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FFTF OPERATIONS
PROCEDURES PREPARATION
GUIDE

Revision 2
December 1976

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PRELIMINARY REPORT

This report contains information of a preliminary nature prepared in the course of work under Energy Research and Development Administration Contract E (45-1)2170. This information is subject to correction or modification upon the collection and evaluation of additional data.

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FFTF OPERATIONS

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Revision 2, December, 1976

FOREWORD

This Guide is intended to provide guidelines for the initial preparation of FFTF Operating Procedures. Not all problems or questions that will be encountered are answered here, however as decisions are made, methods refined and practices and policies formed they should be documented and incorporated into this guide. Cooperation and feedback of all users of the guide is requested in order to make it a more useful tool.

The Procedures Preparation Guide is developed from the plan presented and approved in the FFTF Reactor Plant Procedures Plan, PC-1, Revision 3.

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1.0 General

This section provides a summary of how procedures shall be used and the general operating philosophy for the FFTF plant. It is important that writers of procedures have a clear understanding of these ground rules in order to prepare comprehensive, usable and practical procedures.

1.1 Written procedures shall provide:

- a. An approved preplanned method of conducting operations to minimize reliance on memory.
- b. An available reference for normal and anticipated events.
- c. An aid to ensure consistency in training operators.
- d. An assurance that operations are consistent with the FSAR and Technical Specifications.

1.2 FFTF shall be operated in accordance with written procedures.

1.3 Adherence to procedures is required (see A-10, Watchstanding Instructions). If a procedure is in error, it will be changed before the operation may proceed. A means is provided to propose changes and obtain concurrence and approval (within certain limitations) while on shift (see A-5, Changes to Procedures).

1.4 Discovery of an error in a procedure during study, review or operation should be brought to the attention of the Shift Operation Manager(s). The correction will be processed per A-5.

1.5 Identification of improved/more efficient operating methods or processes should also be proposed as changes to existing procedures.

1.6 A complete set of procedures shall be located and available for use in the Control Room and should not be removed at any time. Implementation date of this set to be made by Mgr. of Operations.

1.7 Copies of procedures applicable to each watchstation shall be located and available for use in the vicinity of each station.

1.8 Audits including surveillance and monitoring on the use, application and compliance with procedures will be made by an internal Operations group. Quality Assurance and Safety Analysis will also make independent audits in this area.

1.9 Steps on checkoff lists appended to certain procedures will be recorded and signed off at the time the operation in the procedure is performed.

- 1.10 New or revised procedures will be routed on a Required Reading List to Operations (see A-13, Required Reading). It is the responsibility of the Shift Operations Manager to ensure each operator on his crew reads and understands the material of concern to him and initials the route slip within a reasonable time.
- 1.11 A review of procedures will be performed periodically by Operations upon completion of the Acceptance Test Program. The frequency of review will be established.

2.0 Preparation of Index

- 2.1 The initial index of operating procedures was developed from procedure outlines in Sections 3.0 and 4.0 of the SDD's and from available knowledge of systems and components. The index was reviewed by various HEDL organizations and by FFTF design contractors. Comments were incorporated and the index submitted to ERDA for approval and identification of procedures requiring ERDA approval. Figure 5-4 illustrates this process for the Operating Procedures. The first index was prepared with the understanding that changes were expected as the SDD's were completed and as experience was gained during the writing process. The index will be periodically up-dated to indicate changes. Major revisions to the index will be resubmitted to ERDA/FFTFPO for approval.
- 2.2 The first listing was indexed by SDD and the procedures sorted by categories, i.e., Plant, Fuel Handling and System, and by type, i.e., Normal, Infrequent and Recovery. Two other categories are the Technical Specification Compliance procedures and the Alarm Response Instructions. The index consists of the procedure/instruction number, the title and the SDD reference paragraph(s).
- 2.3 The procedure identification number is based on the following system:

Administrative Procedures

A-1, number consecutively

Plant Operating Procedures

Normal PN-1, number consecutively

Infrequent PI-1, number consecutively

Recovery PR-1, number consecutively

Plant Fuel Handling Procedures

Normal HN-1, number consecutively

Infrequent HI-1, number consecutively

Recovery HR-1, number consecutively

System Operating Procedures

Normal SN-(SDD No.)-1, number consecutively

Infrequent SI-(SDD No.)-1, number consecutively

Recovery SR-(SDD No.)-1, number consecutively

Technical Specification Compliance Procedures

SC - (SDD No.) - 1 number consecutively

Alarm Responsive Instructions

SI-(SDD Number) - X, Numbered in the sequence with System
Infrequent procedures.

For those SDD's that have several subsystems, e.g., 23, an additional arbitrary identification number follows the SDD number, i.e., 23.1-1.

Due to deletion of procedures since the original index, no special attempt will be made to maintain the sequential numbering system.

- 2.4 The procedure titles that exist in the SDD's should normally be used. If a clearer or more explanatory title is needed, make that proposal to Procedures Control. Where a title does not exist, assign one. There should be consistency in the titles.
- 2.5 Some procedures, chiefly plant procedures, are discussed in several chapters; however, the principal outline should be in only one SDD, e.g., Plant Procedures in SDD 90 are discussed in SDD 51 and other SDD's. These "supplementary information" sections should be cross-referenced to the procedure in the index.
- 2.6 The index shall be tabulated as shown in Figure 2-1.
- 2.7 Combining Alarm Instructions
It was originally intended to prepare separate instructions for each alarm in the plant. Shortly after the start of preparation, excessive duplication was noted. To avoid duplication, the following guidelines for combining alarm instructions were issued. Alarm instructions may be combined when:
 1. Same action on same control panel, except for switch numbers or valve numbers, etc.

2. Identical action any place in the plant.
3. Similar action in different places where time is not important.
4. Where generic procedures will solicit the desired operator response.
5. Same action on different panels for like components.

The instruction for a common alarm in the Control Room will identify all local alarms which may activate the common alarm. An operator is required to observe the local panel, identify the alarm and take action according to the instruction for that local alarm. The instruction for the common alarm procedure will identify action, where applicable, that the Chief Operator must take from the Control Room based on knowledge of the common alarm alone, until he receives information on the local panel. The alarm instructions will be filed in a binder indexed to the the annunciator windows lattice.

- 2.8 One copy of the current index, identified as the Master Index, is maintained by Procedures Control. Changes to the index, e.g., title revision, procedure additions or deletions, shall be recorded in the Master Index.
- 2.9 The system design descriptions, as engineering documents, include the design requirements for operation. Those requirements have been written in the form of an "operating procedure outline." The operating procedures being written in accordance with the reactor plant procedure plan are operations documents which provide specific direction and instruction to the operators for operation of the plant. It is essential that those instructions conform to design requirements for operations as specified in the SDD. It does not follow, however, that there needs to be direct correlation between each procedure and the particular SDD or SDD subsection. The operating procedure should be formulated and written in a manner which best provides clear, concise direction and instruction for operation of the plant and its component parts. In so formulating those instructions reference should be made to the engineering documents to insure that the design requirements for operation have been met. No requirements should be placed or inferred, however, for one-on-one correlation.

Index Tabulation

- A. Administrative Procedures
- B. Plant Operating Procedures
 - 1. Normal

Procedure Number	Title	Paragraph No(s) for Outline	Para. No(s) Supplementary Info. (SDD No)
------------------	-------	-----------------------------	--

- 2. Infrequent
 - 3. Recovery
- C. Plant Fuel Handling Procedures
 - 1. Normal
 - 2. Infrequent
 - 3. Recovery
- D. System Operating Procedures
 - 1. Normal
 - 2. Infrequent
 - 3. Recovery
- E. Technical Specification Compliance Procedures
- F. Alarm Response Instructions

3.0 Preparation of Procedures/Instructions

This section is intended to provide guidelines applicable to all procedures. Specific guidance for each type of procedure will be included in the Format Section.

