RIVER BEND STATION - UNIT 1
APPROVAL SHEET
STATION OPERATING PROCEDURES

NO. OSP-0008 TITLE VERIFICATION AND VALIDATION OF EMERGENCY OPERATING PROCEDURES

SAFETY RELATED ACTIVITIES INVOLVED YES ☒ NO ☐

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TABLE OF CONTENTS

1.0 PURPOSE

1.1 The purpose of this procedure is to guide the administrative process used in verification and validation of the Emergency Operating Procedures (EOPs).

2.0 REFERNCES

2.1 Emergency Operating Procedures Implementation Guideline; INPO 82-016.

2.2 Emergency Operating Procedures Verification Guideline; EOPIA Draft 11/29/82.

2.3 Emergency Operating Procedures Validation Guideline; EOPIA Draft 11/29/82.

2.4 Component Verification and System Validation Guideline; NUTAC Draft 03/03/83.

2.5 Administrative Procedure ADM-0003, Development, Control and Use of Procedures.

2.6 RBS Final Safety Analysis Report.

3.0 DEFINITIONS

3.1 Component Technical Accuracy - A characteristic of the system components which indicates the degree of consistency to source documents.

3.2 Component Verification - The evaluation performed to ensure consistency between the system component and its appropriate source documents.

3.3 Control Room Simulator - A device which dynamically models the plant functions as presented in the control room.

3.4 Emergency Operating Procedures (EOPs) - Plant procedures directing operator actions necessary to mitigate consequences of transients and accidents that cause plant parameters to exceed reactor protection setpoints, engineered safety feature setpoints, or other appropriate technical limits.

3.5 Emergency Operating Procedure Guidelines (EPGs) - Guidelines that provide technical bases for the development of EOPs.

3.6 Mock-Up - Static device (e.g., mode, photos, drawings) which portrays control room hardware and configuration.

3.7 Operator-Plant-Procedure-Training System (System) - To address Emergency Response Capabilities (ERC) the system components used to mitigate the consequences of an emergency conditions are as follows:

3.7.1 The "operator" component consists of the control room operating crew.

3.7.2 The "plant" component consists of the plant as seen from its control room with its instruments and controls. It may either include or not include a Safety Parameter Display System (SPDS).

3.7.3 The "procedure" component consists of the EOP set and supporting system operating procedures (EOP Network).

3.7.4 The "training" component consists of the operator training program.

3.8 Plant Drills Validation - Method of validation whereby actions are carried out during planned real events by control room operating personnel in response to cues from functional on-line equipment in the control room.

3.9 Real Event Operating Experience Review Validation - Method of validation whereby unplanned real events which occur at the utility's own plant as well as at other plants are reviewed and used by the utility to evaluate their system.

3.10 Simulator Performance Validation - Method of validation whereby actions are carried out during a scenario by control room operating personnel in response to cues from simulated equipment in real, fast, or slowed time.

3.11 Source Documents - Documents or records upon which the system components are based.

3.12 Symptoms - Plant characteristics which directly or indirectly indicate plant status.

3.13 System Operational Correctness - A characteristic of the system which indicates the degree to which the components are compatible.

3.14 System Validation - The overall system (operator, plant, procedure, and training) evaluation performed to determine that the system components work together to accomplish the desired results.

3.15 Table-Top Validation - Method of validation whereby personnel explain their step-by-step actions during a proposed scenario to an observer/review team.

3.16 Walk-Through Validation - Method of validation whereby personnel conduct a step-by-step enactment of their actions during a proposed scenario without carrying out the actual control functions.

3.17 Writers Guide for EOPs - A plant document that provides instructions for writing EOPs using good writing principles. This is provided in OSP-0009, "Author's Guide/Control and Use of Emergency Operating Procedures".

## 4.0 EOP VERIFICATION PROGRAM

### 4.1 Responsibilities

4.1.1 The Operations Supervisor has overall responsibility for the EOP Verification Program.

1. Upon request of the Operations Supervisor, Nuclear Plant Engineering will perform a technical accuracy evaluation.

2. Upon request of the Operations Supervisor, the Training Supervisor will perform the training-to-procedure interface evaluation.

### 4.2 Preparation Phase

The preparation phase consists of the following activities:

4.2.1 Designate Personnel

The managers will appoint the necessary personnel as evaluators to conduct the verification. Personnel should be appointed based on operating experience and understanding of plant hardware, the EPGs and the writers guide.

4.2.2 Obtain and Review the EOP Source Documents

The EOP Source Documents listed in the Reference Section will be reviewed by the personnel conducting the verification phase. These documents will be reviewed for completeness, correctness, and applicability.

