Zion Nuclear Station

Recovery Plan

Revision 1

Approved: _____ 6-5-97

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Zion Station

COMMONWEALTH EDISON

ZION NUCLEAR STATION

RECOVERY PLAN

Revision 1

June 5, 1997

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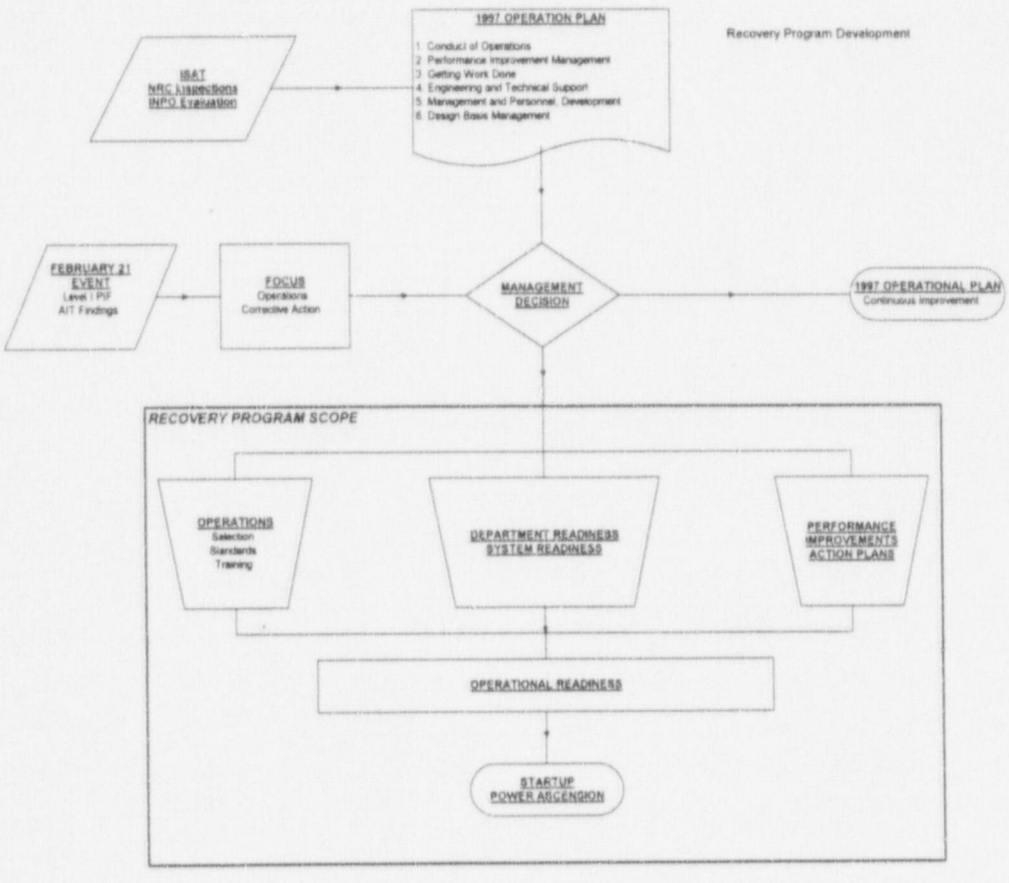
ZION NUCLEAR STATION RECOVERY PLAN

1.0 INTRODUCTION

Early in 1997, Zion began implementing improvements based on the 1997 Operational Plan and was completing the Zion Z2R14 Restart Plan. Following the February reactivity event, Zion management determined that restart would require a more focused effort to improve performance in Operations. To implement this, Unit 1 was shutdown and defueled in order apply greater focus on Unit 2 with resources, selected operators, and more management attention to safe start-up and operation. This Recovery Plan will govern the improvements and readiness preparations for the safe start-up for Unit 2. It is based on existing analysis and actions from the 1997 Operation Plan with emphasis and additional actions to address performance issues related to operations as shown in the following figure.



Not all of the actions identified in the Recovery Plan are essential for the safe start-up and operation of Unit 2. Those actions which are essential to restart are clearly identified as such in the Recovery Plan. The Recovery Plan also contains

additional improvement actions which Zion management intends to complete in the time frame for restart. As the Recovery Plan is implemented, Zion management will continue to review these improvement actions and emerging issues and adjust the Recovery Plan as appropriate.

The objectives of the Recovery Plan are to:

- achieve a step change in Operations performance,
- implement improvements to the corrective action program,
- demonstrate management effectiveness,
- demonstrate the capability of the Zion organization to support operations,
- establish a high level of confidence that important safety equipment will operate as required,
- reduce equipment issues which have challenged the operators, and
- provide assurance through oversight that the results sought are being accomplished.

To accomplish this, the Recovery Program requires actions in a number of areas, principally operations improvement, performance improvement, readiness, and oversight. These actions are contained in a number of Recovery Program elements:

- Operations Improvement plans include operations staffing, operating standards, operator training and remediation, and operational readiness.
- Performance Improvement Programs include corrective action, management, getting work done, and engineering and technical support.
- Readiness Programs include systems readiness, department readiness, and communications.
- Oversight will be provided by Site Quality Verification (SQV), the Zion Safety Review Board (SRB), and a Nuclear Operations Division independent validation.

Specific measures and results for demonstrating readiness have also been identified. These measures will be used to determine the effectiveness of plans, cause adjustments and course correction, and show if further action is necessary to demonstrate readiness. This will facilitate making a definitive determination of readiness for restart.

Formal screening criteria will be used to judge whether specific items, for example, individual issues, maintenance, corrective actions, or operator challenges need to be evaluated, resolved, or eliminated prior to startup. A Zion Restart Panel, chaired by the Zion General Plant Manager, will ultimately review and approve decisions, based on the screening criteria, concerning whether items are necessary or not necessary for start-up. The 1997 Operation Plan may be modified, based on the decisions made by this Panel and with the

approval of the Site Vice President. A Recovery Program Manager, reporting to the Site Vice President, has been assigned to manage the Recovery Program and to ensure that completion of the program accomplishes the performance results required for restart.

Meeting these objectives and completing these Recovery Program elements will demonstrate the capability of Zion to start-up and operate Unit 2 safely. It is also expected that these actions will resolve issues in the NRC's Confirmatory Action Letter and Supplement.

The remaining elements of the 1997 Operational Plan will continue to be implemented. They are the actions through which Zion will achieve the levels of performance expected by Zion management and resolve performance deficiencies identified by ComEd's internal assessments and by NRC's Watch List letter, enforcement actions, and other communications.