- 3.1 Operating procedures shall be written in sufficient detail for a trained operator to be able to perform the required operation without direct supervision. Educational information or explanations, normally expected to be known by a trained operator, shall not be included in the procedures. They should contain only essential information and ought to be specific, factual, concise and understandable by personnel responsible for their performance.
- 3.2 Use short sentences of plain and simple English. The use of excessive words to express an idea can and does cause misinterpretation.
- 3.3 The outlines in the SDD's shall be followed for technical direction and guidance. Because the outline format varies considerably between SDD's, the format for the detailed procedures shall be as established in the Procedures Plan and further elaborated in Section 4.0 of this Guide. Similarity and consistency should be maintained for each type of procedure.
- 3.4 It is expected that each writer of detailed procedures will communicate directly with the cognizant SDD engineer while preparing procedures. The cognizant engineer for each SDD is identified in the SDD Status Report issued periodically by Engineering.
- 3.5 The procedure writer should use procedure outlines with a questioning mind and whenever any requirements appear to be unnecessary, undesirable or inadequate, resolution is to be sought. It is an obligation to prepare the best possible procedures and all personnel must be aggressive in seeking for ways to improve upon the basic requirements defined within the outlines. There are no restraints on combining outlines within a single SDD or with other SDD's if a more useable procedure results. Likewise, where it is beneficial, outlines for an initially identified infrequent operation may be incorporated into a normal operating procedure provided the procedure

PURPOSE or section headings clearly identify the unusual condition. In general operating procedures should be simplified and functionally consolidated where feasible.

- 3.6 Apparent errors or inconsistencies other than typos, etc., found in SDD outlines, will be discussed with the cognizant engineer. If valid, document the difference on a RFPS (Request for Problem Solution - see Figure 3-1; instructions for completing this form are contained in A-2, Plant Operability and Maintainability Review). The cognizant engineer is responsible for making all changes to update the SDD's.
- 3.7 Only one procedure is required to perform the same operation on identical components. It should be written for one component and distinguishing controls, e.g., valves, switches, etc., identified by parenthesis for the second unit, brackets for the third or by using tables. Guidelines are as follows:

The Use of Parenthesis, Brackets, and Tables

The operation of redundant or like components will be handled as follows:

or → •Start WING-FLING-IT-TANK Pump P-1 (P-2) [P-3].

This statement, as written, implies that the person performing this operation should start P-1 or P-2 or P-3, but not more than one of these pumps.

- If one or more than one redundant or like object should be operated, a short statement at the beginning of Section 5.0 is needed, as in the following example:

5.0 INSTRUCTIONS

NOTE: The WING-FLING-IT-TANK Pumps may be operated singly or in multiple pump mode, as required by system load.

- 5.1 Open WING-FLING-IT-TANK Pump Suction Valve V-1 (V-2) [V-3].
- & or → 5.2 Start WING-FLING-IT-TANK Pump P-1 (P-2) [P-3] by turning its control switch, on Panel WFI-1 (WFI-2) [WFI-3], to the FLING-IT position.

- If all three pumps should be started, a short statement at the beginning of Section 5.0 is needed, as in the following example:

5.0 INSTRUCTIONS

NOTE: All three WING-FLING-IT Pumps are required for system operation.

- & ↗ 5.1 Open WING-FLING-IT-TANK Pump Suction Valve V-1 (V-2) [V-3].
- 5.2 Start WING-FLING-IT-TANK Pump by turning its Control Switch, on Panel WFI-1 (WFI-2) [WFI-3], to the FLING-IT position.

- Non-marked, parenthesized and bracketed items will be used only with similarly marked items throughout the procedure.

Example: 1. Open V-1 (V-2) [V-3]
2. Start P-1 (P-2) [P-3]
On Panel WFI-1 (WFI-2) [WFI-3]

- When operating P-1 only, Valve V-1 and Panel WFI-1 are to be used. No other combinations using P-1 are acceptable. (The same rules apply to P-2 and P-3).
- In operating procedures where more than three identical/similar components are involved; use a Table if appropriate to simplify the procedure. Identify in both the Instruction Step and the Table, Column or Row, the equipment involved.

For example:

Column →

Row ↓

Drain Pump	Col. 1 Suction Valve	Col. 2 Discharge Valve	Col. 3 Control Switch	Col. 4 Panel	Col. 5 MCC
P1	23-V-14	23-V-15	CS/P1	C-750	B-78
P2	23-V-16	23-V-17			
P3	---	---	---	---	---
P4	---	---	---	---	---
P5	---	---	---	---	---

Instruction steps should be similar to:

- Verify the suction and discharge valves, Col. 1 and Col. 2 are open.
- Place the Control Switch Col. 3 on Panel Col. 4 in AUTO.
- If more than one table is involved, identify the applicable table by designation, e.g., see Table A for referenced column.

- 3.8 Each procedure shall be written in the logical step-by-step sequence. In sequencing the steps, take into consideration the location from which the operation is performed.
- 3.9 Under certain conditions of operation, particular steps of a procedure may be omitted. These steps will be preceded by a NOTE indicating that they may be omitted if certain conditions (as given in the NOTE) exist. Where such omissions are permitted, ensure all other steps are sequenced properly and are operable.
- 3.10 Do not over-detail steps in the procedure. Keep instructions to direct positive statements. Avoid narrative discussions.
- 3.11 The length of a procedure, as compared to the outline, shall not be a criteria. An outline of several pages could very well result in a single page procedure and vice versa.
- 3.12 The Immediate Action steps of Recovery procedures are expected to be memorized by the operators.
- 3.13 Consideration for design changes -- The Engineering cognizant engineer is usually aware of design changes before the information becomes available to Operations. When starting to write procedures on a new system, it is essential that the cognizant engineer be contacted and communications established regarding any changes which might affect the procedure work. If this direct contact with the cognizant engineer fails to work, Operations will make formal contact with Engineering to obtain the desired results.
- 3.14 When writing procedures, ensure that manufacturers' O&M manuals are consulted when applicable. If not available at the time, go back and review the procedure when the manual is available. Pay particular attention to warning or caution notes from the manufacturers' written instructions.

- 3.15 In a few cases, component operation described in O&M Manuals may be included or referenced in the operating procedure. When system or plant effects must be factored into the procedure, then material from the O&M Manual should be extracted and a comprehensive instruction provided by the operating procedure. Normally the operating procedures should not require reference to the O&M Manual to carry out the procedure.
- 3.16 Maintenance - Operations interface in operating procedures.
- a. Place an asterisk (*) in front of steps in an operating procedure which require action to be performed by Maintenance.
NOTE: Normally the function to be performed by Maintenance will also be specified in a Maintenance document, e.g., a maintenance procedure, O&MM, welding procedure, etc.
 - b. Identify the asterisk function under the first step of the Instruction Section, i.e.:
5.0.1 *Indicates steps to be performed by maintenance personnel.
 - c. Ensure such steps are really a maintenance function and not an Operations responsibility.
- 3.17 The procedures should be consistent in all steps where data and/or operating parameters are verified. This should be accomplished by recording the parameter value rather than by an initial or checkmark.
- 3.18 Signoff steps should be consistent, using initials to indicate steps completed and supervisory signatures to indicate completion of an operation or approval to proceed.
- 3.19 Data sheets, check lists, forms etc shall clearly indicate where initials, signature, date or time entries are to be made. Lines, boxes, or other form construction methods shall be provided opposite the step or verification requiring such entries.
- 3.20 During the preparation of procedures, there may be values or other missing information, setpoints, etc., which are not available or cannot be found by Operations. These may be identified by TBD (to be determined). Many TBD's are expected to be resolved during the review cycle; however, those not resolved will be summarized on a TBD Summary Sheet attached to

the approved, e.g., Rev. 0, copy of the procedure. All TBD's in a procedure will be resolved when the procedure is walked through at the time of the Preliminary Walk-Through prior to system turnover. The only exception to this rule is when information to delete the TBD can be obtained only during the acceptance test program.

- 3.21 Normally operating procedures will not specify the necessity of component, equipment or system tagout. The requirements and instructions for applying tags is specified in Administrative Procedure A-1, FFTF Tag-Out Procedure.
- 3.22 In the preparation of procedures refer, when appropriate, to WHAN-M-11, Industrial Safety Manual, for health and safety instructions and guidelines. Exceptions are Administrative Procedure A-18, which covers entry into inert or potentially inert spaces and A-1, which covers tag-out procedures for FFTF.
- 3.23 In applicable procedures requiring access to a Radiation Zone, include in the Precautions and Limitations, Section 4.0, the following:

Entrance to (fill in appropriate area; e.g., cell access area) will be in accordance with a current RWP (Radiation Work Procedure).