4.2.3 Review and Update the Evaluation Criteria

The designated personnel will review and update the Verification Checklist (Attachment 1) with reference to their review of the EOP Source Documents. The update may include additions, deletions, or modifications to the evaluation criteria. The updated list will then be forwarded for revision per ADM-0003.

4.3 Verification Phase

In the verification phase the evaluator will:

4.3.1 Make a general review of the EOP using the procedure-specific portion of the evalution criteria, source douments, and all procedures-related justifying remarks provided by the writer (in a format as shown in Attachment 4).

4.3.2 Record his comments in a format as presented in Attachment 3 for procedure discrepancies, including those discrepancies which he feels are not adequately explained in any justifying remarks provided by the writer.

4.3.3 Make a step-by-step review for the EOP using the step-caution-note-specific portion of the evalution criteria, source documents, and any justifying remarks for each step provided by the writer (in a format as shown in Attachment 4).

4.3.4 Record his comments in a format as presented in Attachment 3 for step-by-step discrepancies, including those discrepancies which he feels are not adequately explained in any justifying remarks provided by the writer.

4.3.5 Forward his comments to the EOP writer.

4.4 Resolution Phase

In the resolution phase, the EOP writer will:

4.4.1 Review the evaluator's comments and resolve them either by revising the EOP or by furnishing justifying remarks on Attachment 2.

4.4.2 Update applicable supporting EOP documentation.

4.4.3 Forward the evaluator's comments, the Procedure Change Notices and the updated documentation of his resolutions of the evaluator's comments to the Operations Supervisor.

4.5 Documentation Phase

The documentation developed throughout the process will be maintained. It will consist of the verification and resolution phases, represented by the comments of the evaluators and EOP writers.

## 5.0 EOP VALIDATION PROCEDURE

### 5.1 General

In general, the planning phase consists of the following activities:

#### 5.1.1 Planning for the Validation

1. Designate Evaluator(s) - When a given validation method has been designated as being the most effective method for a given validation session, evaluators who are skilled in plant operations, procedures, training and test evaluation methods will be appointed.

2. Develop the Test Plan - A test plan will be developed which requires consideration of the following:

   a. Purpose of conducting the validation

      1) Specific objective(s) to be tested

      2) Specific principles and guidances to be tested

   b. Selection of scenarios required to satisfy validation objectives to be tested

   c. How EOPs are to be used

   d. Rules for plant personnel and evaluator behavior during validation

   e. Detection and classification of errors

   f. Administration of test plan

#### 5.1.2 Preparing for Validation Trail

In general, the preparation phase consists of arranging for and preparing equipment, materials and personnel necessary for the validation. Specific guidance for preparing such method is given in the section for that method (5.2, 5.3, 5.4 or 5.5).

1. Equipment Preparations - Evaluators will be responsbile for arranging for a seminar room for table-top or arranging for a convenient time in the control room for walk-through or preparing videotape equipment for simulator.

2. Material Preparations - Evaluators will collect EOPs, tech specs, and other source documents for a table-top. Observation and/or debriefing sheets will be modified for the appropriate method. Appropriate event scenarios will be selected from those already written.

3. Personnel Preparations - Plant personnel needed for the validation will be trained on the EOPs prior to the validation test.

5.1.3 Conduct Validation Trial

In general, the validation phase consists of the following activities:

1. Brief Evaluators - The evaluators' leader shall review with the evaluators the responsibilities of each member, clarifying all questions concerning such things as use of forms or use of videotape.

2. Brief Plant Personnel - Evaluators will:

   a. Review the overall objective and techniques of the validation with the plant personnel who are participating

   b. Review the use of the observation and debriefing forms with the plant personnel

   c. Review the event sequences and scenarios and any underlying assumptions about them.

3. Conduct Validation Trial - Each validation trial will be conducted in accordance with the specific guidance provided for each method (5.2, 5.3, 5.4 or 5.5).

   a. Validation methods used for the initial, approved set of EOP's will include the Simulator method.

   b. Validation of subsequent revisions do not necessarily require the simulator method.

5.1.4 Analyze Results

In general, the analysis phase consists of the following activities:

1. Debrief Operators - After each validation phase is completed, an in-depth debriefing between evaluators and participating plant personnel will be conducted. The debriefing should occur immediately after the completion of the validation phase in order to

maximize the effectiveness of the debriefing (see Attachment 7).

The evaluators shall

a. Brief the plant personnel on the purpose and objectives for debriefing.