2.0 OVERVIEW

To achieve the objectives of the Recovery Program, action plans, programs, and guidelines were established in relevant areas. The action plans were derived from the 1997 Operation Plan but modified and supplemented to achieve the specific objectives for restart. The 1997 Operational Plan contained 6 strategies, (1) Conduct of Operations, (2) Performance Improvement Management, (3) Getting Work Done, (4) Engineering and Technical Support, (5) Management and Personnel Development, and (6) Design Basis Management. The Recovery Plan includes 13 action plans derived—with additional emphasis and actions—from the strategies and associated action plans in the 1997 Operational Plan. The action plans are listed below (the corresponding 1997 Operation Plan strategy is noted in parentheses).

1. Operator Selection (1)
2. Operator Remediation and Training Program (1)
3. Operation's Standards and Expectations (1)
4. Operational Readiness Program (1)
5. Procedures (1)
6. Engineering and Technical Support (4)
7. Material Condition (3)
8. Corrective Actions (2)
9. Off-shift Management Command and Control (5)
10. Surveillance Effectiveness (6)
11. Operating Experience (1)
12. SQV (Site Quality Verification) Independent Assessment (2)
13. Technical Specification Improvement Program (1)

To augment and facilitate implementation of the initiatives provided in the action plans and to ensure readiness to start-up, the following programs and guidelines have been established:

- Department Readiness Assessment Program
- System Readiness Assessment Program
- Restart Scope Management Guideline
- NRC Communication and Interface Plan
- Employee Communication Plan
- Oversight and Independent Verification
- Start-up and Power Ascension Program

Action plans are described briefly in Section 3.0; programs and guidelines in Section 4.0. Action plans, programs, and guidelines are enclosed with the Recovery Plan. Detailed milestone schedules have been developed for each plan and will be maintained and tracked by the Recovery Program Manager.

3.0 ACTION PLANS

The action plans are briefly discussed below. Those elements that are essential for restart of Unit 2 are in ***bold italics***.

Operator Selection

The purpose of the operator selection process is to establish the core set of competencies necessary for Operation's personnel to accomplish a step change in performance, develop a process to evaluate all present Operation's personnel against these competencies, and select those best suited to continue in Operations. The steps used in this process are

- defining clear accountabilities and competencies for all Operations positions,
- selecting individuals for each position,
- assigning crews,
- completing a transition and recovery period, and
- beginning remediation and training.

Operator Remediation and Training Program

Operators will undergo intensive training as a part of their remediation. ***The training will cover***

- ***theory, with special emphasis on reactivity control,***
- ***normal operation—with emphasis on new standards for the conduct of operation, and***

- ***emergency and abnormal operation.***

The training will include classroom and extensive simulator training which will extend to in-plant evolutions during the Operational Readiness Program. Operations and shift management will participate and be subject to the same selection and training as the non-management members of the shift team.

Effective off-shift management interface with the shift crew is essential to overall command and control of plant operation. Standards and approaches for management interaction with shift crews will be developed; managers will undergo training and discussion about the new standards; and performance to new standards will be demonstrated.

Operation's Standards and Expectations

Higher operating standards and expectations will be documented, along with a discussion of the underlying operating philosophy, and implemented immediately. Reinforcement of these standards will begin with Just-In-Time training for the operating crews and continue with formal instruction and evaluation during the Operator Remediation and Training Program. The final element will be the mentoring process during the Operational Readiness Program.

Implementation of these standards will result in improved operator safety focus, better preplanning, oversight, and command and control by operating supervision, and an overall higher level of control-room professionalism.

Operational Readiness Program

The objective of the Operational Readiness Program will be to demonstrate and affirm--by performing routine and non-routine surveillances, tests, and evolutions--the readiness of shift crews, supported by Zion management, to start-up and operate the unit safely and conservatively. After completion of training and necessary preparation, ***the shift crews will resume surveillances. These and other routine and infrequent operations will be used as opportunities to demonstrate new levels of proficiency, adherence to new standards, and readiness to start-up and operate. Demonstration of readiness and performance will be focused on both operators and management. Specific guidelines, measures, and objective standards will be developed and used by Zion and independent observers to evaluate performance of operators, support staff, and management. If any measures or results do not meet expectations, additional evaluation, corrective actions, or demonstration will be completed prior to start-up.***

The Operational Readiness Program will also include

- Formal acceptance of systems from system engineers for start-up,
- Preparation for start-up,
- Shift manager affirmation of readiness to operate,
- Mentoring by industry experienced operators, and
- Observation and oversight by Zion and independent managers.

The Operational Readiness Program (and subsequent Start-up and Power Ascension) will also provide opportunities for

- Independent validation and
- NRC operational readiness assessment.

Every attempt will be made to coordinate readiness activities and ComEd and NRC observation and review opportunities such that, as much as practical, they will be concurrent. The expectation is for performance, observation, and validation of the many tests and evolutions to be completed during the initial phase of the Operational Readiness Program. Of course, the need for additional evolutions to demonstrate readiness further is possible. For this reason, the Operational Readiness Program will include plans for this contingency.

Procedures

The purpose of this action plan is to reduce the potential for challenges to operation and improve the timeliness of needed revisions by implementing new standards for procedural use and adherence. This will provide added support to operators by revising procedures as new standards for procedure accuracy and adherence are enforced. ***These standards will be integrated into the Operator Training Program and the implementation will be assessed during the Operational Readiness demonstration.***

Engineering and Technical Support

This action plan will support conservative plant operations by improving the Operability Determination process and clarifying the interface between Operations and Systems Engineering. To accomplish this

- ***New standards will be set and engineers will be trained on the new standards,***
- ***Review Operability Determinations,***
- ***Revise Open Operability Determinations per New Procedure,***
- ***The interface with Operations and shift operators will be clearly defined,*** and

- Engineering Assurance will take steps to ensure the quality of evaluations.

In addition, the roles and responsibilities and interface agreements will be defined for Engineering support of Operations.

Material Condition

The effective implementation of the Operations Work Control Center (OWCC), which was initiated prior to the recovery program, is an important Recovery Program action that will reduce operator challenges or distractions while improving control of configuration changes necessary to execute maintenance and testing. It will also improve work productivity and contribute to faster improvement of the plant material condition. The effectiveness of the program will be demonstrated. In addition, a number of material condition improvements to enhance the operator working environment will be made.

Corrective Actions

Prior to the development of the Recovery Plan, actions were underway to improve the corrective action process, including:

- institution of Corrective Action Review Boards (CARB),
- additional steps to reinforce management involvement and accountability in the corrective action process,
- strengthening of the industry operating experience program, and
- improvements in the effectiveness of the Plant Operations Review Committee (PORC).

