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FAST FLUX
TEST FACILITY
PROJECT REPORT

INSTRUCTION DESIGN
DESCRIPTION PREPARATION
PACIFIC NORTHWEST LABORATORY

R. V. Dulin

OCTOBER 1967

AEC RESEARCH &
DEVELOPMENT REPORT

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INSTRUCTIONS
DESIGN DESCRIPTION PREPARATION
PACIFIC NORTHWEST LABORATORY

OCTOBER 9, 1967

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INSTRUCTIONS
DESIGN DESCRIPTION PREPARATION
PACIFIC NORTHWEST LABORATORY

I. INTRODUCTION

Design Descriptions establish a recognized technical reference describing systems, components, and facilities. This document gives instructions for their preparation. These instructions were prepared for:

- . Supplementing the RDT Instructions for Preparation of System Design Descriptions* according to PNL's needs to provide guidance to their personnel and contractors;
- . Consolidating the instructions for system, component, and facility design descriptions** into a single instruction document; and
- . Assuring identification and differentiation between baseline material and non-baseline material in the design descriptions.

II. OBJECTIVES OF DESIGN DESCRIPTIONS

The basic objectives of preparing Design Descriptions for the FFTF Project are to provide:

- . Description of the System, Component, or Facility design at appropriate points in Conceptual, Preliminary, and Final Design, as a firm point of departure for subsequent design efforts.
- . Identification of areas requiring special attention, such as research and development needs, special analytical techniques, design problems requiring further study and areas where a phase of design is incomplete, along with plans for resolution.
- . Detailed documentation of the technical development history and the design philosophy leading to the final plant configuration.

*Instructions for Preparation of System Design Descriptions, DRDT, February 1966.

**Letter, ER Astley to CL Robinson, "Outlines for Facility and Component Design Descriptions, May 16, 1967.

- . A focal point for supporting documentation required for complete design definition.

III. TYPES OF DESIGN DESCRIPTIONS

The FFTF Design Descriptions will be written as

Facility Design Description	(FDD)
System Design Description	(SDD)
Component Design Description	(CDD)

Each type of document is to satisfy the objectives outlined above and must contain all material necessary to satisfy these objectives.

The FDD is written to describe a group of systems and/or components fulfilling a single set of functions, where the fulfillment of the functions can only be established by total description of the systems and/or components in a single document, and where such detailed description remains within the realm of a manageable sized document.

The SDD is a document describing a compendium of components whose coordinated performance satisfies system functions.

The CDD is a description of a single component, to be written for components with functions relatively independent of the systems served by them, where the project interest is best served by reaching agreement on the component separately and where inclusion of the component description in a SDD or FDD would make these documents unwieldy.

Design Descriptions of systems or facilities containing components described in separate Component Design Descriptions should also include basic information on that component, and reference the Component Design Description for further information.

IV. USES OF DESIGN DESCRIPTIONS

Design Descriptions will be used as follows in support of the FFTF Project:

1. As a vehicle for reaching formal agreement on component, facility, and system design within PNL and between PNL and RDT.
2. As bases for required R&D programs related to design needs.
3. As a framework for project planning and control.
4. As a technical reference for
 - . Preparation of equipment specifications
 - . Preparation of operating and test procedures
 - . Preparation of cost estimates and priorities
 - . Preparation of safety analysis reports
 - . Preparation of quality and reliability assurance programs
5. As a project technical reference for control of
 - . Project baselines
 - . Definition and communication of baseline functions, design requirements, and reference design to the A-E, RPD, other FFTF contractors, and RDT. NOTE: Additional documentation will also be required for contractor administrative and technical control.
 - . Control of interfaces between components, facilities, and systems.

V. BASELINE DEFINITION

Information in Design Descriptions will fit into one of two categories:

- . Baseline information
- . Reference design

Baseline information is that portion of the design which is firm and will not be changed without formal concurrence of both the AEC and PNL as outlined in the Baseline Change Procedure.* The baseline portion of the design serves as the point of departure for all subsequent design effort. This baseline distinction is primarily required to clearly define the constraints on further design considerations and thus provide design control, while also permitting full description of the current design.

The balance of the information in the Design Description is reference design, and is the best known information at that stage of design. As design progresses, the structure of Design Descriptions will permit establishment of discrete sections as baseline. Figure I presents the basic outline and shows the stage of design where various sections would normally be expected to become baseline. However, each Design Description will specifically designate those sections which are baseline.