Normally, for external exposure a Radiation Zone is any area where the dose rate exceeds 2 mrems/hour. For a complete definition of Radiation Zone, see WHAN-M-8.
- 3.24 Procedure authors will incorporate information and applicable experience obtained on components or equipment during development and/or mockup testing, into the operating procedures. Sources of this information may be the cognizant engineer, the component engineer, HTSF personnel, and procedures or walk through or performance of an operation at HTSF.
- 3.25 In all procedures involving movement of control rods the following two limits and precautions shall be included:
 - a. Whenever any of the CRDM stators are energized, a qualified Reactor Operator shall be at the reactor control console. He shall monitor the indications and operate the controls

at the reactor control console.

- b. Whenever a control rod is being withdrawn the Reactor Operator shall monitor reactor flux, startup rate and rod position to ensure the responses are consistent with each other and within the limitations of the procedure being performed. For each procedure, the Reactor Operator shall be aware of all flux level and startup rate limitations.
- 3.26 Some procedures will be marked as DELAY in the index. These procedures are not needed for the initial plant startup and will be prepared at a later date.
- 3.27 Areas of system operation such as startup, normal operation and shutdown will normally be combined into one procedure. Similarly fill and drain operations are combined into one procedure.
- 3.28 Procedure content should be streamlined to emphasize concise terminology and eliminate unneeded reference to switch numbers and panel numbers. As an example, specify panel locations for the first use of switch, control or indicator but not on successive steps.
- 3.29 Emphasize concise directions when appropriate, for example use: "Start pump" in lieu of "start pump by pushing START button". When required for special case, use: "Start pump by placing switch in test position."

Hanford Engineering Development Laboratory		REQUEST FOR PROBLEM SOLUTION	
1. ORIGINATOR:		DATE:	
2.	PROBLEM ASSIGNED TO:	SHIFT OPERATIONS MANAGER (IF APPLICABLE)	
3.	SYSTEM/EQUIPMENT AFFECTED SDD _____		
4.	PROBLEM DESCRIPTION (ATTACH ADDITIONAL SHEETS, IF REQUIRED)		
5.	PROBLEM RESOLUTION (ATTACH ADDITIONAL SHEETS, IF REQUIRED; REFERENCE OR ATTACH ANY FORMAL CORRESPONDENCE USED TO ATTAIN RESOLUTION.)		
6.	SIGNATURE, RESPONSIBLE ORGANIZATION REPRESENTATIVE		DATE
7.	SIGNATURE, OPERABILITY AND MAINTAINABILITY REVIEW COORDINATOR		DATE

INSTRUCTIONS

1. ORIGINATOR: COMPLETE ITEMS 1 THROUGH 4; RETAIN THE GOLDENROD COLORED COPY. FORWARD TO THE OPERABILITY AND MAINTAINABILITY REVIEW COORDINATOR VIA THE SHIFT OPERATIONS MANAGER FOR YOUR SHIFT. (IF APPLICABLE).
2. SHIFT OPERATIONS MANAGER: REVIEW ITEMS 1 THROUGH 4; SIGN THE FORM AND FORWARD ALL COPIES TO THE OPERABILITY AND MAINTAINABILITY REVIEW COORDINATOR.
3. OPERABILITY AND MAINTAINABILITY REVIEW COORDINATOR: WILL REVIEW THE PROBLEM, DETERMINE THE NECESSITY OF REACHING A RESOLUTION AND DISTRIBUTE THE COPIES AS FOLLOWS:

WHITE AND YELLOW COPIES: TO ORGANIZATION RESPONSIBLE FOR RESOLUTION.

PINK COPY: RETAIN IN TICKLE FILE.
4. ORGANIZATION RESPONSIBLE FOR RESOLUTION: COMPLETE ITEM 5, SIGN AND DATE ITEM 6 AND RETURN BOTH COPIES TO THE OPERABILITY AND MAINTAINABILITY REVIEW COORDINATOR.
5. OPERABILITY AND MAINTAINABILITY REVIEW COORDINATOR: SIGN AND DATE ITEM 7 UPON CONCURRING WITH RESOLUTION. RETURN THE WHITE COPY TO THE ORIGINATOR VIA THE APPROPRIATE SHIFT OPERATIONS MANAGER (IF APPLICABLE). DESTROY THE TICKLER COPY AND FILE THE REMAINING COMPLETED ACTION COPY.

4.0 Format of Procedure

- 4.1 Each procedure will have a title page similar to the samples attached (figures 4-1, 4-2, and 4-3). The title page indicates the concurrence/approval of the procedure and the required concurrence/approval for a field change to the procedure. Figure 4-1 shows the title page for a procedure approved only by the Manager, FFTF Operations. Figure 4-2, in addition, allows for concurrence by the Managers, FFTF Engineering, Safety Analysis, Quality Assurance and Plant Safety as applicable. Finally, Figure 4-3 provides for ERDA approval as well as the concurrence signatures of figure 4-2. These three title pages are required; although most procedures will be approved only by the Manager, FFTF Operations, there are other procedures which will require concurrence by Safety Analysis, Engineering, Quality Assurance and Plant Safety. Additionally, there are Plant operating procedures which ERDA will approve.
- 4.2 The title page gives the current revision and date it was issued. The number of this page is i; however, it is not identified on the page.
- 4.3 Page ii is the List of Effective Pages. This page lists the pages and corresponding revision numbers. See the sample page attached (figure 4-4).
- 4.4 The bottom section of the List of Effective Pages sheet will be utilized to document the Procedures Control change Number(s) initiating the revision and to identify cancelled field changes, e.g. Revision 2 incorporated changes per Procedure Control No's 0097 and 0105 including Procedure Field Change OFC 0051. Field Change OFC 0051 is cancelled
- 4.5 Typing on final procedures shall be 1-1/2 spaces. Final procedures shall be printed on one side of the page.
- 4.6 See Appendix I for other General Rules that affect procedure format and content.

4.7 Administrative Procedures

4.7.1 Format for Administrative Procedures

FFTF OPERATIONS

ADMINISTRATIVE PROCEDURE A-No.

1.0 TITLE

The title of the procedure should be descriptive of the subject function or work to which it applies. The title should be as established in the index.

2.0 PURPOSE

The purpose of the procedure should be clearly stated; where necessary, a statement of applicability, discussion, authority or definition may be included to identify the need or reasons for the procedure.

3.0 INSTRUCTIONS

This section of the procedure may be subdivided into logical sections if it provides a clearer understanding of the subject and the application or use. Since a variety of subjects will be covered by the Administrative Procedures, no format breakdown of the Instruction Section has been established, however, consider the following:

- a. Keep instructions relatively short and to the point.
- b. Where a function is to be performed, group the steps in a step-by-step logical sequence.
- c. Do not attempt to cover a multitude of subjects in one procedure.
- d. Provide examples, filled-in sample forms, etc., if understanding is enhanced.
- e. Appropriate caution notes should be added if plant or personnel safety is involved.

4.0 REFERENCES

Include this section when necessary.

4.8 Plant, Fuel Handling, System Normal and Infrequent and
T.S. Compliance Procedures

4.8.1 Procedure Format

1.0 TITLE

The title should be descriptive of the operation to be performed. It should also identify the system, component, or equipment to which it applies. The titles of the procedures should correspond to those established by the Index of Procedures.

2.0 PURPOSE

The purpose of the procedure should be clearly stated. Include a brief summary of what is accomplished in the procedure. An additional statement of application, discussion, authority or definition identifying the reasons for the particular operation may be included for clarification if required.

3.0 PREREQUISITES

This section should identify all conditions which must be in effect (i.e., previously accomplished) and, if necessary and appropriate, those conditions which should not be in effect before this procedure may be performed. These initial conditions provide a starting point and provide continuity within the procedure. The prerequisites should be listed in a manner which can be readily verified or confirmed from data, records, status reports, observations, etc.

