER	250	4.4E06	40
SLINGER	SR	BUNA-N	225	7.0E06	23
SLINGER	SR	NEOPRENE	300	5.0E07	40
SEAL	SR	VITON	400	2.2E08	40

\*PROCESS FLUID PARAMETER  
REFERENCE FILE: EQ2-EF2-060

## NOTES

1. THE TEMPERATURE REQUIREMENTS DEPEND UPON COMPONENT LOCATION (I.E. STEAM SUPPLY SIDE TEMPERATURE 583°F, EXHAUST SIDE TEMPERATURE 170°F).
2. THE PRESSURE REQUIREMENTS ARE A FUNCTION OF COMPONENT LOCATION AS NOTED IN DESIGN PARAMETERS TABLE.
3. THE HUMIDITY REQUIREMENT IS 100% RH BASED ON STEAM INLET AND CONDENSATE EXHAUST FLUID CONDITIONS.
4. THE RADIATION REQUIREMENTS DEPEND UPON COMPONENT LOCATION (I.E., STEAM SUPPLY SIDE EXPOSURE FROM 1.8E08 TO 1.98E09 RADS, EXHAUST SIDE EXPOSURES FROM 5.3E03 TO 1.8E08 RADS.
5. ROUTINE MAINTENANCE, SEE REF. FILE

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ENRICO FERM1 UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.65

## EQUIPMENT:

MANUFACTURER : TERRY STEAM TURBINE CO./VAR. VENDOR : GENERAL ELECTRIC  
MODEL NO. : TYPE GS-Z/MISC. EQUIP.  
DESCRIPTION : RCIC TURBINE AND AUX. EQUIPMENT  
LOCATION(ZONE): 15

QUAL. STATUS : QUALIFIED

PURCHASE ORDER #: 1E-83800

DECO DWG. FILE #: SEE REF. FILE

FOREIGN DWG # : SEE DECO DWG.

SAFETY CATEGORY : 2B

OPERATING TIME: 100 DAYS

## -----ENVIRONMENTAL PARAMETERS-----

## NORMAL CONDITIONS:

## -----REQUIRED-----

TEMPERATURE: 77 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 75 PCT-RH  
RADIATION : 5.3E03 RADS  
(INTEGRATED OVER 40 YEARS)

## ACCIDENT CONDITIONS:

## -----REQUIRED-----

TEMPERATURE:(NOTE 1\*)DEG.°F  
PRESSURE :(NOTE 2\*)PSIG  
HUMIDITY :(NOTE 3\*)PCT-RH  
SPRAY : N/A  
RADIATION :(NOTE 4\*)RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: N/A

## -----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
GASKET	SR	ASBESTOS/SS	800	1E11	40
ADHESIVE	SR	PHENOLIC	1200	1E09	40
GLAND SEAL	SR	CARBON	1000	1E11	40
SEAL GASKET	SR	VITON	400	2.2E08	40
PACKING	SR	ASBESTOS	650	1E11	40
GASKET	SR	ASBESTOS	650	1E11	40
GASKET	SR	RUBBER	225	5E08	7.8
LUBRICANT	NSR	PARAFFINIC GREASE	N/A	N/A	N/A
SLINGER	NSR	BUNA-N	N/A	N/A	N/A
SLINGER	NSR	NEOPRENE	N/A	N/A	N/A

\*PROCESS FLUID PARAMETER  
REFERENCE FILE: EQ2-EF2-065

## -----DESIGN PARAMETERS-----

## -----DESIGN-----

## -----APPLICATION-----

MODEL NO.	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
TYPE GS	1250 (SUPPLY)	583 (SUPPLY)	1120 (SUPPLY)	560 (SUPPLY)
	165 (EXHAUST)	172 (EXHAUST)	150 (EXHAUST)	365 (EXHAUST)

## NOTES

1. THE TEMPERATURE REQUIREMENTS DEPEND UPON COMPONENT LOCATION (I.E., STEAM SUPPLY SIDE TEMPERATURE 583°F, EXHAUST SIDE TEMP. 190°F).
2. THE PRESSURE REQUIREMENTS ARE A FUNCTION OF COMPONENT LOCATION AS NOTED IN DESIGN PARAMETERS TABLE.
3. THE HUMIDITY REQUIREMENT IS 100% RH BASED ON STEAM INLET AND CONDENSATE EXHAUST FLUID CONDITIONS.
4. THE RADIATION REQUIREMENTS DEPEND UPON COMPONENT LOCATION (I.E., STEAM SUPPLY SIDE EXPOSURE FROM 1.8E08 TO 1.98E09 RADS, EXHAUST SIDE EXPOSURES TO 1.8E08.