Plant personnel shall:

Record on Procedure Discrepancy Form (Attachment 2) present problems and discrepancies which they identified during the validation. These verbal explanations may be augmented by videotape displays of problems.

1) Present possible causes for problems.

2) Present potential solutions to problems.

Evaluators shall

a. Present problems and discrepancies identified during validation. Verbal explanations may be augmented by videotape displays.

1) Interview plant personnel as to possible cause(s) for problem(s).

2) Interview plant personnel as to possible solution(s) for problem(s).

3) Present explanation(s) of possible causes and potential resolutions.

2. Evaluate Findings - After the debriefing, data gathered from the validation and debriefing must be analyzed, synthesized, and summarized. EOP discrepancies will be documented and forwarded to the Operations Supervisor.

5.1.5 Resolve Discrepancies

The Operations Supervisor shall:

1. Review EOP discrepancies and potential resolutions which are forwarded to him by the evaluators.

a. Have the EOP's or other Operations Section Procedures revised per ADM-0003.

b. Recommend necessary plant modifications to the Plant Technical Supervisor.

c. Recommend necessary training program changes to the Training Supervisor.

## 5.2 EOP Validation Using Table-Top Method

The table-top method consists of four phases: planning, preparation for and conducting the evaluation, and resolving the EOP discrepancies which are found during the evaluation.

### 5.2.1 Planning the Table-Top Method

The planning phase consists of the following activities:

1. Designate Evaluator(s) - When the table-top method has been designated as being the most effective method for a given validation session, table-top evaluators who are skilled in plant operations, procedures, training and test evaluation methods will be appointed.

2. Review the Test Plan - As part of planning for a table-top, a test plan will be developed. Developing a test plan will require consideration of the following:

   a. Purpose of conducting the validation

      1) Specific objective(s) to be tested

      2) Specific principles and guidances to be tested

   b. Selection of scenarios required to satisfy validation objectives to be tested

   c. How EOPs are to be used

   d. Rules for plant personnel and evaluator behavior during validation

   e. Detection and classification of errors

   f. Administration of test plan

### 5.2.2 Preparing for the Table-Top

After the resources to support the table-top have been selected, the evaluator(s) will:

1. Arrange for use of required EOPs, specifications, and related technical documentation.

2. Arrange for the use of room equipped with adequate surface to layout EOPs and related documentation.

3. Modify the Observation Checklist of Attachment 6 for the table-top.

4. Review event scenarios already developed and select those which are appropriate for the table-top method.

5. Arrange for the use of required plant personnel, giving consideration to the advantages/disadvantages of the following arrangements that can be used with the table top:

   a. One-on-One - One member of the observer/review team and one plant person.

   b. One-on-Crew - One member of the observer/review team and an operating crew.

   c. Team-on-Crew - The observer/review team and the operating crew

   d. Team-on-One - The observer/review team and one plant person.

5.2.3 Conducting the Table-Top

1. The evaluators' leader shall:

   a. Provide the evaluators with a copy of the EOPs to be validated and debriefing forms

   b. Review with the entire team how the table-top will be conducted

   c. Review the overall objective and technique of the table-top with plant personnel who are taking part in the validation

   d. Provide the plant personnel with a copy of the EOPs to be validated.

   e. Review the use of the debriefing form with the plant personnel

   f. Provide plant personnel and evaluators with a copy of the scenarios

   g. Review the event-sequences and scenarios and any underlying assumptions about them.

2. Plant personnel shall:

   a. Use the EOPs as the evaluator(s) lead them through the scenario.

3. At the end of the scenarios, the evaluator should:

   a. Interview the plant person(s) to find out if the EOPs are understandable and sensib[illegible] terms of operating the plant (see Attachmen[illegible]

   b. Administer a test to the plant pe[illegible]on(s) to assess how effectively the participants used the EOPs to complete the scenario.

   c. Discuss the results of the test as another mechanism for uncovering information about the effectiveness of the EOPs

   d. Document discrepancies which are found in the EOPs on a Comment Sheet (Attachment 2).

   e. Forward a copy of discrepancies to the Operations Supervisor.

5.3 EOP Validation Using Walk-Through Method

5.3.1 Review the Test Plan

As part of planning for a walk-through, a test plan will be developed. Developing a test plan will require consideration of the following:

1. Purpose of conducting the validation

   a. Specific objective(s) to be tested

   b. Specific principles and guidances to be tested

2. Selection of scenarios required to satisfy validation objectives to be tested

3. How EOPs are to be used

4. Rules for plant personnel and evaluator behavior during validation

5. Detection and classification of errors

6. Administration of test plan.

5.3.2 Preparing for the Walk-Through

1. After the resources to support the walk-through have been selected, the evaulator(s) will:

   a. Provide the plant personnel with a copy of the EOPs to be validated.

b. Review the use of the observation and debriefing forms with the plant personnel

c. Review with event sequences and scenarios and any underlying assumptions about them.

d. Arrange for use of specific type of equipment.