4.0 PRECAUTIONS AND LIMITATIONS

Include precautions and limitations that specifically apply and must be observed during performance of this procedure. If a limitation included is a Tech. Spec. limit, it will be specifically flagged by adding: Tech. Spec. 17.XXX, i.e., the paragraph number of FSAR

Chapter 17. Quantitative values shall be specified for limitations. Section 3 of the SDD's, FSAR Chapter 17, and O&M Manual cautions are sources of information for this section.

5.0 INSTRUCTIONS

This section should contain numbered step-by-step instructions in the degree of detail necessary for a qualified operator to perform the required function or task.

Divide the total operation into logical subsections depending upon the complexity of the operation. The subsection heading should briefly indicate what is to be accomplished by the following individual steps, e.g., when the drain line purge is complete, fill the drain line with sodium as follows:

Individual steps should be short, clear and positive. Minimize contingent and/or option statements. Provide identification of equipment, components, valves, instruments, etc., by their number or name. Include appropriate caution notes if plant or personnel safety is involved. The action steps must leave the plant in a stable, safe condition.

6.0 FINAL CONDITIONS

The final plant or system conditions which result upon completion of the procedure should be briefly and clearly stated.

7.0 RECORDS REQUIRED

Identify check-off lists, data forms, accountability records, etc., that document performance and/or required information. Where required, provide instructions for when and how to obtain such information and for disposition of data for evaluation, analysis, etc. Data sheets for TS Compliance Procedures must be completed and retained to document performance and compliance with the Technical Specifications. Apolicable

check-off lists and data forms will be attached to the procedures. Extra copies of these forms shall be on file and available for use when the procedure is performed.

Check-off lists are not required for all procedures; in general check-off lists will be prepared only for those procedures where there is an actual need to document or where a record is required to verify performance.

8.0 REFERENCES

Include under this section the SDD number and the essential P&ID's by number and title and any documents referenced in the text of procedures. Do not include the revision number or date. The latest revision applies. Do not over use this section; restrict the list of references to only those absolutely necessary.

4.8.2 Comments and Clarification

a. Technical Specification Compliance Procedures

The Procedures Index includes a category of procedures for performing periodic tests or checks required by the Technical Specifications, FSAR Chapter 17. The following guidelines apply to these procedures:

1. These procedures are in a separate section of the Index identified as Technical Specification Compliance procedures. The Tech. Spec. paragraph number is listed in the normal SDD paragraph column.
2. Each of these procedures shall have a check-off list attached to the procedure with signoff blanks for each step. The date entry shall be at the top of the list.
3. In the PURPOSE of the procedure, indicate that performance of this procedure is a Tech. Spec. requirement; identify the

applicable paragraph number of Chapter 17, e.g., 17.4.1.1.a.

4. Under the PRECAUTIONS AND LIMITATIONS section list the Acceptance Criteria which will satisfy acceptable completion of the procedure.
5. Under PREREQUISITES of the procedure, include the required special equipment to perform the periodic test if applicable.
6. Under RECORD, include: Forward the completed check-off list to the S.O.M. for review and to the Operations Manager for tabulation and filing.
7. The final approved procedure and check list shall be reproduced on colored paper.
8. It is expected that these procedures shall be more detailed than the normal operating procedure. Include notes and explanatory material as necessary.
9. Compliance procedures prepared by and to be performed by Maintenance will be approved by the Manager of Maintenance as well as the Manager of Operations.

b. Sketches in Operating Procedures

As a general rule, do not include sketches in the operating procedures. Only controlled drawings should be used for plant operation. On a case basis, sketches may be considered if necessary to provide explanation, understanding, generic situations or lack of detail in a P&ID or an O&MM. Such cases should be proposed and discussed with your manager prior to drafting the procedure.

Use the approach that P&ID's are always available for study, markup and use during performance of the procedure.

- c. As a guide for establishing the electrical supply for procedures, use the following:

In Section 3.0 PREREQUISITES

State that the distribution center (specify) that feeds the component(s) to be started up by the procedure has been energized by the applicable electrical procedure. Example: MCC B65 is energized per SN-12-5, Operation of the Lighting System.

In Section 5.0 INSTRUCTION

Verify that the breaker (specify) in the distribution center (specify) that feeds the component(s) is closed. Example: Verify that the P238 circuit breaker in MCC B65 is closed. Information source - the electrical Load List identifies the electrical supplies.

- d. Ensure the Records Required section, section 7, receives proper attention when preparing the procedure and during internal review. Consider carefully any evolution or information obtainable during performance that should be documented in a watch station log or other plant logs; if time is a factor, the start and completion time should be considered.
- e. Check-off lists, where applicable, shall be identified in the Records Required Section. These lists are not required for all procedures; in general, they will be prepared only for those procedures where there is an actual need to document data or where a record is required to verify performance. Plant Operating, Fuel Handling and T.S. Compliance procedures normally will have check-off lists; other procedures will have these lists if required.
 - Check-off lists shall be constructed to clearly indicate where signature, initials, date, time or date are to be entered. Lines, boxes, tables or other methods shall be provided opposite the step number to ensure a space is identified for each required entry.

Where parameters are required to be logged, specify the indicator by number so that readings are taken consistently from one performance to another.

4.9 Alarm Response Instructions

4.9.1 Format for Alarm Response Instructions

An instruction for response to an alarm will be prepared for each alarm identified in the Index. The outlines for these infrequent instructions are in section 4.0 of the SDD's. In general, these instructions are short and to the point in identifying action to mitigate the alarm condition and to restore the affected system(s) to a safe condition. The format is as follows:

ANNUNCIATOR WINDOW CAPTION A (B) [C] OR NAME TAG ON PANEL

The boxed caption identifies the alarm by the description title as shown on the annunciator window or name tag on the panel. Write out abbreviations. Where one instruction covers more than one alarm, use the () and [] for the second and third items. If more than three, refer to a table.

1.0 IMMEDIATE ACTION

1.1 Automatic

Identify automatic actions, if any, that have occurred or may occur. If there are none, specify none.

1.2 Operator

The thought process for preparation of steps in this section should include:

- to verify/confirm the alarm condition with quantitative indication if possible

- to assess the alarm condition for affect on continued operation, other systems, the plant and personnel.

- what is required to mitigate the condition

- what is required to restore or place the affected system in a safe condition.

The steps covering this action should be direct, brief and in the correct logical sequence. Include appropriate caution notes if plant or personnel safety is involved.

- NOTE: During the preparation of the procedure, review the Technical Specification considerations and include where appropriate, the procedural direction to prevent violation of the Technical Specifications. Note that Tech. Specs. are not operating instructions; do not reference them to perform an action.
- NOTE: Some alarms indicate the existence of a casualty event and the required action is to proceed immediately according to the Recovery Procedure. Other alarm conditions may lead to a system or a plant casualty event if mitigation and/or restoration is not readily accomplished. In those cases, the applicable Recovery Procedure will be referenced.

2.0 FOLLOWUP ACTION

Identify action if restoration is extended, i.e., immediate action does not quickly restore normal condition, e.g., for a low water level after the pump has been put on the line, the following action might be to minimize water usage. Obvious corrective action, e.g. investigate and repair, will not be specified. Include special precautions related to plant or personnel safety.

3.0 INDICATIONS

3.1 Indicator

Identify control panel(s) and/or annunciator panel where alarm will be indicated by panel number and location. There may be one, two, or more locations; e.g., common trouble alarm, a local indication and possible a remote indication. Include, if applicable, the Control Room common alarm annunciator group designation, and the row and column for the specific alarm. Do not designate a matrix for local alarm panels.

3.2 Sensor

Identify sensor element(s) by number, e.g., PSL-70012.

3.3 Setpoint

Specify the alarm setpoint(s).

4.0 SYMPTOMS

List probable indications and/or visible evidence indicative of the effect of the alarmed malfunction;

These statements should be entirely generic, short and to the point.

5.0 REFERENCE

Include the SDD number and the essential P&ID's by number and title.