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ENRICO FERMI UNIT 2 PROJECT  
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MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.37

EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : TOMKINS JOHNSON      VENDOR : POWELL  
MODEL NO. : STYLE 6 MOD 9" BORE  
DESCRIPTION : AIR ACTUATOR - SPRING TO CLOSE, AIR TO OPEN  
LOCATION(ZONE): 12

PURCHASE ORDER #: 1E-86734

DECO DWG. FILE #: P1-1396  
FOREIGN DWG # : 042602-12

SAFETY CATEGORY : 2A/2C

OPERATING TIME: 1 MIN/100 DAYS

-----ENVIRONMENTAL PARAMETERS-----

NORMAL CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 84 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 61 PCT-RH  
RADIATION : 3.5E2 RADS  
(INTEGRATED OVER 40 YEARS)

ACCIDENT CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 199 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 100 PCT-RH  
SPRAY : N/A  
RADIATION : 5.4E6 RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: N/A

-----DESIGN PARAMETERS-----

MODEL NO.	-----DESIGN-----		-----APPLICATION-----	
	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
STYLE 6 MOD 9" BORE	100	180		(NOTE 1)

-----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)	NOTE
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THE NON-METALLIC MATERIALS OF THIS AIR ACTUATOR ARE  
NON-SAFETY RELATED (NOTE 1).

1. ALL OF THE NON-METALLICS IN THE AIR ACTUATOR ARE DESIGNED TO PREVENT AIR LEAKAGE PAST A PISTON WHICH HOLDS THE "CLOSE" SPRING IN A READY POSITION. UPON SOLENOID ACTION (LOCA SIGNAL) OR NON-METALLIC COMPONENT FAILURE (LEAKAGE) DUE TO HARSH ENVIRONMENT, THE SPRING WILL CLOSE THE VALVE, WHICH IS THE DESIRED CONDITION.

REFERENCE FILE: EQ2-EF2-037

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ENRICO FERMI UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.43

## EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : VARIOUS  
MODEL NO. : VITON  
DESCRIPTION : SOCKET WELD UNION GASKETS  
LOCATION(ZONE): VARIOUS ZONES (NOTE 2)

VENDOR : N/A

PURCHASE ORDER #: N/A

DECO DWG. FILE #: N/A

FOREIGN DWG # : N/A

SAFETY CATEGORY : 2B

OPERATING TIME: 100 DAYS

## -----ENVIRONMENTAL PARAMETERS-----

## NORMAL CONDITIONS:

## -----REQUIRED-----

TEMPERATURE: 135 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 90 PCT-RH  
RADIATION : 1.8E7 RADS  
(INTEGRATED OVER 40 YEARS)

## ACCIDENT CONDITIONS:

## -----REQUIRED-----

TEMPERATURE: 340 DEG.°F  
PRESSURE : 56.2 PSIG  
HUMIDITY : 100 PCT-RH  
SPRAY : DEMIN WTR.  
RADIATION : 2.218E8 RADS (NOTE 3)  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: NOT AFFECTED

## -----DESIGN PARAMETERS-----

## -----DESIGN-----

## -----APPLICATION-----

MODEL NO.	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
VITON (GENERIC)	NOTE 1	400	NOTE 1	340

## -----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
VITON (GENERIC)	SR	FLUORO- ELASTOMER	400	2.238E8	5

NOTES

1. THE PRESSURE PARAMETER IS A FUNCTION OF INSTALLATION AND IS VERIFIED BY LEAK AND/OR HYDROSTATIC TESTS.
2. EQUIPMENT EVALUATED TO ZONE 22 ENVIRONMENT WORST CASE PLANT CONDITIONS
3. MAXIMUM ZONE 22 ACCIDENT RADIATION DOSE HAS BEEN REDUCED TO 2.218E8 RADS BY EVALUATING EQUIPMENT CONSTRUCTION SHIELDING EFFECTS.