These actions will continue during and after the Recovery Program.

For the Recovery, action plans will accomplish the following:

- CARBs will be instituted for all significant conditions.
- All corrective actions for significant conditions will be completed, unless specifically evaluated and approved as not necessary for start-up by the Zion Restart Panel.
- Steps will be taken to increase further the daily involvement and effectiveness of management in the determination of the significance of identified problems, ensuring the quality of root cause analysis and corrective actions, and accountability for completion of corrective actions.
- The industry operating experience program (for example, generic letters, information notices, and SOERs) will be reviewed to determine that items previously closed were closed effectively and whether any open items must be closed prior to start-up.

- Management effectiveness in PORC will be evaluated and, if necessary, corrective action will be taken to address any significant weaknesses.
- ***An assessment of Corrective Actions will be performed prior to start up reviewing identification, timeliness of actions and prioritization of issues by the station.***

Off-shift Management Command and Control

Off-shift management command and control of shift crews and shift management are important organizational capabilities. This action plan is designed to implement and assess corrective actions to assure that off-shift management executes proper command and control. Specific actions to be taken are

- ***to develop command and control competencies and expectations for management interaction with shift management,***
- ***to define the off-shift management population,***
- ***to train management to these new standards (including simulator exercises), and***
- ***to demonstrate (in the Operational Readiness Program) performance to these new standards.***

Surveillance Effectiveness

For a selected set of surveillance tests, the following will be verified:

- The test procedure actually implements the requirements of the technical specification surveillance requirement,
- The acceptance criteria are clear and understandable, and
- The required modes for performance match the modes of applicability in the technical specification.

Operating Experience

The objective of this action plan is to confirm that appropriate corrective actions have been specified for all relevant and significant industry and Zion specific operational experience issues. To accomplish this, Zion will identify relevant operational experience issues for the period 1992 through 1997, determine applicability to Zion, and evaluate is corrective actions for closed issues were adequate and if action for open issues is required prior to restart.

Technical Specification Improvement Program

The objective of this action plan is to complete all required actions to allow implementation of the Improved Technical Specifications. This includes receipt of approvals from the NRC, incorporation of appropriate changes into operating

procedures and other operating documents, and SQV and PORC review and assessments.

4.0 PROGRAMS AND GUIDELINES

Department Readiness Assessment Program

The Department Readiness Assessment Program will be used to establish organizational capability to support safe start-up and operation. Department heads will lead an organization assessment by

- Forming an assessment team,
- Developing an assessment plan,
- Completing an initial assessment,
- Identifying issues that must be resolved prior to start-up,
- Developing corrective action plans to resolve them,
- Completing the plans, and
- Documenting closure of the issues.

The plan, initial assessment results, and required corrective actions will be reviewed with the Zion Restart Panel (ZRP). Closure of start-up issues and the overall assessment will be documented and also reviewed with the ZRP.

System Readiness Assessment Program

In preparing for start-up of Unit 2 in February, system engineers led teams assessing the readiness of 12 high importance safety systems. While the systems were affirmed ready for start-up at that time, additional steps will be taken as a part of the Recovery Program to re-affirm readiness of those systems. In addition, the assessment will be extended to four more systems (Main Steam, Containment Spray, Reactor Protection, and Annunciators) deemed important to operation by operators. This will serve to reduce operational challenges and to increase confidence in overall system performance.

In addition, various system material condition and engineering items will again be reviewed and screened to evaluate if any are significant and should be resolved or eliminated prior to start-up. These items include the following:

- Corrective maintenance,
- Open Out of Services,
- Operability assessments,
- Temporary alterations,
- Design changes,
- Preventive maintenance,
- Performance tests,
- Control room caution cards
- Operator work-arounds, and
- Engineering requests.

Restart Scope Management Guideline

Preparation for and execution of a safe start-up will be performed by the Zion line organization relying on normal organizational structures using normal procedures and processes. However, some limited special structure and process will be needed to manage the recovery scope and to provide some additional independent oversight for the readiness programs.

Two key Recovery Program organizational elements are the Zion Restart Panel (ZRP) and the Recovery Program Manager. The ZRP is a committee of Zion managers with clear objective higher standards who will provide oversight and validation that consistent conservative decisions are being made about the scope of work required for restart and the readiness to start-up. The Recovery Program Manager will provide coordination for the Recovery Program scope.

Formal two-level screening criteria will be used to judge whether individual issue resolution, corrective actions, or further evaluation are required prior to start-up. Actions resolving safety or operability issues (Level 1) will be completed before start-up. Other issues will be evaluated using a second set (Level 2) of criteria to determine if their resolution is required before start-up. In addition, an assessment of the collective significance of issues not meeting the following criteria will be made.

All evaluations of potential start-up issues will be documented. A database will be used to identify and track formally issues whose resolution is determined necessary for start-up. Restart action closure will be formally documented.

Table 1 - Start-up Screening Criteria

Level 1 Resolves a safety or operability issue.
Level 2 Issues not meeting criterion 1 will be also screened against the following criteria to determine resolution requirements.
2.1 Eliminates a component failure, deficiency, or condition which could result in entry into an LCO Action Statement.
2.2 Resolves a deficiency or condition which: a. could result in failure or inability to perform a required surveillance test during the outage or the subsequent operating period; b. could increase the risk to operation or safety associated with performing a surveillance; c. could result in the failure to meet a license requirement or a commitment to an outside regulatory agency.
2.3 Restores degraded critical components or conditions which could result in a plant transient, power reduction, or shutdown.
2.4 Resolves conditions which have directly resulted in repetitive safety system or power block component failures.

2.5 Restores licensing basis deficiencies to conformance with specifications (e.g., EQ, seismic, environmental, Appendix R.)
2.6 Corrects equipment with design basis deficiencies (i.e., deficiencies in safety-related SSC or other Technical Specification components not in conformance with design basis documents such as the FSAR). Documentation deficiencies may be completed post-outage if justifiable as having no safety impact.
2.7 Corrects deficiencies in configuration management programs, processes, engineering analysis codes or documentation which have a reasonable probability of affecting equipment operability. Documentation deficiencies may be completed post-outage if justifiable as having no safety impact.
2.8 Eliminates conditions which may create an unacceptable potential for personnel radiation exposure, an unplanned release of radioactivity to the environment, or discharge of effluent in excess of limits.

Accountability for completion of the Recovery Program scope will be managed through weekly meetings of all department heads and action plan managers. In addition, other forms of accountability meetings will be held within departments. These meetings will assure timely completion of actions and programs and serve as opportunities for organizational learning.