4.9.2 Comments and Clarification

- a. Some alarm response instructions may require reduction in power or plant shutdown. In such cases, specify in the instruction to take action to investigate the cause of the problem in parallel with the action on the plant. This does not relieve the requirement to believe the instrumentation, but it does allow concurrent investigation, verification and correction when possible and may prevent a long involved shutdown and restart process.
- b. Alarm response instructions and annunciator windows.
 1. The title of the instruction (on the Title Page) need not be identical to the annunciator window.
 2. If the annunciator window legend, as it is now planned (on the Instrument Index) is WRONG or CONFUSING:
 - (1) Write the ALARM (in box) as it should be in the instruction.
 - (2) Notify the cognizant engineer by letter of the required change to the window.
 3. If the annunciator window legend is now marginally, correct, write the alarm corresponding exactly to the window (except spelling out abbreviations). In this case, if it is desirable to change the window after acceptance testing, propose the legend change to the FFTF Operations cognizant systems engineer. At the end of acceptance testing, new windows should be made and installed, and the alarm instruction corrected.

- c. In Common Alarm instructions where the direction is to "take action in accordance with the local alarm instruction ensure that the local alarm and the corresponding instruction--by instruction number--are identified. This may be accomplished by a list, a table or other means that makes the association clear.
- d. In Recovery procedures or Alarm instructions that cover more than one system, condition or case, cover each item individually to improve continuity of the procedure - e.g.

TITLE

Spurious Release of Extinguisher from Fire Extinguishing Systems.

A. Automatic Sprinkler

2.0 Symptoms

- - - -

3.0 Equipment and Systems Affected

- - - -

4.0 Immediate Action

- - - -

5.0 Recovery Action

- - - -

B. Preaction Sprinkler

2.0 Symptoms

- - - -

etc.

TITLE

Vessel/Piping Rupture in Radioactive Argon Processing System

A. Rupture before RAPS Compressors

2.0 Symptoms

etc.

B. Rupture after RAPS Compressors

2.0 Symptoms

etc.

4.10 Recovery Procedure

4.10.1 Format for Recovery Procedures

The casualty event Recovery Procedures will be prepared from outlines in Section 3.0 of the SDD's. The Recovery Procedures and specifically the immediate action section should be brief, specific and must stand alone. They should be written so that a trained operator can perform the necessary action independent of other procedures. The degree of detail in these procedures must be supplemented by operator training and drill on the procedures. Operators are required to memorize the immediate action steps of the Recovery Procedures applicable to their watchstations.

The format is as follows:

1.0 TITLE

The title should be descriptive of the casualty event. It should also identify the system, component, equipment, etc., if it is so related. The title should correspond to that established in the Index of Procedures.

2.0 SYMPTOMS

List probable indications and/or visible evidence indicative of the effect of the alarmed malfunction:

- List in order of probable occurrence.
- These statements should be entirely generic, short and to the point.
- The listed symptoms should be only those which could logically appear just before and during the casualty event.
- In general, causes of the event will not be listed as symptoms.

3.0 EQUIPMENT AND SYSTEMS AFFECTED

List the major components and systems which could be adversely affected by the casualty event. Indicate how these items would be affected, i.e., temperature increase, flow decrease,

etc. as a result of the event.

4.0 IMMEDIATE ACTION

4.1 Automatic

Identify the automatic actions, if any, that have occurred or will probably occur. If there are none, specify none.

4.2 Operator

List the immediate action to be taken by operators for operating controls or confirmation of automatic actions, that are required to stop the degradation of conditions and mitigate the consequences of the casualty event. Normally this action should be listed sequentially in the order performed; however, in actuality several items may be initiated concurrently or within a very short time interval. Include appropriate caution notes if plant or personnel safety is involved.

NOTE: During the preparation of the procedure, review the Technical Specification considerations and include where appropriate, the procedural direction to prevent violation of the Technical Specifications. Note that Tech. Specs. are not operating instructions; do not reference them to perform an action.

5.0 RECOVERY ACTION

List the steps required to restore the system or plant to a known, safe condition, to prevent propagation and to assure personnel safety.

6.0 FOLLOWUP ACTION

Include any followup and diagnostic action as appropriate to identify the causes and the required corrective action.

Under the Immediate Action-Operator, Recovery Action and Followup Action, if there are actions that can vary dependent upon combinations or indications, alarms or annunciators, then the action to be taken under each combination should be clearly identified.

FIGURE 4-1

E X A M P L E O N L Y

FFTF OPERATIONS PROCEDURE

TITLE PAGE

Operating Procedure

SN-25.20-1 STARTUP, OPERATION & SHUTDOWN OF CLOSED LOOP CELL
Number GAS COOLING SYSTEM Title

0
Revision No.

January 2, 1976
Issue Date

Prepared by: F. M. Ito

APPROVED:

Manager, FFTF Operations

Concurrence/approval to make field changes to this procedure must be obtained from those checked in columns below:			
Manager, FFTF Operations	X		

FIGURE 4-2

E X A M P L E O N L Y

FFTF OPERATIONS PROCEDURE

TITLE PAGE

Operating Procedure

SN-31-3	CONTROL ROD OPERATIONAL TESTS
Number	Title

0
Revision No.

January 2, 1976
Issue Date

Prepared by: W. A. Dautel

Concur by: Manager, Safety Analysis

Concur by: Manager, Quality Assurance

Concur by: Manager, FFTF Engineering

Concur by: Manager, Plant Safety

APPROVED:

Manager, FFTF Operations

Concurrence/approval to make field changes to this procedure must be obtained from those checked in columns below:			
Manager, Safety Analysis Reactor Safety	X	Manager, FFTF Operations	X
Manager, Core Physics	X	Manager, Engineering QA	X
		Manager, FFTF Health & Safety	X

E X A M P L E O N L Y
FFTF OPERATIONS PROCEDURE

TITLE PAGE

Operating Procedure

PN-1

PREPARATION FOR STARTUP

Number

Title

0

Revision No.

January 2, 1976

Issue Date

Prepared by: R. L. Strain

Concur by: Manager, Safety Analysis

Concur by: Manager, Quality Assurance

Concur by: Manager, FFTF Engineering

Concur by: Manager, Plant Safety

ERDA/FFTFPO

APPROVED:

Approval Reference

Manager, FFTF Operations

Concurrence/approval to make field changes to this procedure must be obtained from those checked in columns below:

Manager, Safety Analysis Reactor Safety	X	ERDA/FFTFPO	X
Manager, Engineering Plant Instrumentation & Control	X	Manager, FFTF Operations	X
Manager, Engineering QA	X	Manager, FFTF Health & Safety	X

FIGURE 4-4

LIST OF EFFECTIVE PAGES

Example 1

This format of Effective Page List is used on original procedures issued and subsequent issues when all pages of the procedure are reissued on a revision. Procedures of only a few pages will normally be revised in this manner.

<u>Page No.</u>	<u>Revision No.</u>
i, ii	0
1 thru 13	0

Example 2

This format of Effective Page List is used for subsequent issues of procedures when only individual pages are reissued on a revision. Large procedures having only a few pages affected by the change, will normally be revised in this manner.

<u>Page No.</u>	<u>i</u>	<u>ii</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>
<u>Rev.</u>	2	2	2	0	1	2	2	0	1

NOTE: Only pages which are affected by a revision will have their revision numbers changed. All other pages will keep their previous revision number.

The bottom section of this page will identify the Procedures Control Change Number(s) initiating the revision and to indicate cancelled procedure field changes.

5.0 Review and Approval of Procedures/Instructions

5.1 Terms pertaining to preparation stages are defined as follows:

Draft: The informal review copy containing the originator's input. Reviewed within Operations on an informal basis. The Draft copy may involve several rewrites. (Each rewrite should be dated.)

Preliminary: The first formal copies of the procedure distributed for review, information and/or approval. The preliminary copies will be designated Revision A, B, etc.

Final: The approved copy of the procedure issued for use. The initial issue is Revision 0.

Revised Procedure: A new issue of the final procedure (or revised pages) incorporating changes or additions required to reflect experience in use, plant changes, etc. The revisions are numbered sequentially for each procedure.

5.2 The internal review of the draft procedures within Operations should be comprehensive and thorough. Outside of the cognizant engineer, it is expected the majority of constructive comments will come from within Operations. The method of this review is at the option of the author; however, the following guidelines are suggested:

- For complicated or significant procedures, consider a review meeting with at least two cognizant individuals with the author presenting and defending the procedure. Draft copies should be in the hands of the reviewers at least two days prior to the meeting. These meetings should be short and productive.
- For the majority of normal procedures, independent reviews by two cognizant individuals, or those with interfacing systems, should be satisfactory.