REFERENCE FILE: EQ2-EF2-043

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ENRICO FERMI UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.38

## EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : VELAN  
MODEL NO. : FIG. NO. W8-254B-2TS  
DESCRIPTION : 2" 600# B.B. GATE VALVE, MANUAL  
LOCATION(ZONE): WORST CASE FOR ZONES 6,8,9,19,23

VENDOR : COON-DEVISER CO.

PURCHASE ORDER #: 1E-90215-SUB #19274

DECO DWG. FILE #: P1-1758

FOREIGN DWG # : P1-3532-N-1, REV. B

SAFETY CATEGORY : 2B

OPERATING TIME: 100 DAYS

## -----ENVIRONMENTAL PARAMETERS-----

## NORMAL CONDITIONS:

## -----REQUIRED-----

TEMPERATURE: 94 DEG. °F  
PRESSURE : N/A PSIG  
HUMIDITY : 71 PCT-RH  
RADIATION : 3.5E2 RADS  
(INTEGRATED OVER 40 YEARS)

## ACCIDENT CONDITIONS:

## -----REQUIRED-----

TEMPERATURE: 201 DEG. °F  
PRESSURE : N/A PSIG  
HUMIDITY : 100 PCT-RH  
SPRAY : N/A  
RADIATION : 5.4E6 RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: NOT AFFECTED

## -----DESIGN PARAMETERS-----

## -----DESIGN-----

## -----APPLICATION-----

MODEL NO.	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
FIG. NO.	1095	600	175	125
W8-254B-2TS				
600# RATED	1065	700	125	125

## -----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
PACKING RING*	SR	ASBESTOS	1200	1E11	40
GASKET (SPIRAL WOUND)	SR	ASBESTOS/316SS	800	1E11	40

\* ACCEPTABLE ALTERNATIVE (SEE REF. FILE)

PACKING	SR	ASBESTOS	1200	1E11	40
PACKING	SR	GRAPHITE	1000	1E11	40

REFERENCE FILE: EQ2-EF2-038

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ENRICO FERMI UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/F.13

## EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : WESTERN GEAR CORPORATION      VENDOR : GENERAL ELECTRIC  
MODEL NO. : 4000 SERIES, FRAME SIZE 4110  
DESCRIPTION : REDUCTION, GEAR FOR HPCI BOOSTER PUMP  
LOCATION(ZONE): 17

PURCHASE ORDER #: 1E-83800

DECO DWG. FILE #: SEE REF. FILE  
FOREIGN DWG # : SEE DECO DWG.

SAFETY CATEGORY : 2A

OPERATING TIME: 1 HOUR

## -----ENVIRONMENTAL PARAMETERS-----

## NORMAL CONDITIONS:

## -----REQUIRED-----

TEMPERATURE: 81 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 61 PCT-RH  
RADIATION : 5.3E03 RADS  
(INTEGRATED OVER 40 YEARS)

## ACCIDENT CONDITIONS:

## -----REQUIRED-----

TEMPERATURE: 130 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 15 PCT-RH  
SPRAY : N/A  
RADIATION : 5.4E06 RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: N/A

## -----DESIGN PARAMETERS-----

## -----DESIGN-----

MODEL NO.	PRESS.		TEMP.	
	(PSIG)	(°F)	(PSIG)	(°F)
4000 SERIES, FRAME SIZE 4110	N/A	NOTE 2	N/A	130

## -----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
GASKET	SR	VELLUMOID	250	8.5E06	40
O-RING	SR	BUNA-N	250	2E7	3
LUBRICANT	SR	PARAFFINIC BASED-OIL	200	1E7	NOTE 1

## NOTES

1. ROUTINE MAINTENANCE, SEE REF. FILE
2. THE REDUCTION GEAR HAS A SUGGESTED DESIGN TEMPERATURE OF 120°F. AN EVALUATION OF THE INDIVIDUAL COMPONENTS PERFORMANCE CHARACTERISTICS CONCLUDES THAT THE 1 HOUR OPERABILITY PERIOD AT 150°F WILL NOT ADVERSELY AFFECT THE REDUCTION GEAR PERFORMANCE.