1) Real equipment

2) Dynamic simulators

3) Mock-up

4) Operator auxiliary equipment (e.g., respirators, protective clothing, radiation detectors) if required

5) Audio/Visual (A/V) equipment

e. Arrange for the use of required personnel

1) Real operating crew

2) Non-operating specialists

3) Observer/review team

4) A/V equipment

f. Modify the Observation Checklist (Attachment 6) for the walk-through.

g. Review event scenarios already developed and select those which are appropriate for the walk-through method.

5.3.3 Conducting the Walk-Through

1. The evaluators' leader shall:

a. Review with the evaluators the responsibilities of each member, clarifying all questions concerning use of forms or use of videotape.

b. Review the overall objective and techniques of the walk-through with plant personnel who are participating in the walk-through.

c. Assure Attachment 6 is completed.

2. Plant personnel shall:

   a. Walk/talk through actions they would take during specific situations covered by the event-seqence(s) and scenario(s).

   b. Describe actions they are taking

   c. Identify information sources used to take actions

   d. Identify controls used to carry out actions, expected system response(s), how response(s) verified, and action(s) to be taken if response(s) did not occur.

3. Evaluator 1 shall:

   a. Direct walk-through

   b. Coordinate efforts of plant personnel, evaluators and video team

   c. Review scenario(s)

   d. Ask appropriate "what if" questions

   e. Note problems and discrepancies encountered by plant personnel.

4. Evaluator 2 shall:

   a. Plot movement pattern of plant personnel using layout diagrams

   b. Track plant personnel usage of EOPs

   c. Record discrepancies and problems encountered by plant personnel on Attachment 2.

   d. Ask appropriate "what if" questions

5. Evaluator 3 (if used) shall:

   a. Track plant personnel usage of EOPs.

   b. Record discrepancies and problems encountered by plant personnel on Attachment 2.

   c. Coordinate A/V with videotape crew

   d. Ask appropriate "what if" questions.

## 5.4 EOP Validation Using Simulator Method

### 5.4.1 Select Simulator Scenarios

In selecting scenarios to be run on the simulator, the planning members of the validation team will examine the entire set of scenarios which had been constucted for all methods of validation, taking into consideration the following:

1. Systems/subsystems used in the scenarios constructed
2. System/subsystems differences between the plant and simulator
3. Systems/subsystems which are of primary importance, secondary importance, or less importance in managing the scenario event
4. See Enclosure 1 for an example of a Simulator Script.

### 5.4.2 Delineate Expected Operator Actions

After the validation team has selected its scenarios for validation by the simulator method, it will identify the procedures which should be exercised by each scenario. The validation team will identify the steps within each procedure which the operator could follow in managing the emergency event. A list of expected operator actions based on this potential path will be prepared as an aid in preparing the Observer Checklist (Attachment 6).

### 5.4.3 Develop Validation Measurement Techniques

Techniques for measuring and recording operator performance will be prepared by planning personnel and used by Observers/Analysts which will permit the following analyses for each scenario:

1. Analysis of the operator's ability to control several plant parameters
2. Comparsion of discrete operator actions to the previously prepared list of expected operation actions
3. Comparsion of the time to perform either a discrete action or a process control task to previously established time frame standards.

The manual validation techniques of videotape and use of Observer Checklists will be prepared for use in the validation phase.

5.4.4 Select Operating Crew

Subsequent to the initial validation program operating crew personnel may be rotated throughout the various validation trials. For any given validation trial, enough crews will be selected and used such that one crew may be debriefed, while another is on the simulator. This will allow immediate operator debriefing and efficient use of simulator time.

5.4.5 Conduct Crew Familiarization

Prior to their session at the simulator, the operating crews to be used for the actual validation trials will be familiarized with the new procedures during plant training sessions. In addition, differences which exist between plant and simulator characteristics such as human factors design, operations design and workspace design will be discussed.

5.4.6 Conduct Operator Orientation

The final preparation for the actual simulator scenario runs will be crew orientation on the simulator. An Observer/Analyst will be assigned for each operator participating, and copies of the simulator observer forms will be amended separately for each.