5.3 The procedure will be walked through at the site to provide maximum as-built system input prior to Rev. A issue. Note the walk through date on the pink sheet.

- 5.3 Upon completion of a procedure for issue on a Rev. A, fill in the Procedure Preparation Information Form (pink sheet) (Figure 5-1) and forward it to Procedures Control for filing. Identify individuals performing the internal review of the procedure on this form. This information establishes the sources and revision numbers and will be of use during periodic review of procedures.
- 5.4 Upon completion of the internal review, the preliminary review and final release of the procedure will be accomplished as follows (see Figures 5-6 and 5-7 for flow path):
- a. The preliminary copy will be attached to and distributed with a Routing/Review Form cover sheet (see Figure 5-2). The procedure author is responsible for indicating any additional reviewers as necessary when he submits the Rev. A draft.
 - b. The Routing/Review Form will be completed by Procedures Control with the assistance of the procedure author. The procedure and Routing/Review Form will be sent for duplication and distribution.
 - c. Procedure reviewers will return comments on the Routing/Review Form indicating concurrence to the author. All comments received will be considered. If there are any questions, the author should discuss the comments with the reviewer. Valid technical and constructive comments will be resolved and incorporated if an improvement to the procedure results. If the reviewer and the author cannot resolve the comment to the satisfaction of both parties then the SOM should resolve it with the reviewing section manager. Since comment/resolution letters are no longer in effect, the resolutions of all comments shall be noted in the margin and the comments attached when the procedure is submitted for Rev. 0 typing. The procedure will again be walked through at the site prior to Rev. 0 issue.
 - d. Upon incorporation of comments, the final approved copy will be distributed on a Distribution Cover Sheet (Figure 5-3). Procedures requiring concurrence signoff by groups other than Operations will be routed for signoff (see Figure 5-8).

- e. For procedures requiring ERDA approval, the procedure will be submitted to ERDA by formal letter after having obtained final HEDL approval. Upon obtaining ERDA approval, the procedure will be forwarded for duplication and distribution. Transmittal will be made by Figure 5-3.
 - f. The Procedures Control group will be responsible for maintaining files on each procedure, including all revisions, field changes, and original documents.
- 5.5 During the early stages of the task, it will be necessary to take a continuing broad view of all procedures to ensure consistency and common approach. Good examples of each type of procedure will aid this cause.
- 5.6 Attached at the end of this section are diagrams indicating the flow path for the preparation, review, approval, and issue of Administrative and Operating Procedures (Figures 5-6 and 5-7). Figure 5-5 illustrates the overall review and approval process and procedure change methods.
- 5.7 Administrative Procedures will be transmitted to selected individuals/organizations for review or information depending upon their cognizance with the subject of the procedure. Where an individual/organization can contribute to the procedure due to experience, responsibility, related field, etc., it will be transmitted for review. Where it is necessary to keep an individual/organization informed and aware of the procedure content and progress, it will be transmitted for information.
- 5.8 The distribution for review will be determined individually for each procedure as stated in Paragraph 5.4.a; however, the following guide applies:
- a. Individuals or Organizations will review where they have a responsibility for specific areas of the procedure, e.g., Safety Analysis.
 - b. Individuals or Organizations will review where they have special interest or concern for methods, processes, equipment or related fields.
 - c. Procedures involving major components should be reviewed by the HEDL Cognizant Components Engineer in addition to the normal distribution. If not known, the Engineering Cognizant Engineer will identify this individual.

- d. Individuals or Organizations who have functional responsibility, e.g., QA.
 - e. Individuals or Organizations who need to know of procedure content, progress and status.
 - f. Administrative Procedures will be distributed to Engineering for information through the Manager, Engineering Administration.
- 5.9 Administrative Procedures and all changes there-to shall be approved by only the Manager of Operations.
- 5.10 Concurrence of all Plant Operating procedures by Engineering and Safety Analysis is required and concurrence by Quality Assurance and Plant Safety is required as appropriate. Concurrence of other sensitive or safety related procedures as agreed upon is required by Engineering, Safety Analysis, Quality Assurance, Plant Safety and Operations.
- 5.11 ERDA/FFTFPO will approve the Plant Operating Procedures (PN, PI, PR).
- 5.12 The method of approving revisions to procedures is described in A-5, Changes to Procedures.
- 5.13 The method of verifying procedures is described in A-27, Operational Verification of Procedures.
- 5.14 When the procedure author reviews the typed procedure for approval, e.g., Rev. 0, he will attach information indicating the comments received from the procedure review and their resolution. This may be in the form of a marked-up copy of the preliminary procedure, a copy of comment letters with resolution penciled in the margin, the Routing/Review Form or any other method to indicate the comments and action taken. Ensure Engineering's comments have been received and resolved. After approval signoff has been obtained, this material will be removed and filed in the procedure file.
- 5.15 All operating procedures will be walked through in the plant prior to submission for Rev. A issue and again prior to Rev. 0 issue. There may be instances where there is little or no hardware installed in the plant; however, in those cases, the walk through/dry run should be done as completely as possible

with what is there. When performing walk throughs consider the coordination and communications required when more than one station is involved. The procedure will again be walked through during the system pre-turnover preliminary walk through.

- 5.16 When proof reading a typed copy of a procedure, use only a blue correcting pencil to indicate corrections. Use lightly as even blue will show on reproductions if the pencil is used with a heavy hand.
- 5.17 People proof reading should not sno-pak out errors. If the procedure has been typed on cards and errors are sno-paked by individuals, the error will still be there the next time the card is run. Identify the correction to the typist and the procedure copy and the card will be changed.

FIGURE 5-1

PROCEDURE PREPARATION INFORMATION

Procedure No. _____

Date _____

Rev. _____ was prepared using the following reference documents:

SDD _____ Section(s) _____ Rev. _____

P&ID No. _____

Rev. _____

Other documents:

Remarks:

Signature

When this form is completed, forward it to Tomi for filing in the procedure folder.

ROUTING/REVIEW FORM

Procedure No. _____

Operations Log # _____

Rev. _____

The attached operating procedure is forwarded for action as indicated.

Please respond no later than _____
(Date)

Return this cover sheet and any comments to WG McKeown, 3703-31-300.

(Author)

(Location)

(Phone)

Manager, FFTF Procedures and
Training

(Date)

Name	Location
**JW Connell	337-1S2-300
**WR Tucker	337-1S8-300
**RP Warrick	337-1S12-300
JH Brewer	3702-31-300
DE Simpson	3764-102-300
LO Westphal	337-2N2-300
WE Taylor	328-121-300
HD Lenkersdorfer	Bldg. 15-400
DI Hulbert	337-2S33-300
AJ Powell	Bldg. 16-400
AJ Rizzo	3763-300
DR Carpenter	Bldg. 14-400

Cog. Eng. _____

I&C _____

Maintenance _____

Safety Analysis Library (2) _____

QA _____

Plant Safety _____

Test Eng. _____

Plant Eng. _____

FFTF Operations _____

ERDA _____

ERDA _____

Cog. Manager _____

Author _____

Field Change Manager _____

* Action	Requested	Concur	C/WC	NC/WC
C or R				
R				
R				
I				
I				
R				
I				
I				
A				
I				
I				
C or R				
A				
C				

Document Services (2)

Signature of Respondent

(Date)

Comments Attached
(if necessary)

ORIGINATOR'S REMARKS:

*R-Review, A-Approval, I-Information, C-Concurrence for plant operating, sensitive or safety related procedures.

**Cross out as applicable.

Operations Log #: _____

Date: _____

Subject: Released Data

To Distribution:

The following attached Data Package is transmitted
for your information and retention.