NRC Communication and Interface Plan

In order to coordinate schedules, to facilitate NRC inspections, and to communicate the approach and progress of the recovery to the NRC and the NRC Restart Panel, a communication, coordination and interface plan will be developed and implemented.

Employee Communication Plan

The success of the recovery and subsequent performance improvement will depend on the understanding and commitment of all employees. For this reason, an employee communication plan will be prepared and executed. It will cover measures for obtaining review of and input to the recovery plan from some employees and communicating the recovery plan content and plan progress. It will outline the use of multiple and redundant channels for two-way communication.

Oversight and Independent Verification

Several methods will be used to insure the effectiveness and quality of the Recovery Program and program results:

- Site Quality Verification (SQV) will develop and implement a formal action plan (Action Plan 12) to provide independent validation of the effectiveness of the Recovery Program and to demonstrate SQV effectiveness.
- The Zion Safety Review Board (SRB) will review the Recovery Plan, evaluate progress and effectiveness of the Recovery Program, and observe performance of the organization during the Operational Readiness Program.
- A team of Nuclear Operations Division (NOD) managers led by an NOD executive independent of Zion will provide independent assessment and validation of readiness of the Zion organization to operate the unit safely.

Start-Up and Power Ascension Plan

When the Zion Restart Panel, the Plant General Manager, and the Site Vice President determine that the unit is ready for restart, the start-up and power operation will be governed by a Start-up and Power Ascension Plan. The plan will provide a deliberate and careful approach to starting, heating, and operating the unit. It will provide for key milestones or hold points, resources, oversight, additional opportunities for demonstration of operator performance, and contingencies for unexpected occurrences.

Other Actions: Appendix A

As a result of the Root Cause Investigation performed by ComEd after the February 21, 1997 event, sixteen (16) Recommendations were made. Zion has assembled specific corrective actions for these Recommendations and listed them in Appendix A. These Corrective Actions will be closed prior to startup.

5.0 PERFORMANCE MEASURES AND EXPECTED RESULTS

The determination of readiness to start-up will be judged against specific performance measures and goals. Measures and goals were determined in conjunction with the development of the action plans and with the development of the overall Recovery Program. The key performance measures, level of performance for restart, and results expected are shown in Table 2.

Table 2 Start-up Readiness Measures and Results

Result	Measure: Level
Error-free operations	(During Operational Readiness Program)
(*Operations peer group measures)	Station event clock resets by Operations*: ≤ 2
	Significant human performance PIFs*: ≤ 4
	Significant OOS errors*: ≤ 2
	Significant procedure adherence PIFs*: ≤ 3
System Readiness & Material Condition (*Operations peer group measures)	
	Operator work-arounds*: ≤ 10 U-2 and Common Unit
	Lit annunciators*: ≤ 4 lit at 100% power (all Corrective Action completed).
	Control room caution cards*: ≤ 10 at Mode 2 to 1.
	Non-outage OOS cards*: ≤ 10 at Mode 2 to 1.
	Control Room Temporary Alterations*: ≤ 3
	Controllers in Manual*: 0
	Control Room Deficiencies*: ≤ 10
	Engineering Requests & Design Changes Required for Start-up: 100 % Completed
	Engineering Requests & Design Changes Required for Start-up: 100 % Completed
Other Measures	
Operability determinations	≤ 8 Open U-2 Operability Assessments
Corrective actions quality	CARB rejection prior to start-up: ≤ 25%
Corrective action timeliness	No Significant corrective actions overdue.

6.0 Additional Elements of the Plan

The following sections of this document contain action plans, program descriptions, and guidelines for the elements of the Recovery Program.

Action Plans

1. Operator Selection
2. Operator Remediation and Training Program
3. Operation's Standards and Expectations
4. Operational Readiness Program
5. Procedures
6. Engineering & Technical Support
7. Material Condition
8. Corrective Actions
9. Off-shift Management Command & Control
10. Surveillance Effectiveness
11. Operating Experience
12. SQV (Site Quality Verification) Independent Assessment
13. Technical Specification Improvement Program

Programs and Guidelines

Department Readiness Assessment Program
System Readiness Assessment Program
Recovery Program Scope Management Guideline
The Start-up & Power Ascension Program (to be developed)

Appendix A: Level I PIF Recommendations and Actions

ZION NUCLEAR STATION RECOVERY PLAN

STRATEGY:	Conduct of Operations
Description:	Establishes safety and effectiveness of operating the plant as the primary focus for the organization. Significantly improves shift crew performance and establishes high performance standards for the conduct of other activities throughout the plant, including maintenance, system performance and radiological protection.
SPONSOR:	Rob Starkey

ACTION PLAN:	1. OPERATOR SELECTION
Description:	Establish the core set of competencies necessary for Operation's personnel to accomplish a step change improvement in performance. Develop the process to evaluate all present Operation's personnel against these competencies and select those best suited to continue as Operators.
PLAN OWNER:	Diana Sorfleet

Action Plan Performance Measures	Action Plan Performance Goals/Standards
Core and position competencies	Training Remediation - Evaluations by management during crew final examinations (pass/fail) - Meet operations human performance goals within the Recovery Plan

Task #	Description	Owner			
1	**OPERATOR SELECTION**	**D. SORFLEET**			
1.1	Formulate the selection methodology	Sorfleet			
1.2	Establish the core and position competencies	O'Connor			
1.3	Assemble the evaluation and review boards	Sorfleet			
1.4	Assemble the interview and employe input questionnaires	Sorfleet			
1.5	Perform employee assessments	Starkey			
1.6	Approval of Operator selections	Mueller			
1.7	Complete crew assignment and schedule transition to new crews	Starkey			

ZION NUCLEAR STATION RECOVERY PLAN

STRATEGY: Conduct of Operations

Description: Establishes safety and effectiveness of operating the plant as the primary focus for the organization. Significantly improves shift crew performance and establishes high performance standards for the conduct of other activities throughout the plant, including maintenance, system performance and radiological protection.

SPONSOR: Rob Starkey

ACTION PLAN: 2. OPERATOR REMEDIATION AND TRAINING PROGRAM

Description: Operators will complete intensive training in theory, with emphasis on reactivity control; normal operation, with emphasis on the new standards for the conduct of operations; and emergency and abnormal operations.