5.4.7 Conduct Operator Simulator Runs

Prior to each scenario run, Observers/Analysts will be standing by with materials such as previously prepared observer forms, videotape, and/or computer data collection tapes. Each scenario should be performed only once by one of the crews.

Whether or not videotape is used during the run, copies of the Observer Checklists (Attachment 6) will be used by Observers/Anlysts to note the operators' actions during the scenario. A copy of the form for each scenario should reflect the actions of each participant, and it will be used for debriefing the operators. If desired, a Debriefing Checklist (Attachment 7) may be used to document the debriefing.

## 5.5 EOP Validation Using Real Performance Method

### 5.5.1 Planning the Debriefing

The planning phase consists of the following activities:

1. Designate Evaluator(s) - After a real emergency event has occurred on site, real performance method evaluators who are skilled in plant operations, procedures, training and test and evaluation methods will be appointed.

2. Notify Control Room Personnel - Control room operators who had participated in the recent emergency event on site will be notified of the debriefing aimed at gathering information on the usability and operational correctness of EOPs.

### 5.5.2 Conducting the Debriefing

The debriefing should occur as soon as possible after the emergency has been brought under control in order to maximize the effectiveness of the debriefing.

1. The evaluators' lead shall:

   a. Brief plant personnel on the purpose and objectives for debriefing

   b. Present problems and discrepancies which they had identified during the real event

   c. Present possible causes for problems

   d. Present potential solutions to problems

   e. Generate/forward discrepency forms as necessary.

2. Evaluators shall:

   a. Present other EOP problems and discrepancies related to the real event which also have been identified.

   b. Interview plant personnel as to possible cause(s) for problem(s)

   c. Interview plant personnel for potential solution(s) to problem(s)

   d. Present explanation(s) of possible causes and potential solutions

e. Review with the entire team how the table-top will be conducted

f. Complete Debriefing Checklist (Attachment 7)

"END"

| ENCLOSURE - 1 | EXAMPLE OF A SIMULATOR (SCENARIO) SCRIPT |
|---|---|

PURPOSE: To evaluate the transitation from EOP-0001, Step 3.2.2 to EOP-0011.

SCENARIO: An MSIV closure is initiated at 100% power, with multiple control rods failing to scram. The transient upsets the power grid and causes a loss of off-site power. Reactor power is reduced to approximately 40% from rod insertion and loss of reactor recirc pumps.

SIMULATOR SEQUENCE

| EVENT NO. | TIME HR:MIN:SEC | MALFUNCTION | DESCRIPTION | INTENT |
|---|---|---|---|---|
| N/A | 00:00:00 | IC NO. 6 | 100% Power EOL | N/A |
| 1 | 00:01:00 | MAL NO. 63, 71 | MSIV CLOSSURE 60 CRD's Fail | Initiate ATWS Condition |
| 2 | 00:01:09 | MAL 83 | Trip 500KV Supplies | Loss of Off Site Power |
| 3 | 00:01:10 | MAL 40 | Turbine Trips In Overspeed | Loss of all Normal AC Pwr |
| 4 | 00:01:40 | N/A | Reactor Power At Approx 40% | |

1.0 CHECK IF CRITERIA IS MET

| Area | Reference |
|---|---|
| 1.1 Procedure Specific | |
| 1.1.1 Written Correctness | |
| _____ 1. Legibility | |
| _____ a. Are the printed borders visible on all procedure pages? | |
| _____ b. Are the text, tables, graphs, figures and charts legible to the evaluator? | |
| _____ 2. EOP Format Consistency | |
| _____ a. Do the following sections exist in each EOP?<br>Section 1 - TITLE<br>Section 2 - ENTRY CONDITIONS<br>Section 3 - OPERATOR ACTIONS | |
| _____ b. Is the operator actions section presented in a dual column? | |
| _____ c. Is the page layout consistent with the sample page format? | |
| _____ 3. Indentification Information | |
| _____ a. Is the procedure title descriptive of the purpose of the procedure? | |
| b. Does the cover sheet provide the correct: | |
| _____ 1) Procedure Title? | |
| _____ 2) Procedure Number? | |
| _____ 3) Unit Number? | |
| _____ 4) Revision Number? | |
| _____ 5) Number of Pages? | |
| c. Does each page contain the correct: | |
| _____ 1) Procedure Designator? | |
| _____ 2) Revision Number? | |
| _____ 3) PAGE __ OF __ Numbers? | |
| _____ d. Does the procedure have all its pages in the correct order? | |
| 1.1.2 Technical Accuracy | |
| 1. Licensing Commitments | |
| _____ a. Have licensing commitments applicable to EOPs been addressed? | VEG 3.3.5 |
| _____ b. Where differences exist between the licensing commitments and the EOPs, is there documentation to explain the differences? | VEG 3.3.5 |

| Area | Reference |
|---|---|

1.2 Step, Caution, Note-Specific

1.2.1 Written Correctness

1. Information Presentation

_____ a. Are instruction steps numbered correctly?

_____ b. Are operator-optional sequence steps identified?

c. Are instruction steps constructed so that:

_____ 1) Steps deal with only one idea?

_____ 2) Sentences are short and simple?

_____ 3) Operator actions are specifically stated?

_____ 4) Objects of operator actions are specifically stated?

_____ 5) Objects of operator actions are adequately stated?

_____ 6) If there are three or more objects, they are listed? And is space provided for operator check-off?

_____ 7) Punctuation and capitalization are proper?

_____ 8) Abbreviations are correct and understandable to the operator?

_____ d. Do instruction steps make proper use of logic structure?

_____ e. When an action instruction is based on receipt of an annunciator alarm, is the setpoint of the alarm setpoint?

_____ f. Are precautions and cautions used appropriately?

_____ g. Are precautions and cautions properly placed?

h. Are precautions and cautions constructed so that:

_____ 1) They do not contain action?

_____ 2) They do not use extensive punctuation for clarity?

_____ 3) They make proper use of highlighting?

_____ i. Are notes properly used?

_____ k. Are notes worded so that they do not contain action instructions?

_____ l. Are numerical values properly written?

_____ m. Are acceptance values specified in such a way that mathematical operations are not required of the user?

_____ n. Is a chart or graph provided in the procedure for necessary operator calculations?

_____ o. Are units of measurement in the EOP the same as those used on equipment?

| Area | Reference |
|---|---|
| ____ 2. Procedure Referencing and Branching | |
| ____ a. Do the referenced and branched procedures identified in the EOPs exist for operator use? | |
| ____ b. Is the use of referencing minimized? | |
| ____ c. Are referencing and branching instructions correctly worded? | |
| ____ 1) "Proceed to" | |
| ____ 2) "Refer to" | |
| ____ d. Do the instructions avoid routing users past important information such as cautions preceding steps? | VEG 3.2.5 |
| 1.2.2 Technical Accuracy | |
| 1. Source Documents | |
| ____ a. Are EOP/EPG differences: | VEG 3.3.2 |
| ____ 1) Documented? | |
| ____ 2) Explained? | |
| ____ b. Is the EPG technical foundation changed by the EOP step, caution, or note: | VEG 3.3.2 |
| ____ 1) Elimination? | |
| ____ 2) Addition? | |
| ____ 3) Organization? | |
| ____ 4) Alteration? | |
| ____ c. Are correct plant specifics incorportated per EPG? | VEG 3.3.2 |
| ____ 1) Systems? | |
| ____ 2) Instrumentation? | |
| ____ 3) Limits? | |
| ____ 4) Controls? | |
| ____ 5) Indications? | |
| ____ d. Are the entry conditions of EPG listed correctly? | VEG 3.3.1 |
| ____ e. If additional entry conditions have been added, are they: | VEG 3.3.1 |
| ____ 1) Unique entry conditions? | |
| ____ 2) Excessive | |
| 2. Quantitative Values | |
| ____ a. Do the quantitive values, including tolerance bands, used in the EOP comply with applicable EOP source document? | VEG 3.3.3 |
| ____ b. Where EPG values are not used in EOP, are the EOP values computed accurately? | VEG 3.3.3 |
| ____ c. When calculations are required by the EOP, are equations presented with sufficient information for operator use? | VEG 3.3.3 |

| Area | Reference |
|---|---|
| 3. Plant Hardware | |
| _____ a. Is the plant hardware specified in the EOP available for operator use? | VEG 3.3.4 |
| _____ 1) Equipment? | |
| _____ 2) Controls? | |
| _____ 3) Indicators? | |
| _____ 4) Instrumentation? | |