*Configuration Management and Control Plan (to be issued)

INTRODUCTION

SECTION 1.0 FUNCTIONS AND DESIGN REQUIREMENTS

1.1 FUNCTIONS

1.2 DESIGN REQUIREMENTS

1.2.1 Basic Design Requirements

1.2.2 Concept-Related Design Requirements

1.2.3 Firm Design Choices

↓*

SECTION 2.0 PHYSICAL DESCRIPTION OF THE SYSTEM,
COMPONENT, OR FACILITY

2.1 SUMMARY DESCRIPTION

2.2 DETAILED DESCRIPTION

↓**

SECTION 3.0 SAFETY CONSIDERATION

3.1 HAZARDS

3.2 PRECAUTIONS

SECTION 4.0 PRINCIPLES OF OPERATION

SECTION 5.0 MAINTENANCE PRINCIPLES

↓***

APPENDICES

- *Baseline section of Conceptual Design Descriptions
**Baseline section of Preliminary Design Descriptions
***Baseline section of Final Design Descriptions

FIGURE I

DESIGN DESCRIPTION OUTLINE

VI. DESIGN DESCRIPTION SUBMISSIONS

Normally there are three submissions of Design Descriptions: Conceptual, Preliminary, and Final. These submissions occur during the engineering design and development phases of the FFTF.*

Conceptual Design Description

The Conceptual Design Description presents the conceptual design and indicates the extent of engineering and development required to arrive at a firm design of the system, component, or facility. It should be prepared as early in the Conceptual Design phase as the above information can be provided.

The Conceptual Design Description should serve to:

- . Reach agreement with RDT on a Conceptual Design at the earliest possible date.
- . Indicate what considerations have led to the selection of the proposed design, including analysis of trade-offs and alternatives (by reference, if necessary).
- . Form the basis for equipment arrangements, where applicable.
- . Identify the engineering studies and development work necessary to arrive at a firm design.
- . Provide design detail for conceptual cost estimate.

In order to foster understanding of interrelationships between systems and/or components, the Conceptual Design Descriptions should be broad in scope, perhaps encompassing a number of related systems or components. Although this may be necessary at the conceptual stage, it may also be necessary to subdivide systems and facilities during the Preliminary Design stage, in order to keep the design in discrete, manageable packages. Conceptual Design Descriptions should be written and arranged recognizing this possibility. Further subdivisions will be along functional lines wherever possible.

*Design Descriptions for FFTF also include an initial Overall Conceptual Design Description (BNWL-500) which set forth the design objectives of the FFTF before preparation of Conceptual Design Descriptions of individual systems, components, and facilities.

Preliminary Design Description

The Preliminary Design Description presents a firm design which has been developed during the preliminary design phase and will:

- . Present a description of the engineered system, component, or facility recommended for RDT approval, including the various modes of operation.
- . Identify the need for further R&D programs and/or parallel or backup development efforts.
- . Provide the basis and identify special courses of action necessary to proceed with and complete the Final Design.
- . Serve as a basis for equipment specifications.
- . Identify any features in the proposed design that may affect or limit performance below values originally specified and accepted in Conceptual Design.
- . Serve as a basis for preparation of preliminary safety analyses.
- . Provide design detail for preliminary cost estimate.
- . Preliminary Design Descriptions will be prepared as early in the Preliminary Design phase as the above purposes can be fulfilled.

Final Design Description

During final design, the Design Description is developed in greater detail and is issued in its final form. The document should be prepared as soon as all areas of uncertainty in the design have been resolved. Revised issues may be required incorporating design changes made during the fabrication or construction stage.

The Final Design Description will serve as the technical reference for the Final Safety Analysis Report, the Plant Operating Manual, and the Plant Maintenance Manual.

As outlined in Figure 1, the Final Design Description is entirely baseline, and when approved, alterations are only permitted within the framework outlined by the Baseline Change Procedure.

VII. EMPHASIS AND DEGREE OF DETAIL

Section IX of these instructions (CONTENT DETAIL) is a detailed outline, describing the material to be included in each section. The depth of content under the above headings and the corresponding emphasis will vary with the subject of the description and the phase of design. The following general guidelines are to aid in determining the degree of detail and the emphasis expected.

1.1 Functions

This section should be brief, stating the basic functions. It should not change through the various phases of design, and since the functions are basic in selecting the concept, they will be emphasized at the Conceptual Design phase.