PLAN OWNER: T. Bergner

Action Plan Performance Measures	Action Plan Performance Goals/Standards
Operators understand the significance of actions that change core reactivity and demonstrate the ability to apply these fundamentals in the operation environment.	Written examinations: ≥ 80%
Operators are capable of recognizing abnormal plant conditions and performing tasks during normal, abnormal, and emergency conditions.	Simulator evaluations: Pass/Fail based on Annual Requalification Dynamic Simulator Criteria.

Task #	Description				
2	**OPERATOR REMEDIATION AND TRAINING PROGRAM**				
2.1	Assign Ops Manager Oversite				
2.2	Remedial Training Schedule approved				
2.3	Establish Classroom Space				
2.4	Establish the Shift Mentor Program				
2.5	Develop roles & responsibilities Position Descriptions) for Operation's Shift personnel				
2.5.1	Validate the Position Descriptions				
2.6	Develop roles & responsibilities Position Descriptions) for Operation's support personnel.				
2.6.1	Validate the Position Descriptions				
2.7	Identify Simulator Evaluator Team				
2.8	Inplant support personnel assigned				
2.9	Develop Materials				
2.9.1	Develop Classroom Material				
2.9.2	Fundamentals				
2.9.3	Develop Simulator Scenarios				
2.9.4	Fundamentals Quizzes (6)				
2.9.5	Fundamentals Examinations (6)				
2.9.6	Simulator Examinations (8)				
2.10	Set Crew Rotations/Assignments/1997				
2.11	Verification/validation of scenarios				
2.12	Establish Requal Schedule				
2.13	Establish Restart (JIT) training requirements				
2.14	Establish simulator audit schedule.				
2.15	Implement Remedial Training				

ZION NUCLEAR STATION RECOVERY PLAN

STRATEGY:	Conduct of Operations
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SPONSOR:	Rob Starkey

ACTION PLAN:	3. Operation's Standards and Expectations
Description:	New Operating Standards with clear expectations for the Conduct of Operations will be developed. Reinforcement of these standards will begin with Just-In-Time training for the operating crews, continue with formal instruction and evaluation during the Operator Remediation and Training Program. The final element will be the mentoring process during the Operational Readiness Program.
PLAN OWNER:	G. Vanderheyden

Action Plan Performance Measures	Action Plan Performance Goals/Standards
High standards of performance are established and reinforced for operations activities. Management directions, such as goals, expectations and priorities are effectively used to enable personnel to make decisions, take actions and implement change that contribute to safe and reliable station operation.	Training Remediation - Evaluations by management during crew final examinations (pass/fail) - Meet operations human performance goals within the Recovery Plan

Task #	Description				
3	**OPERATION'S STANDARDS AND EXPECTATIONS**				
3.1	Formulate and publish the Operational Standards				
3.2	Conduct Just-In-Time Training for the Operating Crews				
3.3	Conduct formal classroom and simulator training incorporating these Standards				
3.4	Conduct mentoring for on-shift crews				

ZION NUCLEAR STATION RECOVERY PLAN

STRATEGY:	Conduct of Operations
Description:	Establishes safety and effectiveness of operating the plant as the primary focus for the organization. Significantly improves shift crew performance and establishes high performance standards for the conduct of other activities throughout the plant, including maintenance, system performance and radiological protection.
SPONSOR:	Rob Starkey

ACTION PLAN:	4. OPERATIONAL READINESS PROGRAM
Description:	Demonstrate the readiness of the shift crews, supported by Zion management, to start-up and operate Unit 2 safely and conservatively. Scheduled activities include: normal shift evolutions, surveillances, infrequent evolutions and procedures, abnormal system and equipment lineups and evolutions, and simulated inplant emergencies.
PLAN OWNER:	G. Vanderheyden

Action Plan Performance Measures	Action Plan Performance Goals/Standards
Conservative approach to operations. Control room activities are conducted in a businesslike and professional manner. Shift personnel accurately transfer information during turnover. Operating conditions are effectively controlled and monitored. Shift managers reinforce behaviors that contribute to performance improvements.	Goals to be achieved during demonstration period: Station Event clock resets by Operations ≤ 2 Significant Human Performance PIFs ≤ 4 Significant OOS error ≤ 2 Significant Procedure Adherence PIFs ≤ 3

Task #	Description				
4	**OPERATIONAL READINESS PROGRAM**				
4.1	Develop the Restart Readiness Program plan. The plan will require the performance of scheduled activities that will be in addition to the normal shift routine activities to maintain and operate the plant in Mode 5.				
4.1.1	Establish program objectives. The primary focus is to demonstrate that the shift crew and the supporting organizations can safely and conservatively operate the Zion station.				
Note	Other attributes to be demonstrated are: Operations leadership, interface with supporting organizations, procedure adherence, communications and configuration control.				
4.1.2	Determine success criteria and measurables. These criteria, as Zero procedural errors or no Technical Specification non-compliance, may be quantifiable.				
Note	Other criteria will be subjective as: effective communications, satisfactory logkeeping or shift turnover; adequate pre-evolution briefings, or demonstrated understanding of fundamentals as applied to plant evolutions.				
4.1.3	Evaluate potential evolutions. Routine shift activities will continue. These will involve the operation of Unit 1(Defueled), and Unit 2 (Mode 5).				
4.1.3.1	Scheduled infrequent evolutions may include: 18 month Tech. Spec. Surveillances, draw/collapse a bubble, drain/refill Unit 1 RHR				
4.1.3.2	Scheduled off-normal evolutions may include: Unit crossties as Service Water, Pure Water, cross feeding and specific electrical evolutions.				
4.1.3.3	Scheduled emergency evolutions may include: Fire, Loss of Offsite Power, Hazardous Material Spill, Radioactive Spill.				
4.1.3.4	Infrequent evolutions conducted outside the Control may also be scheduled. These would be based on the JPMs developed for the SRO/RO training.				

Task #	Description				
4.2	Develop the detailed plan. The detailed plan will specify the activities to be accomplished, the different observers to be involved in the evaluations, the evaluation criteria and checklists to be used.				
Note	The process for the review and approval of the results will be detailed in the Program Plan.				
4.3	Schedule all planned activities. The Work Control Center will develop the detailed schedule for these activities.				
4.4	Conduct OPERATIONAL READINESS PROGRAM in accordance with approved Schedule.				
4.5	Operations Manager reviews conclusions and recommendations. He presents the results and his recommendations to the Zion Restart Panel.				