_____
Signature of Reviewer/Evaluator

| ATTACHMENT - 2 | PROCEDURE DISCREPANCY FORM | PD# _____<br>PLANT _____<br>DATE _____ |
|---|---|---|

TRACKING STATUS: _____

REVIEWER: _____ DATE: _____

DATA SOURCE: _____

PROCEDURE NUMBER: _____ 0899 GUIDELINE NUMBER: _____

GUIDELINE AREA: _____ PROBLEM CATEGORY: _____

PANEL ID: _____ STEP NUMBER: _____ STEP DESCRIPTION: _____

DESCRIPTION OF DISCREPANCY: _____

_____

_____

____Control Room/Simulator Difference

RECOMMENDATION TO: _____

____No Change Recommended ____Change ____Investigate

_____

_____

_____

ACTION RESOLUTION: _____

_____

_____

| ATTACHMENT - 3 | STEP-BY-STEP OR PROCEDURE COMMENTS |
|---|---|

| SECTION | DISCREPANCIES NOTED AND REFERENCED | EVALUATION |
|---|---|---|

| ATTACHMENT - 4 | SUPPORTING DOCUMENTATION OF EOP DEVELOPMENT |
|---|---|

EPG STEP:

EOP STEP:

JUSTIFICATION OF DIFFERENCES:

EOP WRITER: _____

DATE: _____

| ATTACHMENT - 5 | PROCEDURE FLOWCHART |
|---|---|

FOR ____ EOP ____ REV ____

| EOP STEP CONDITIONS TO REQUIRE PROCEDURE TRANSITION | PROCEDURE TRANSITION OF REFERENCING/BRANCHING TO |
|---|---|

1.0 Check where criteria is met; N/A any step not observed or not applicable to the specific Validation Method

1.1 Useability

1.1.1 Level of Detail

_____ 1. Did the operator appear to have sufficient information to perform the specified actions at each step?
_____ 2. Did the operator seem uncertain at any division point?
_____ 3. Was the operator able to find needed equipment with the labels, abbreviations, symbols and location information provided him?
_____ 4. Was the operator able to manage the emergency condition with the information provided him?
_____ 5. Were the operator's contingency actions sufficient?
_____ 6. Was the operator able to find referenced or branched procedures?

1.1.2 Understandability

_____ 1. Did the operator appear to have problems with any of the following?
_____ a. Reading the typeface
_____ b. Reading figures and tables
_____ c. Interpolating values on figures and charts
_____ d. Understanding EOP step
_____ e. Understanding caution and note statements
_____ f. Understanding the organization of the EOPs
_____ g. Understanding the EOP step sequence
_____ 2. Did the operator's actions indicate that he had noticed emphasized items in the procedures?
3. Was the operator able to do the following?
_____ a. Find the particular step or set of steps when required
_____ b. Return to the procedure exit point without omitting steps when required
_____ c. Enter the branched procedure at the correct point
_____ d. Exit from the given EOP at the correct branch

1.2 Operational Correctness

1.2.1 Technical Correctness

_____ 1. Did the instructions provided to the operator appear to be appropriate for the emergency conditions?
_____ 2. Were the procedure actions able to be performed on the plant in the designated sequence?
_____ 3. Did the operator find alternate source paths not in the EOPs?
_____ 4. Were the procedure actions able to be performed on the plant at the designated time intervals?
_____ 5. Was the operator able to obtain the necessary information from designated plant instrumentation when required by the procedure?
_____ 6. Did the plant symptoms direct the operator to the applicable EOP by its entry condition?

1.2.2 Compatibility

_____ 1. Did the EOP instructions appear to be compatible with the operating shift manning?

_____ 2. Were the procedures actions able to be performed by the operating shift?

_____ 3. Did the EOPs appear to help coordinate the actions of the operating shift?

_____ 4. Did the operator have to use responses or other equipment not specified in the EOPs to accomplish his task?

_____ 5. Did the plant conditions seen by the operator correspond to what was in the EOP?

_____ 6. Were the instrument reading and tolerances consistent with the instrument values stated in the EOP?

_____ 7. Were the operators able to distinguish the EOP from other procedures in the control room?

_____ 8. Were the EOPs physically compatible with the work situation (too bulky to hold, binding wouldn't allow them to lay flat on the work space, no place to lay the EOPs down to use)?

_____ 9. Was the plant condition compatible with the action which the EOP directed to be performed at a time interval or specified time?

_____ 10. Was the operating shift able to follow the designated action step sequences?

_____ 11. Did the plant conditions allow the operator to correctly follow the action step?

_____
Signature of Evaluator

| ATTACHMENT - 7 | DEBRIEFING CHECKLIST |
|---|---|

1.0 Check Where the Criteria is Met

1.1 Usability

1.1.1 Level of Detail

_____ 1. Was there sufficient information to perform the specified actions at each step?
_____ 2. Were all alternatives explicit at each decision point?
_____ 3. Could the operator use labeling, abbreviations, and location information as provided in the EOPs to find the needed equipment?
_____ 4. Were the EOPs missing information needed to manage the emergency condition?
_____ 5. Were the contingency actions as stated in the EOPs sufficient?
_____ 6. Could the operator use titles and numbers to find referenced or branched procedures?