1.2 Design Requirements

Individual Design Requirements should be brief and concise. Although the number of requirements may vary according to the system, component or facility being described, all known requirements should be included. Design requirements leading to concept selection will be given primary emphasis during conceptual design. Concept-related design requirements and firm design choices will be emphasized in the preliminary design phase.

2.0 Physical Description

The depth of content of this section will vary, primarily with the phase of design, with greater depth of detail in successive phases. In general, the depth of detail should be consistent throughout the description, and should be representative of the level of detail achieved in each phase.

In conceptual descriptions of systems, the system schematic will be emphasized. In conceptual descriptions of facilities, facility layout will be emphasized as well as schematic diagrams where applicable. Conceptual descriptions of components will emphasize basic component design, including mechanical, electrical, or other considerations necessary to establishing the concept.

In any case, the degree of detail included should give a clear understanding of the salient features of the reference system, component, or facility. In the Preliminary and Final Design phases a full description of the engineered system, component, or facility should be given. This section will receive continuing emphasis during all stages of design since it is the focal point for all design efforts.

3.0 Safety Considerations

Those safety considerations contributing to concept selection will receive emphasis during conceptual design, and will be presented in sufficient detail to adequately support the selected concept.

This section will receive increasing emphasis in Preliminary and Final Design Descriptions, since it will be a primary reference for the Preliminary and Final Safety Analysis Report, and should be presented in corresponding depth of detail.

4.0 Principles of Operation

This section can be brief in Design Descriptions of facilities and components which may not be "operated" as such, but which have operational features and limitations which should be presented. Considerably more detail should be provided in Design Descriptions of reactor connected systems. The level of detail should not exceed that which is reasonably well defined at that phase of design. This section will receive attention in all phases of design.

5.0 Maintenance Principles

This section will be emphasized in the Final Design Description stage. However, special maintenance considerations which affect concept selection should be emphasized in Conceptual Design Descriptions.

VIII. FORMAT

The Dewey Decimal System is used with a maximum of two decimals or three numbers, in block form. Identification beyond three numbers will be: 1) capitalized letters of the alphabet and 2) arabic numbers. Bullets may be used instead of letters of the alphabet or arabic numbers.

Cover Pages

Preprinted cover pages are available from Configuration Control.

Table of Contents

On the first page of the table of contents a 1.5 inch margin should be left at the top of the page and 1 inch from the sides and the bottom. Page numbers are small roman numerals in the lower right hand corner of the page one-half inch from the bottom of the page and starting one inch from the right hand edge of the paper. The beginning of sections (such as 1.0, 2.0, etc.) titles are in full capitals, all other parts of that section are base capitals. All additional pages to the table of contents will be in the same form except no title is required at the top of the page, and only a one inch margin is required from the top of the page.

Sections

Each section will be started on a new page with a 1.5 inch margin left at the top of the page. Additional pages to a section require only a one inch margin at the top. All pages will have a one inch margin from the sides and the bottom. The Design Description title will appear on the first page in full capitals, and centered, then INTRODUCTION and SECTION 1.0 AND ITS TITLE, underlined, in full capitals, and centered. Additional sections will be identified in the same manner as Section 1.0. Footnotes will be blocked with the body. Footnote symbols are asterisks, daggers, and paragraph symbols to identify the footnote. The page

numbers indicate the section or appendix and then the page of that section (such as Section 1.0 the sixth page will be shown as 1-6). The location is in the lower right hand edge of the paper. All one decimal, title items, will be in full capitals and underlined. Two decimal items will be base capitals and underlined.

Paragraphs are identified by an extra half space.

IX. CONTENT DETAIL

This section of the instructions describes the content of each section of the Design Descriptions. The format of Design Descriptions is given in Section VIII of these instructions.

INTRODUCTION

Include an introductory statement specifying which sections of the Design Description are baseline.

SECTION 1.0 FUNCTIONS AND DESIGN REQUIREMENTS

1.1 FUNCTIONS

This section should list the basic functions i.e., it should tabulate what the system, component, or facility does and its reason for existence.

1.2 DESIGN REQUIREMENTS

An introductory "lead-in" statement may be provided here, for example -- "The following are the Design Requirements of a (system, component, facility) performing the Functions outlined in Section 1.1." Other clarifying statements may be included as necessary.

Design requirements within the following subsections should be sequenced in such a manner as to contribute to a history of the considerations leading to the design selection and the philosophy and rationale used.