ZION NUCLEAR STATION RECOVERY PLAN

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SPONSOR:	Rob Starkey

ACTION PLAN:	5. PROCEDURES
Description:	Reduce the potential for challenges to operations and improve the timeliness of needed revisions by implementing new standards for procedural use and adherence. These standards will be integrated into the Operator Training Program and the implementation will be assessed during the Operational Readiness Demonstration.
PLAN OWNER:	M. Weis

Action Plan Performance Measures	Action Plan Performance Goals/Standards
The preparation, review, approval and revision of procedures and documents are properly controlled and timely.	Properly approved and technically accurate procedures are available for all Operational evolutions Survey operators for comments on revised procedures. Goal is less than 20% negative comments. Procedure change cycle time: Goal 3 hours for immediate revision.
The policy governing the use of procedures provides direction for when procedures may be used for general guidance or are to be followed step-by-step.	Elimination of temporary procedure changes by 6/20/97.

Task #	Description				
5	**PROCEDURES**				
5.1	Revise written expectations for procedure use and adherence and incorporate into ZAP300.02.				
5.2	Incorporate expectations into the Operator Remediation and Training Program				
5.3	Establish a procedure revision team to support Plant Operations				
5.4	Establish a procedure revision team to support simulator training.				
5.5	Exercise selected GOPs in PHOENIX simulator training and correct all noted deficiencies. Evaluate future corrective actions.				
5.6	Exercise selected AOPs in PHOENIX training and correct all noted deficiencies. Evaluate future corrective actions.				
5.7	Implement Revision 1C of the WOG in accordance with ZAP 110.02 and ZAP 120.03				
5.8	Eliminate temporary changes to Operations procedures except TSIP .				

ZION NUCLEAR STATION RECOVERY PLAN

STRATEGY:	ENGINEERING AND TECHNICAL SUPPORT
Description:	Improves engineering and plant support by prioritizing and managing work necessary to support our plant goals. Addresses long-standing material condition issues and provides more systematic approaches to measuring equipment and system performance, supporting operations and maintenance and correcting plant deficiencies.
SPONSOR:	T. Luke
ACTION PLAN:	6. ENGINEERING & TECHNICAL SUPPORT
Description:	Support improved conservative plant operations by improving the Operability Determination process and clarifying the interface between Operations and System Engineering.
PLAN OWNER:	B. Giffin

Action Plan Performance Measures	Action Plan Performance Goals/Standards
Assessment of revised Operability Determination process by the Engineering Assurance Team to evaluate the effectiveness of the new procedure. Closure of Open Operability Determinations. Survey Operations on the quality and timeliness of support from SE.	Open Operabilities at start up U2 only ≤ 8

Task #	Description				
6	ENGINEERING AND TECHNICAL SUPPORT				
6.1	Operability Determinations				
6.1.1	Revise ZCDM-O				
6.1.2	Review Operability Determinations				
6.1.3	Train supervisors and leads				
6.1.4	Prepare and issue a more user friendly Operability Determination Procedure				
6.1.5	Revise all open Operability Determinations IAW new procedure				
6.1.6	Develop detailed action plans to resolve open Operability Determinations for Unit 2 restart				
6.1.7	Implement Action Plans for task 6.1.6				
6.1.8	Perform self-assessment of the revised Operability Determination Process				
6.2	OPERATIONS SUPPORT				
6.2.1	Define System Engineer Roles and interfaces to maximize support for Operations				
6.2.2	Prepare Interface Agreement between SE and Operations				
6.2.3	Review and obtain concurrence by Station Operations Managers				
6.2.4	Issue Interface Agreement with Operations				
6.2.5	Train System Engineers on the Interface Agreement				
6.2.6	Communicate Interface Agreement to Operations				
6.2.7	Issue SE Support Survey to Operations				
6.2.8	Review Survey results and implement changes to improve the effectiveness of SE support				

ZION NUCLEAR STATION RECOVERY PLAN

STRATEGY:	GETTING WORK DONE
Description:	Improves our fundamental work processes and the management of the work to allow us to eliminate barriers to effective operations and maintenance. Improves equipment and system availability and reliability by reducing work backlogs and maintaining a high state of material condition.
SPONSOR:	T. Kirwin

ACTION PLAN:	7. MATERIAL CONDITION
Description:	Develop and implement the Operations Work Control Center process, refurbish the Work Control Center, the Control Room, the Operation' s Briefing Area and the Operator Ready Room to reduce the potential for operator challenges and improve the management of activities.
PLAN OWNER:	T. Kirwin

Action Plan Performance Measures	Action Plan Performance Goals/Standards
Physical characteristics, environmental conditions, and maintenance of plant control stations support safe and reliable operation.	Successful achievement of Operations Human Performance Goals during the Operations demonstration period.

Task #	Description				
7	**MATERIAL CONDITION**				
7.1	OPERATIONS WORK CONTROL CENTER				
7.1.1	Flowchart current functions and Operations work control process information flows.				
7.1.2	Realign functions and information flows to support the WC Process Model.				
7.1.3	Develop Work Control process procedures				
7.1.3a	Realign the Unit Operating Departments to minimize Control Room WC functions.				
7.1.4	Establish a functioning Operations Work Control Center as an adjunct to the Control Room.				
7.1.5	Establish performance indicators.				
7.2	Refurbish Operation WCC				
7.2.1	Redesign Area				
7.2.2	Review design with operators and managers				
7.2.3	Incorporate changes in design				
7.2.4	Order material				
7.2.5	Start physical prep and demolition				
7.2.6	Install all upgrades				
7.3	Refurbish Control Room				
7.3.1	Determine scope and categorize changes				
7.3.2	Evaluate redesign on desks and equipment rearrangement				
7.3.3	Evaluate design, issue 50.59 Safety Evaluation				
7.3.4	Start physical work, install upgraded desks and equipment				
7.3.5	Paint control room				
7.3.6	Perform misc. items identified by 6/2 by operations review				
7.3.7	Control Room temperature/noise				
7.3.8	Control Room humidity resolution				
7.3.8.1	Complete design and engineering				
7.3.8.2	Install modification				

Task #	Description				
7.4	Create operations briefing area				
7.4.1	Identify area and scope of upgrade				
7.4.2	Design upgrades				
7.4.3	Order material				
7.4.4	Perform physical installation				
7.5	Operations Ready Room				
7.5.1	Redesign area				
7.5.2	Perform physical installation				

ZION NUCLEAR STATION RECOVERY PLAN

STRATEGY: Performance Improvement Management

Description: Substantially improves our ability to evaluate performance, identify problems and assign accountability for correcting problems. Ensures that performance is genuinely improving through assessment, oversight and meaningful performance measurement.

SPONSOR: Robert Godley

ACTION PLAN: 8. CORRECTIVE ACTIONS

Description: Implement a Condition Review Group to evaluate the significance level of PIFs and a Corrective Action Review Board to review the root cause investigations and proposed corrective action for all Significant Conditions Adverse to Quality.