Number	Title
--------	-------

ARD

F.S. Frantz (1)

HEDL

J.H. Brewer (1)
A.D. Gadeken (1)
W.M. Gajewski (1)
D. Gray (1)
H.D. Lenkersdorfer (1)
R.C. Mairson (1)
W.G. McKeown (12)
C.L. Peckinpaugh (1)
R.E. Peterson (1)
A.J. Powell (1)
J.D. Schaffer (1)
D.E. Simpson/Safety Analysis Library (2)
W.E. Taylor (1)
B.E. Trainor (5)
R.P. Warrick (1)
L.O. Westphal (1)

Document Services (2)

ERDA - FFTFPO

Deputy Director (1)
D.R. Carpenter (1)
RSFO - FFTFPO (1)

OPERATING PROCEDURES INDEX

FIGURE 5-4

-41-
OPERATING PROCEDURE REVIEW AND APPROVAL PROCESS
AND PROCEDURE CHANGE METHODS

FIGURE 5

FIGURE 5- 6

OPERATING PROCEDURE FLOW PATH

1. Procedure for review.

Operations Engineer prepares draft of procedure based on SDD outline, OMM, P&ID, etc.

Establish working relationships with the Cognizant Engineer in Engineering.

Prepare pink Procedure Info. page for file. Walk through the procedure at the site, conduct internal review within Operations and revise as necessary for typing.

Review

Review

Type procedure.

Type Routing/Review Form.

Type Procedure Title Page.

Review typed procedure.

Review.

Sign Routing/Review Form.

Reproduce one copy of procedure and Routing/Review Form.

Prepare procedure file folder and insert above and pink Procedure Preparation Information page.

Log out.

Forward to Duplicating.

Reproduce copies and distribute.

Original procedure and Routing/Review Form returned to Procedures Control.

Cognizant Engineer reviews for concurrence. Others for R or I.

Responsible
Operations Engineer

Responsible Operations Engineer should tickle due date for response and ensure comments are received by memo, marked up copy or by Routing/Review Form showing response.

FIGURE 5- 7

2. Procedure for approval.

Collects and resolves all comments.

Marks up copy of procedure for retyping.

If procedure has TBD's, prepare TBD page.
Walk through the procedure at the site.
Discuss problem comments with Cognizant Engineer or reviewer to avoid delay in approval chain, if required.

Collect comment letters and returned Routing/Review Forms, give to Procedure Control Clerk for file folder.

Retype procedure as required.

Prepare List of Effective Pages.

Complete Distribution Cover Sheet (Fig. 5-3).

Review.
Attach info. indicating comments and resolution.

Review.

Review.

Review.

Signoff Procedure Title Page or transmit for concurrence (Figure 5-8).

Reproduce one copy of procedure and file.

Forward package via Cognizant Engineer, if concurrence of other HEDL organizations or if ERDA approval is required.

See next page if Engineering/ Safety Analysis/ Plant Safety/ Quality Assurance concurrence or ERDA approval required.

To duplicating if only Operations approval required.

Figure 5-7
Page 2

FIGURE 5-8

EXAMPLE OF MEMO REQUESTING ENGINEERING
AND/OR SAFETY ANALYSIS CONCURRENCE

Procedure No. _____

To: Manager, Engineering - via Cog. Engr.	}	Indicate as applicable.
Manager, Safety Analysis		
Manager, Quality Assurance		
Manager, Plant Safety		

The attached operating procedure requires your concurrence. All comments from the initial review of the procedure have been resolved and/or incorporated.

Add when required }	Please sign as indicated on the title page of the procedure and return this package for FFTF Operations approval.
	(and transmittal to ERDA for approval.)

Manager, FFTF Procedures & Training

6.0 Documentation and Records Required

- 6.1 A record file shall be established for each procedure. The procedure transmitted for review and approval shall be the first copy to be retained in the file. All earlier drafts shall be discarded. Under no circumstances should the original copy be removed from the files. Check with Procedures Control for additional copies. Comments and resolutions from the procedure review and approval cycle shall be retained. All changes to the procedure thereafter shall be maintained in the procedure file.
- 6.2 Test Reports shall document the verification of operating procedures required to support the test. Records will be maintained to document procedure verification.
- 6.3 A record of periodic review of the procedure shall be included in the procedure file.
- 6.4 The index of procedures submitted for approval and all changes to the index shall be retained on file.

6.5 Proposed Change Folder in Procedures File

During the period of initial procedure preparation, after an operating procedure has been approved and issued as Rev. 0, it will not normally be up-dated until some period of time, e.g., 3 months prior to anticipated use. During this time, the procedure may become obsolete to some degree due to revisions to the SDD, system changes, available information or for other reasons. Any change which will affect the procedure should be filed in the Proposed Change Folder in each applicable Operating Procedure File.

Although it is necessary to make a thorough review of the procedure and documents which affect it when the procedure is revised (e.g., Rev. B), the Proposed Change Folder provides a means of collecting information as it becomes evident. All personnel have a responsibility to contribute to this file; it is expected the individual responsible for the System/SDD will communicate with the originator of the procedure on possible changes.

The following guidelines apply:

1. The Proposed Change Folder shall be specifically identified (procedure number), and shall have a two prong fastener to hold material.
2. File only material relative to changes to the procedure in this folder. If sending to secretary for filing, mark for Proposed Change Folder.
3. Utilize the Procedure Change Form (see Administrative Procedure A-5) to the extent possible to identify changes to the procedure.
4. A marked-up copy of the procedure may be used; however, indicate the source information for the changes.
5. Use this folder for commitments applicable to the procedure.
6. Use for comments received subsequent to approval.
7. Include in this folder the TBD sheet on the existing procedure.
8. The proposed changes should be evaluated and resolved; those changes to be incorporated will be entered on one Procedure Change Form per A-5. Relative material to be maintained will be transferred from the Proposed Change Folder to the procedure file folder. The Proposed Change Folder should be empty when a revision has been issued.
9. This folder may also be used to collect information for a procedure scheduled for preparation but not yet written. Material will be filed that is required for or will affect the procedure when it is written. In this case, it is important to purge the folder when the procedure is prepared and transfer the relevant material to the Procedure File Folder.

7.0 Agreements and Precedents

This section is provided to locate additional information, direction, agreements and precedents that may be issued during the procedure preparation process.

8.0 Appendices

APPENDIX I

General Rules

1. Procedures will be typed in a standard format, utilizing full page width to a maximum. Paragraph numbering in the procedures shall be as follows:

Procedure Section Headings	1.0	
	2.0	
	3.0	
sub-headings	3.1	
	3.2	
steps		3.2.1
		3.2.2

Restrict if possible numbering to three digits, maximum of four, thereafter use:

A.

B.

1.

2. Or bullets may be used

2. Use of abbreviations and acronyms.
 - a. Use abbreviations, not symbols, to express feet, inch, number and pound.
 - b. Avoid the use of No. before a number unless it must be used to prevent misunderstanding.
 - c. Use abbreviations in tables, figures and lists.
 - d. The same abbreviation form is used for both singular and plural, e.g., 1 ft., 10 ft.
 - e. Only use a period after an abbreviation if it forms a word.
 - f. Identify uncommon acronyms on the first usage in the procedure, with the acronym in parenthesis; thereafter, use the acronym. Common acronyms, such as SDD, FFTF, etc., need not be written out.
3. Use of Cautions and Notes.
 - a. When necessary, emphasis in the form of a NOTE or CAUTION shall be used. Do not over-use. When used they must be perfectly clear.
 - b. Cautions shall appear before the affected step and shall only be used to convey information, not to perform work tasks.
 - c. Cautions within the procedure shall be enclosed within a box.

- d. Notes shall reflect general information which is essential to be highlighted. Notes normally follow the step with few exceptions; however, always ensure the applicable step and note are on the same page.
- e. Cautions shall be used to flag conditions that may be hazardous (potential) to personnel or equipment. Such cautions should not include normal day-to-day Industrial Safety or Health Physics requirements.
- f. Cautions which apply generally to the entire procedure shall be in the Precautions and Limitations section.
- g. Notes shall not normally be repeated. When a note applies to many consecutive steps, the note should appear only once and be worded as: "...during steps _____ thru _____."
- h. Cautions covering the same information shall be repeated as required. However, when a caution applies to many consecutive steps, the caution shall appear only once and be worded as: "...during steps _____ thru _____."
- i. Where the context of a note or caution will be lost or misunderstood, include the information in the affected step.