1.2.1 Basic Design Requirements

This section should include those design requirements which would be applicable regardless of the design details. For example, it is a design requirement of the Heat Transport System that it remove 400 Mw of heat from the reactor core. Also such items as reliability and quality assurance and safety requirements and design codes that will be used should be stated here.

1.2.2 Concept-Related Design Requirements

This section includes those design requirements placed on the system, component or facility as a result of the concept or design selected. For example, a Design Requirement that cryogenic equipment be designed to minimize danger to personnel results from a concept selection in which cryogenic liquids are required to meet a basic Design Requirement of gas purity control. This type of requirement will not necessarily appear in Conceptual Descriptions, but should be included if specifically identified at that stage.

1.2.3 Firm Design Choices

This portion of the Design Requirements permits specification of firm design choices; for example, the use of an air heat dump or vertical, centrifugal, free-surface pumps in the Reactor Heat Transport System, and will reference the justification for the choice as necessary. This may also include firm choice of design, fabrication or operating methods and procedures as well as equipment.

This section is included in Conceptual and Preliminary Design Descriptions to permit clear definition of those features considered as baseline in reference sections of the Design Description.

This portion of Design Requirements may phase out as design progresses and additional sections of the Design Description become firm, i.e., baseline in nature. For instances, when Physical Description Section (Section 2.0) becomes entirely baseline, there will be no need for continuing to include firm design choices applicable to that section.

SECTION 2.0 PHYSICAL DESCRIPTION

This section will provide a detailed physical description of the design to the extent that it has been developed, and will provide:

1. Description of the system, facility or component
2. Reasons for choosing the reference design
3. Alternate designs considered

Items (2) and (3) above may be included in the design description in its entirety, as a summary of referenced documentation, or included in the appendices.

In Design Descriptions of systems, this section will include a description of the process, the major components descriptions, instrumentation and controls, system schematic diagrams, and system equipment layouts where appropriate, with references to other Design Descriptions as required.

Component Design Descriptions will include only the information required to describe that item, and are not required to include information on related systems or components except as required to clarify interfaces. For example, a design description of the reactor vessel and core would not be required to describe in detail the associated heat transport loops.

Detailed Design Descriptions of facilities will include description of the systems and components constituting the facility with necessary reference to other Design Descriptions.

This section (2.0) will be divided into at least two subsections as follows:

2.1 SUMMARY DESCRIPTION

This section should give a brief description of the system component or facility to acquaint the reader with its general nature including components and the basic operating principles where applicable. It should provide background information to aid in the understanding of the Detailed Description and Principles of Operation.

2.2 DETAIL DESCRIPTION

This section should comprehensively describe the design as it is defined at the existing design phase, and will include sufficient supplementary material, such as schematic diagrams, tabulations, component descriptions, or layouts to provide the reader with a clear, comprehensive picture. It should clarify the implementation of all Functions and Design Requirements, and should fulfill the Design Description objectives not attained in other sections of the Design Description. Information leading to design choices should be included or referenced.

In general, this section should begin with a description of the design which illustrates how the design fulfills the Functions and Design Requirements. In SDD's this would include a description of the process. In FDD's this may include both layout and process descriptions, and in CDD's the basic design and its direct interfaces would be provided. These descriptions should include schematic diagrams,* facility layouts, and basic design drawings as required to adequately describe the system, component, or facility.

*Requirements for schematic diagrams are described in Item F, Appendices in this section.

The above description would be followed by a description of the significant features of the design. In SDD's and FDD's, this would include a description of components and instrumentation and controls as follows:

Components

This section should provide a description of each major component. The description should list the principal characteristics necessary to fulfill the system or facility requirements. The functional location of the component and the intended and incidental effects of the component on the system should be clearly indicated. It should not give construction details except those special features which are required for clarity.

The description of each component should be complete to the extent of forming the foundation of an equipment specification. In the preliminary design phase, this section would form the basis for writing a new specification where no previous component specification can be used. When an equipment specification is available for a component, it should be referenced along with any important modifications necessary to fit individual cases.

Following the descriptive paragraph for each major component outlined above, the design requirements and performance data for the component should be listed (in tabular form if possible).

Minor components of the system such as special valves and relays should be listed in tabular form with information similar to the following:

- a. Component number corresponding to the schematic diagram
- b. Size, type and material of construction

- c. Functional name (brief) such as containment stop valve, D/P isolation valve, scram relay, etc.
- d. Normal and fail position of valves and relays
- e. Specification number and commercial equivalent, if any
- f. Type of connections (welded, brazed, threaded, etc.)
- g. Pressure, temperature, voltage and current ratings, as applicable
- h. Special requirements such as position indicators, set pressures on relief valves, etc.