REFERENCE FILE: EQ2-EF2-061



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ENRICO FERMI UNIT 2 PROJECT  
DOCKET NO. 50-341  
MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EEQ/33/r.18

EQUIPMENT:

QUAL. STATUS : QUALIFIED

MANUFACTURER : WHITELEY BEARING CO.  
MODEL NO. : LUBRITE PAD  
DESCRIPTION : TORUS BEARING PLATES  
LOCATION(ZONE): 23

VENDOR : WHITELEY BEARING CO.

PURCHASE ORDER #: N/A

DECO DWG. FILE #: N/A

FOREIGN DWG # : N/A

SAFETY CATEGORY : 2A

OPERATING TIME: 100 DAYS

-----ENVIRONMENTAL PARAMETERS-----

NORMAL CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 94 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 44 PCT-RH  
RADIATION : 3.5E4 RADS  
(INTEGRATED OVER 40 YEARS)

ACCIDENT CONDITIONS:

-----REQUIRED-----  
TEMPERATURE: 201 DEG.°F  
PRESSURE : N/A PSIG  
HUMIDITY : 100 PCT-RH  
SPRAY : N/A  
RADIATION : 5.1E6 RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: NOT AFFECTED

-----DESIGN PARAMETERS-----

	-----DESIGN-----	TEMP.	-----APPLICATION-----	TEMP.
MODEL NO.	PRESS. (PSIG)	(°F)	PRESS. (PSIG)	(°F)

NOT APPLICABLE

-----DEMONSTRATED MATERIAL CAPABILITY-----

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
BEARING PLATE	SR	GRAPHITED BRONZE	1000	1E11	40

REFERENCE FILE: EQ2-EF2-018

DATE: 03/01/84

THE DETROIT EDISON COMPANY

REV. 0

PAGE: 060

ENRICO FERRI UNIT 2 PROJECT  
DOCKET NO. 50-341

EEQ/33/F.39

MECHANICAL EQUIPMENT QUALIFICATION SUMMARIES

EQUIPMENT:

QUAL. STATUS : QUALIFIED  
PURCHASE ORDER #: 1E-90210  
DECO DWG. FILE #: S21-4  
FOREIGN DWG # : 72-N-001-1-1

MANUFACTURER : YUBA INDUSTRIES INC.  
MODEL NO. : SIZE 29-476, TYPE CFU  
DESCRIPTION : SHELL AND TUBE HEAT EXCHANGER  
LOCATION(ZONE): WORST CASE FOR ZONES 18,19

VENDOR : YUBA INDUSTRIES, INC.

SAFETY CATEGORY : 2B OPERATING TIME: 100 DAYS

ENVIRONMENTAL PARAMETERS

NORMAL CONDITIONS:

TEMPERATURE: 79 DEG. °F  
PRESSURE : N/A PSIG  
HUMIDITY : 71 PCT-RH  
RADIATION : 3.5E2 RADS  
(INTEGRATED OVER 40 YEARS)

ACCIDENT CONDITIONS:

TEMPERATURE: 130 DEG. °F  
PRESSURE : N/A PSIG  
HUMIDITY : 100 PCT-RH  
SPRAY : N/A  
RADIATION : 5.4E6 RADS  
(INTEGRATED OVER 100 DAYS)  
SUBMERGENCE: N/A

DESIGN PARAMETERS

DESIGN

MODEL NO.	PRESS. (PSIG)	TEMP. (°F)	PRESS. (PSIG)	TEMP. (°F)
SIZE 29-476 TYPE CFU	120 (SHELL)	150	120 (SHELL)	120
	175 (TUBE)	150	175 (TUBE)	120

DEMONSTRATED MATERIAL CAPABILITY

NON-METALLIC SUBCOMPONENTS	SAFETY FUNCTION	GENERIC MATERIAL	TEMP. (°F)	RADIATION (RADS)	DESIGN LIFE (YRS.)
CHANNEL GASKET	SR	IRON CLAD ASBESTOS	650	1E11	40