4. Use of numbers.

- a. Avoid use of Roman numerals where possible.
- b. Spell out all numbers used to introduce sentences.
- c. Use numerals to express limits and tolerances, i.e., $100 \pm 10^{\circ}\text{F}$, $8 \pm 1/8$ in.
- d. Spell out fractions standing alone, except with a unit of measure.
- e. Use a zero before a decimal point not preceded by a number.
- f. Use a comma in all numbers over four digits, except for model, part, serial and drawing numbers.
- g. Use numerals to express measurements, e.g., 6 miles, 10 feet, etc.
- h. Do not express a number in words followed by its numerals in parenthesis.
- i. Do not repeat units of measurements with each of a series of numbers, e.g., use 6 by 12 in., 450 to 500°F, not 6 in. by 12 in., etc.

- j. Express all numbers of a table in numerals.
 - k. Express ranges as 450 to 500°F, not 450-500°F.
 - l. Express ratios with colons, i.e., 1:2.
 - m. Express procedure numbers as PI-2 or PR-7, not PI-02 or PR-07.
5. Use of Nomenclature.
- a. Generally refer to equipment, facilities, tools, parts, etc., by their technical, drawing name tag, name -- not their colloquial/slang expression.
 - b. When the name of an item is quite long and it appears frequently throughout the procedure, its full identification shall be shown on first usage, thereafter a shortened version may be used; however, it must be written the same throughout the procedure. It may be beneficial to develop a list such as.

Component

Written

Spoken

6. Use of Capital Letters.

Apply the following regarding capitalizing letters and words in the procedures:

- a. Capitalize all letters in the title of the procedure.
- b. Capitalize all letters of names, designations, positions, etc., which are direct quotes from the panels, e.g., TANK SELECTOR SWITCH, OPEN, HAND, AUTO, etc.
- c. Capitalize all letters of acronyms.
- d. Capitalize the first letter of names of locations, of panels, of specified systems, equipment, logs, etc., e.g., Sanitary Water System, Main Argon System, Pump House, Reactor Service Building, Diesel Fire Control Panel, Diesel Fire Pump Log, etc.
- e. Do not capitalize words directing action to be performed, e.g., verify, open, check, close, turn, position. etc.
- f. In all procedures, ensure trade names are capitalized, e.g., Mobiltherm.

7. Miscellaneous.

- a. All standard rules for grammar and punctuation shall apply.
- b. The word "verify" shall mean to confirm or substantiate a condition and if not so, make it so, e.g., Verify the fans are running. If not, start the fans.
- c. Valves are "open or opened, close or closed". Valves are not shut.

- d. The word "check" shall mean to determine or observe the existing condition. When used, no action shall be taken to place or change the existing condition without further direction.
- e. Quotation marks shall not be used to set off titles of names.
- f. "Fig" shall be used in place of "Figure".
- g. "Dwg" shall be used in place of "Drawing".
- h. "Psig", "psid" and "psia" shall be used as applicable.
- i. Footnotes shall not be used.
- j. "Gage" shall be used in place of "gauge".
- k. When identifying valves, use their functional name in addition to their number on first usage in procedure; thereafter, only the valve number is used. In tables, the functional name should be associated with the valve number. Use the complete valve number, i.e., 81-V-135 vs. V-135.
- l. Steps governing the manipulation of valves or components should have the instructions first, followed by the list of valves, instruments, etc.
- m. Standardize the method of referencing other procedures in sections of a procedure as follows:
 - per SN-23.6-1, OPERATION OF COOLING WATER SYSTEM.The title is normally included when a procedure is referenced the first time, thereafter use only the procedure number. In a chart or table, if the addition of the title is impractical, use only the procedure number.
- n. In procedures where several cases are involved, use arabic numerals to identify the individual cases, i.e., Case 1, Case 2, etc. At least two different methods are being used currently; consistency is desired. Example:
 - 4.0 -----
 - Case 1. -----
 - Case 2. -----
 - 4.1 -----

See 4.9.2.D for other
use of cases.
- o. When reporting information, plant conditions, etc. the crew members report to the chief operator, not the SOM and/or chief operator.

- p. When instructing the operator to manually scram the reactor the procedure should use the following phrase:
Manually scram the reactor and recover per PR-2, REACTOR SCRAM.
- q. Margin line all changes in review copies after Rev. A; margin line all changes on approved copies (Rev. 1, 2, 3, etc.).
- r. The name of the organization responsible for radiological controls is Health Physics; the individuals who make the surveys, checks, etc are Radiation Monitors.

8. Instrument Valves.

The following information and attachment should be used in conjunction with applicable system fill procedures as follows:

- a. Attachment A should be submitted as an attachment to the fill procedure.
- b. The PRECAUTIONS AND LIMITATIONS section should say that operation of all differential pressure instrumentation valves should be in accordance with Attachment A.
- c. Valve lineups for the differential pressure instrumentation valves should follow the normal valve lineup, e.g.:

VALVE LINEUP
TABLE A

Valve No.	Description	Position	
		Open	Closed
X
X
X
X
X

DIFFERENTIAL PRESSURE INSTRUMENTATION VALVES

NOTE: Valves associated with the following sensors are to be lined up in their normal positions per Attachment A.

Sensor Description

FE-52143
LE-61839
PDE-74391
LE-59972

- d. Steps requiring venting should be in the following format.
X.X.X. Vent the following differential pressure sensors per Attachment A, step 3.

<u>Sensor</u>	<u>Description</u>
FE-52143
LE-61839
PDE-74391

- e. If a system has, in general, a different valve arrangement from that shown in Attachment A, Attachment A should be changed to the more applicable arrangement prior to including it in your procedure.

- f. Identification of Instrument and Root Valves

Root and instrument valves will bear unique numbers based on the instrument served. For example, the root valve number for PI 61102 will be V-PI 61102. Where two or more instrument root valves serve an instrument, valves will be numbered as follows: the upstream root valve will have suffix "A", the downstream root valve will have suffix "B", any equalizing valve will have suffix "E", any upstream instrument valve will have suffix "U", and any downstream instrument valve will have suffix "D". Instrument valves not fitting these conditions shall be suffixed sequentially with an alphabetic letter to not include A, B, E, D or U. However, if a valve(s) physically attached to an instrument or within the instrument case, the valve will be tagged or have stamped on the valve manifold a letter only, but will be listed in the instrument list with instrument number followed by letter. For example, there are seven instrument and root valves associated with FI 68014. These will be numbered V-FI-68014-A, V-FI-68014-B, V-FI-68014-C, V-FI-68014-D, V-FI-68014-E, V-FI-68014-F, and V-FI-68014-U. Again the three valves associated with PSHL 68001 shall be numbered V-PSHL 68001-A, V-PSHL 68001-C, and V-PSHL 68001-F.

OPERATION OF DIFFERENTIAL PRESSURE INSTRUMENTATION VALVES

ATTACHMENT A

The diagram to the right shows a typical arrangement of valves associated with a differential pressure sensor. Slight variances in the arrangement will not invalidate the basic guidelines set forth below.

1. Instrument valves may be operated by maintenance personnel when required by calibration procedures. They will be operated by operations personnel as required for system operation.
2. During system fill evolutions, instrument valves will be in a normal lineup (as shown above).
3. Instrument venting will be accomplished as part of the system fill procedures. This will be accomplished as follows:
 - a. Open the equalizing valve, valve E.
 - b. Crack open the vents, one at a time, until no air comes from them. Then close the vents.
 - c. Close the equalizing valve.
4. If a valve is ever found out of its normal position, open the equalizing valve first. Return all valves to their normal position, closing the equalizing valve last.

APPENDIX II

Proofreader's Marks

The following simplified proofreader's marks shall be used to identify document corrections.

<u>Symbol</u>	<u>Description</u>
----- Spelling; spell out: explanation in the margin shall be used for encircled
----- Delete
----- Move word(s) to place indicated by caret
----- Close up; less space; or no space
----- Take out a letter or character and close up
----- Move left
----- Move right
----- Elevate letter, word, etc.
----- Sink or depress letter, word, etc.
----- Capitalize letter, word, etc.
----- Make letter lower case
----- Make letter and the superlined letters, lower case
----- Transpose letter, word, etc.
STET	----- Restore word(s) crossed out
SS	----- Single space
DS	----- Double space
TS	----- Tripple space
^ or >	----- Caret, insert or space at this point
IP	----- Make paragraph
No IP	----- No paragraph; continue with preceding paragraph
----- Underline
[]	----- Brackets
()	----- Parentheses