PLAN OWNER: R. Godley

Action Plan Performance Measures	Action Plan Performance Goals/Standards
Events are investigated promptly and thoroughly by personnel who have appropriate knowledge and skills. Corrective actions address the fundamental causes of problems. Corrective actions are appropriate to prevent repetitive or similar problems from recurring.	Zero Past-Due Corrective Actions for Significant Conditions Adverse to Quality (SQAC, CAR, NOV, LER, Cat.1,2,or3 CAs). $\leq$ 100 SCAQs that have been extended $\geq$ 2 times.

Task #	Description				
8	**CORRECTIVE ACTION PROGRAM**				
8.1	NSWP Implementation				
8.1.1	Issue Information Briefs to all Departments				
8.1.2	Follow-up departmental meetings to cover electronic PIFS NSWP-15), Apparent Cause Evaluations (NSWP-17), Material Quarantine (NSWP-11), Effectiveness Reviews (NSWP-16)				
8.2	Condition Review Group				
8.2.1	Establish the membership and responsibilities of the Condition Review Group				
8.2.2	Implement the Condition Review Group				
8.2.3	Establish routine performance measures and standards for the CRG process.				
8.3	Corrective Action Review Board				
8.3.1	Establish the membership and responsibilities of the Corrective Action Review Board				
8.3.2	Implement the Corrective Action Review Board				
8.3.3	Establish routine performance measures and standards for the CARB process.				
8.4	Establish a trending program				
8.4.1	Determine subject matter for Common Cause Analysis				
8.4.2	Establish trend threshold for Common Cause Analysis				
8.4.3	Establish trend guidelines				
8.4.4	Establish Trend Group				
8.4.5	Train Trend Group				
8.5	Conduct training				
8.5.1	Senior Management Performance Improvement Instructional Overview				
8.5.2	Human Error Reduction Training				
8.5.3	Root Cause Investigation Training for Root Cause Investigators				
8.6	Revise approach based on effectiveness assessment.				

ZION NUCLEAR STATION RECOVERY PLAN

STRATEGY:	Management and Personnel Development
Description:	Develops the capabilities and depth of the organization. Development allows the organization to perform at a high level of competence. This includes training, skills development, outside recruiting and a substantially increased management involvement in the accredited training program.
SPONSOR:	R. Starkey

ACTION PLAN:	9. OFF-SHIFT MANAGEMENT COMMAND & CONTROL
Description:	Review of events leading to and on February 21, 1997, indicated that off-shift management did not provide adequate command and control to assure full commitment and execution of a shutdown decision as required by Technical Specifications and as expected by the Vice-President of Zion Station. This action plan objectives are to improve and demonstrate adequate off-shift management command and control in support of a restart of Unit 2. The scope addresses both knowledge and skills of the target population in applying and enforcing appropriate standards for operators and managers.
PLAN OWNER:	R. Starkey

Action Plan Performance Measures	Action Plan Performance Goals/Standards
Off-shift management command & control standards adherence during Operational Readiness Program	80%

Task #	Description	Owner	Start Date	End Date	Comments
9	OFF-SHIFT MANAGEMENT COMMAND & CONTROL	R. Starkey			
9.1	Define off-shift management population				
9.1.1	Develop proposed population list	Saksefski	6/2/97	6/5/97	
9.1.2	Review proposed population list with management	Saksefski	6/5/97	6/6/97	
9.1.3	Revise/approve population list	Starkey	6/6/97	6/9/97	
9.2	Define required skills for population	Billingsley	6/9/97	6/18/97	
9.3	Develop standards for off-shift management command & control	O'Connor	6/5/97	6/13/97	
9.4	Provide link between required skills and Commit for Results coaching for population	Sorfleet	6/18/97	7/1/97	
9.5	Develop approach for educating off-shift management on standards & skills	Billingsley	6/9/97	6/18/97	
9.6	Educate off-shift management on standards & skills	Billingsley	6/18/97	6/23/97	
9.6	Develop approach for observation & demonstration during Operational Readiness Program	Billingsley/Berkun	6/13/97	7/3/97	
9.7	Conduct observation during Operational Readiness Program	Billingsley/Berkun	7/7/97	8/4/97	
9.8	Report on results of observation; develop any immediate remedial action	Billingsley/Berkun	7/28/97	8/5/97	Including report on follow-up development needs
9.9	Implement any immediate remedial action.	Starkey	8/5/97	8/12/97	If required

ZION NUCLEAR STATION RECOVERY PLAN

STRATEGY:	DESIGN BASIS MANAGEMENT
Description:	Verifies that design basis documents are correct and consistent and establishes a clear understanding of the rules for managing the configuration of the plant for all operation, maintenance and change activities.
SPONSOR:	T. LUKE

ACTION PLAN:	10. SURVEILLANCE EFFECTIVENESS
Description:	Review a sample of surveillance procedures to determine : 1. the test requirements specified in the governing document (ITS or other) are correctly tested by the procedure; 2. the test procedure provides clear, understandable acceptance criteria; 3. the modes of performance match the modes of applicability. The sample of surveillance procedures includes: 1. ECCS ASME pump (RHR, SI, CCP) tests; 2. 25% of the IST check valve leakage tests.
PLAN OWNER:	B. Giffin

Action Plan Performance Measures	Action Plan Performance Goals/Standards
Equipment performance and plant material condition are properly measured and compared to established performance criteria.	Minimal Conditions Adverse to Quality as a result of mis-performance of Technical Specification Surveillances from the review process.

Task #	Description				
10	**SURVEILLANCE EFFECTIVENESS**				
10.1	Identify the Surveillance Procedures to be reviewed.				
10.2	Review procedures to determine that the test instructions implement the test requirement(s) of the Surveillance Requirement.				
10.3	Verify surveillance procedures contain clear acceptance criteria and that modes of performance match the modes of applicability				
10.4	Specify Corrective Action for deficiencies and schedule in accordance with the Recovery Program Scope Management Guidelines.				
10.5	Correct Surveillance Test procedures.				
10.6	Reperform Surveillance Test procedures that have been revised.				