1.1.2 Understandability

_____ 1. Was the typeface easy to read?
_____ 2. Were the emphasized items noticed?
_____ 3. Were the figures and tables easily and accurately read?
_____ 4. Was interpolation of values on figures and charts difficult?
_____ 5. Were caution and note statements understood?
_____ 6. Was the organization of the EOPs understood?
_____ 7. Was the EOP step understood?
_____ 8. Were the step sequences understood?
_____ 9. Could the operator find the particular step or set of steps when required?
_____ 10. Could the operator return to the procedure exit point without omitting steps when required?
_____ 11. Could the operator enter the branched procedure at the correct point?
_____ 12. Could the operator exit from a given EOP at the correct branch?

1.2 Operability Correct

1.2.1 Technical Correctness

_____ 1. Were the instructions appropriate for the emergency condition?
_____ 2. Were the procedure actions able to be performed on the plant in the designated sequence?
_____ 3. Did the operator find alternate success paths not in the EOPs.
_____ 4. Was the procedure action able to be performed on the plant at the designated time intervals?
_____ 5. Could the operator obtain the necessary information from designated plant instrumentation when required by the procedure?
_____ 6. Did the plant symptoms direct the operator to the applicable EOP by its entry conditions?

1.2.2 Compatiability

_____ 1. Were the EOP instructions compatible with the operating shift manning?

_____ 2. Were the procedure action able to be performed by the operating shift?

_____ 3. Did the EOPs help coordinate the actions of the operating shift?

_____ 4. Did the operator have to use responses or other equipment not specified in the EOPs to accomplish his task?

_____ 5. Did the plant conditions seen by the operator correspond to what was in the EOP?

_____ 6. Were the instrument readings and tolerances consistent with the instrument values stated in the EOP?

_____ 7. Were the operators able to distinguish the EOP from other procedures in the control room?

_____ 8. Were the EOPs physically compatible with the work situation (too bulkly to hold, binding wouldn't allow them to lay flat in work space, no place to lay the EOPs down to use)?

_____ 9. Was the plant condition compatible with the action which the EOP directed to be preformed at a time interval or specified time?

_____ 10. Was the operating shift able to follow the designated action step sequences?

_____ 11. Did the plant conditions allow the operator to correctly follow the action step?

_____
Signature of Evaluator

RIVER BEND STATION
PROCEDURE (CHANGE) TECH. SPEC. REVIEW FORM

PROC. NO. OSP-0008 TITLE Verification And Validation Of

REV. NO. 0 Emergency Operating Procedures

REASON FOR PROCEDURE (CHANGE):

N/A - New Procedure

THE ACTIONS SPECIFIED BY THIS DRAFT PROCEDURE (CHANGE) DO NOT CONSTITUTE AN UNREVIEWED SAFETY QUESTION (as defined in 10 CFR 50.59 (a) (2)) BECAUSE:

SAFETY RELATED ACTIVITIES INVOLVED YES [X] NO [ ]

[X] The actions proceduralize regulatory requirements or commitments.

[X] The actions proceduralize license requirements.

[X] The actions incorporate standard good practices.

[ ] The actions represent an improvement over present procedures.

[ ] The actions do not affect procedures as described in the FSAR.

[ ] Other _____

THE FOLLOWING **ADDITIONAL**, CROSS-DISCIPLINARY REVIEW IS RECOMMENDED:

[ ] ALARA [ ] Operations [ ] Maintenance [ ] Tech Staff [ ] Chemistry

[ ] Security [ ] Administration [ ] Engineering [ ] QA/QC

[ ] Plant Manager [X] Other NONE

PREPARED BY A.O Frediss DATE 4/13/84

TECHNICAL REVIEWER COMMENTS ON ABOVE:

NONE

REVIEWED BY Dan Williams DATE 4/19/84

SOM-001
REV-1

SUPPORTING DOCUMENTATION OF EOP DEVELOPMENT

EPG STEP: PC/P-6

EOP STEP: EOP-0002, Step 3.4.4/C3.4.4

JUSTIFICATION OF DIFFERENCES:

1. The suppression pool is a likely source of thermal energy in the containment and initiating suppression pool cooling can be effective in reducing containment pressure.

2. Suppresion pool cooling is operated in conjunction with the ventilation system to maintain containment temperature below 185 F and pressure <12 Psig.

3. There are no suppression pool sprays in RBS design.

4. There are no drywell sprays in RBS design.

DATE: 1/14/85 EOP WRITER: G A Johnson