Instruments and Controls

These sections should describe operating instruments, indicating instruments, controls, alarms and protective devices (i.e., circuit breakers, interlocks, etc.) associated with the system operation. It is expected that a portion of the information can be presented in tabular form which would include for each device information such as:

- a. Instrument number corresponding to the schematic diagram (this number should indicate the system to which the device belongs)
- b. Type and purpose (briefly)
- c. Installed spares
- d. Range of measurement, set point, accuracy, etc.
- e. Location of remote indication, control devices, and alarms
- f. Specification number

It may be desirable to describe instrument or control functions in narrative form (e.g., 3-way boiler level control). Also, description of protective devices may be better suited in narrative form. A summary of the effects of instrument errors on system design should be appended or referenced.

SECTIONS 3.0 SAFETY CONSIDERATIONS

This section will include two general sections, 3.1 HAZARDS and 3.2 PRECAUTIONS, and will identify the features that might create hazardous conditions to the reactor plant and personnel, as well as the precautions that are provided. Both nuclear and industrial safety considerations are to be included. Applicable safety evaluations and analyses are referenced here

as appropriate. This section should be reviewed carefully to reveal items which should also be included in Section 1.2, Design Requirements.

SECTION 4.0 PRINCIPLES OF OPERATION

This section should provide a discussion of the principles of operation under various conditions, where such principles are applicable. This section should not give detailed operating procedures. Effects of maximum heat-up and cool-down rates, power transients, etc., and status of standby components should be included where applicable. The section should be divided as follows:

4.1 STARTUP

This section should describe normal startup operation of the system, component or facility, pointing out those operations which precede reaching the normal "steady state" operating status. It should not attempt to include those special operations which accompany the post-construction, initial shakedown operations. These will be specified separately.

4.2 NORMAL OPERATION

This section applies to the operating during normal plant operation. However, if the system, component, or facility is independent of normal plant operation, a statement to this effect should be included here and the specific operation described instead. This section should discuss the sequence of flow (i.e., fluid, electrical, information, etc.) where applicable and the function of components with regard to this flow. The first part of this description should be general in nature. Reference should be made to schematic diagrams or to such appended tabular summaries and graphs of calculated operating conditions as may be required. Information which is covered elsewhere by separate descriptions should be referenced and should not be repeated in this section.

4.3 SHUTDOWN

This section should describe shutdown operations with particular reference to those features of plant operation that vary from normal operational procedures.

4.4 SPECIAL OR INFREQUENT OPERATION

This section should describe operation of the system during special or infrequent operating conditions (such as partial shutdown for maintenance).

4.5 EMERGENCY

This section should describe emergency operations which follows failure. Failures might include such items as loss of pumping power, primary piping failure, loss of instrument power, major secondary system leaks, etc. This should not attempt to evaluate safety, but only provide the action following conceivable emergencies.

4.6 OPERABILITY

This section should describe the various operations required to establish availability of emergency or backup components and operations, for example, pre-startup safety circuit checks, backup diesel power tests, pony motor operation, and others.

SECTION 5.0 MAINTENANCE PRINCIPLES

This section will include an overall description of the anticipated maintenance methods for the system, component, or facility, and should establish general maintenance philosophy. Emphasis will be on those areas requiring unusual maintenance provisions affecting the design, such as remote repair and removal. Successive issues of design descriptions should become more specific on maintenance provisions until at the end of Final Design, a firm foundation is established for writing maintenance procedures, including the development of a preventive maintenance program.

Analysis of the effect of maintenance on plant availability should be covered either by direct analysis or reference to appropriate reliability or availability studies.

Final Design Descriptions will include specification of maintenance constraints required to assure safety and the required design life of the reactor plant. For example, it may be necessary to outline a specific maintenance sequence on control rod assemblies, to assure that the reactor is kept subcritical while performing maintenance.

APPENDICES

This section contains information supplementary to that provided in the test and should include, but not be limited to, the following, where applicable:

- A. Tabulation of component data when more desirable here than in the text of the Design Description.
- B. Graphs, charts, calculations as required for clarity and to substantiate design. Examples are curves of pressure drop versus flow for components and piping in the Reactor Primary Coolant System, sizing criteria for components, etc.
- C. List of references made in the text of the System Design Description, including page numbers. All references made should be available to those using the design description. Earlier issues of Design Descriptions will contain extensive reference to such detailed reports such as Topical Design Reports, design studies, test reports, etc.
- D. Detailed evaluations leading to Design Choices, where such evaluation is not included in Topical Reports.
- E. Failure mode and effect analyses. These may be included either by reference or direct inclusion in the Appendix.
- F. Schematic Diagrams or outline Design Drawings, as appropriate, where such drawings are too extensive and unwieldy to include in the body of the report.

Schematic diagrams will include:

- . A symbol legend
- . Where a numbering system is required for clarity and reference, numbering will be in accordance with standards furnished by the Configuration Control Unit.
- . Where feasible, interfaces with other schematics will be indicated on the schematic diagrams.

- *. Normal position of valves should be indicated; also, fail positions where applicable.
 - *. Packaging side of globe valves and flow direction of check valves should be indicated.
 - *. Where they have been established, pipe sizes should be indicated.
 - *. Instrumentation provisions should be indicated.
 - *. All contact positions should be indicated schematically for multiple position switches.
- G. A table of interfaces showing the physical interfaces between systems and listing interfacing parameters. In earlier issues of Design Descriptions, this will include general interface areas, which will be specifically defined in later issues of Design Descriptions. (See attached format, page 23)
- H. A table of Support Information Requirements, indicating where and how additional information is to be obtained to substantiate the design or to permit design to proceed, including R&D programs. (See attached format, page 24) This table should not include items which are a part of normal design engineering effort, but should identify only those information requirements necessary to fill out incomplete areas at that stage of design, i.e., in a Conceptual Design Description, include only those special information items needed to complete Preliminary Design.
- I. As a supplement to the above table of Information Requirements, it may be appropriate to include an Appendix summarizing problem areas in the design and plans for their resolution. Where necessary to include such an Appendix, it must be adequately referenced in the body of the Description to clarify how these problem areas fit into the Overall Design picture.

*May not be applicable until Preliminary or Final Design Descriptions.

INTERFACES

<u>SYSTEM</u>	<u>INTERFACING SYSTEM</u> <u>NO. TITLE</u>	<u>INTERFACING AREA</u>
The system and subsystem being described should be referenced here, if applicable. For example, where "Service Piping System" is being described, that would be the column heading and "Chilled Water System" would be a column entry.	Interfacing system number and title should be the column entries here; e.g. "25 Heating and Ventilating System" could be the interfacing system.	The interfacing area should be the column entry here; e.g. "Central Cooling System Washers" or "Central Cooling System Coolers" could be the entry for the Preliminary Design Description. The entry "Central Cooling System" could be the entry for the Conceptual Design Description.

SUPPORT INFORMATION REQUIREMENTS

<u>ITEM</u>	<u>INFORMATION REQUIRED</u>	<u>TYPE OF EFFORT</u>	<u>INFORMATION SOURCE</u>	<u>WHEN REQUIRED</u>
Item numbers will be sequential and are intended as an arbitrary reference no. for user convenience.	This column should briefly describe what information is needed to substantiate the design or to allow the design to proceed. For example, "Determination of Required Inert Gas Purity Levels" is a piece of information needed to allow the designer to design the Inert Gas System equipment. Information of this type normally generated in engineering a system should not be entered. For example, "Determination of Chilled Water Flow Rates" would be automatically done by the A-E and thus that information should not be entered in this appendix unless it is of such a nature that the AE or RPD needed it before he could proceed.	This column should describe the process by which the missing information will be obtained. For example, "Design Study" or "Research" would be entered here.	This column should specifically name the agency from which the information is required. For example, "PNL", "A-E", or "RPD" would be entered. If PNL is to generate the information, the 189 task number funding the effort should be entered, also.	This column should state the time when the information is needed and should be as specific as possible.

X. FORWARDING LETTER

The forwarding letter transmitting the System Design Descriptions to RDT should include at least the following information as appropriate:

- a. Resolutions of questions or comments on the preceding submittal.
- b. Identification of significant changes made in the proposed design since the preceding submittal with reasons for the change.
- c. Identification of major differences of special interest between the proposed system and the systems approved for other reactor plants.
- d. Identification of significant design risks on which judgment has been made that further development or analytical effort is not warranted, including the reasons why this risk is being taken and the consequences of failure.

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