ZION NUCLEAR STATION RECOVERY PLAN

STRATEGY:	Conduct of Operations
Description:	Establishes safety and effectiveness of operating the plant as the primary focus for the organization. Significantly improves shift crew performance and establishes high performance standards for the conduct of other activities throughout the plant, including maintenance, system performance and radiological protection.
SPONSOR:	Rob Starkey

ACTION PLAN:	11. OPERATING EXPERIENCE
Description:	Confirm that appropriate corrective actions have been specified for all significant industry and Zion specific operating experience issues. Schedule incomplete corrective actions in accordance with Recovery Issues Management Criteria.
PLAN OWNER:	R. Godley

Action Plan Performance Measures	Action Plan Performance Goals/Standards
Lessons learned from operating experience are included in plant procedures, used to improve plant processes, and incorporated into appropriate training programs.	All previous Industry or Zion specific events are confirmed closed or have actions planned and scheduled for closure.

Task #	Description				
11	**OPERATING EXPERIENCE**				
11.1	Identify external Operating Experience issues for the period 1992 through 1997. (GL, IB, IN, SOER)				
11.2	Determine applicability to Zion.				
11.3	Identify significant internal Zion Operating Experience issues for the period 1992 through				
11.4	Using the Recovery Program Scope Management Guidelines determine those items to be reviewed.				
11.5	For those items previously CLOSED, evaluate if corrective actions for the identified issues were adequate.				
11.6	For those items that are OPEN, determine actions required prior to restart IAW the Recovery Program Scope Management Guidelines.				
11.7	Schedule follow-up actions.				

ZION NUCLEAR STATION RECOVERY PLAN

STRATEGY:	SQV Independent assessment and validation of the Station Recovery Plan.
Description:	Assess key elements of the Recovery Program: plan to validate implementation meets the plan's objectives by: (1) achieving a substantial improvement in operations and support for operation of Zion Station and (2) achieving a substantial improvement in plant material condition and performance to significantly increase the margin of safety for operation.
SPONSOR:	R. Zyduck
ACTION PLAN:	12. SQV INDEPENDENT ASSESSMENT
Description:	SQV will validate implementation of the Unit 2 Recovery Plan by independent reviews of key program elements and selected station activities. SQV will also perform a self-assessment of it's ability to overview the plan and to support plant operation.
PLAN OWNER:	R. Budowle

Action Plan Performance Measures	Action Plan Performance Goals/Standards
SQV identified startup issues SQV validates significance of issues by other departments	Significant issues identified and determined required for startup are closed.

Task #	Description				
12	**SQV INDEPENDENT ASSESSMENT**				
12.1	Perform an independent review of the DRAFT Recovery Program Plan.				
12.2	**SQV OPERATIONAL READINESS ASSESSMENT**				
12.2.1	Perform an assessment of plans developed by individual station departments for departmental self- assessment, to ensure that performance of the assessments will meet the objectives of the Station Recovery Plan.				
12.2.2	Define standards and expectations for on-shift monitoring activities by ISEG/SQV. To include applicable input and concurrence by operations department management.				
12.2.3	Develop checklist to be used by oversight personnel to catalog and assess key attributes of the Station Recovery Plan.				
12.2.4	Perform oversight of the operator classroom and simulator training program to assess the effectiveness of the training to meet the stated objectives of the Station Recovery Plan.				
12.2.5	Monitor on-shift activities to validate effectiveness of the Station Recovery Program, including cataloging and trending of key attributes identified in 12.2.3.				
12.2.6	Validate the effectiveness of reviews performed by the Zion Restart Panel, to support the stated objectives of the Station Recovery Plan.				
12.3	**SQV CORRECTIVE ACTIONS ASSESSMENT**				
12.3.1	Perform an independent assessment of the selection process used to identify internal and external Operating Experience issues per Task 11.1, 2, 3 & 4.				

Task #	Description				
12.3.2	Independently review a representative sampling of the issues identified (ref. Task 12.3.1), to validate the effectiveness of the corrective action reviews performed per task 11.5 & 11.6.				
12.4	**SQV POWER ASCENSION PLAN ASSESSMENT**				
12.4.1	Perform an independent assessment of the Start-Up and Power Ascension Plan.				
12.5	**INDEPENDENT ASSESSMENT OF SQV**				
12.5.1	Establish the methodology for and implement performance of an independent assessment of SQV's ability to overview the Station Recovery Plan.				
12.5.2	Implement corrective actions, as required, to address deficiencies in SQV's ability to overview the Station Recovery Plan, including assessment of effectiveness of any required actions.				
12.6	**SQV PORC ASSESSMENT**				
12.6.1	Determine the assessment criteria for a management effectiveness review of the Plant Operations Review Committee (PORC).				
12.6.2	Conduct a management effectiveness assessment of PORC.				
12.6.3	Provide the results of the management effectiveness assessment of PORC to the Plant General Manager and the Site Vice-President.				
12.7	**SQV TSIP READINESS ASSESSMENT**				
12.7.1	Perform an assessment of the station's readiness to implement TSIP and provide input as per Task 13.10.				
12.8	**SQV CRG & CARB ASSESSMENT & VALIDATION**				
12.8.1	Perform an assessment of the CRG & CARB processes and validate the effectiveness of the corrective action program implementation with respect to identification, timeliness and prioritization of issues.				
12.9	**SQV DEPARTMENTAL SELF-ASSESSMENT**				

Task #	Description				
12.9.1	Identify self-assessment team, develop plan and review the plan with the ZRP.				
12.9.2	Perform SQV departmental self-assessment and review results & any required corrective action plans with the ZRP.				
12.9.3	Implement corrective actions from self-assessment, identified as required prior to restart. Issue final report and present to the ZRP and the Recovery Program Manager.				

ZION NUCLEAR STATION RECOVERY PLAN

STRATEGY:	1. Conduct of Operations
Description:	Establishes safety and effectiveness of operating the plant as the primary focus for the organization. Significantly improves shift crew performance and establishes high performance standards for the conduct of other activities throughout the plant, including maintenance, system performance and radiological protection.
SPONSOR:	Rob Starkey

ACTION PLAN:	13. Technical Specification Improvement Program
Description:	Complete all required actions to allow implementation of the Improved Technical Specifications.
PLAN OWNER:	R. Godley

Action Plan Performance Measures	Action Plan Performance Goals/Standards
Improved Technical Specifications implemented in time to support the Restart of Unit 2.	All "off-line" Surveillance Requirements conducted & completed to support operation until next scheduled outage. Mode change requirements clearly identified and procedurized.

Task #	Description				
13	**IMPLEMENT IMPROVED TECHNICAL SPECIFICATIONS**				
13.1	Transmit Surveillance Exceptions to the NRC				
13.2	Transmit Section 5. 0 10 CFR 55 Supplement to the NRC				
13.3	ComEd review of SER, Technical Specifications, and industry implementation issues				
13.4	Final ComEd review of SER, Technical Specifications and Implementing procedures				
13.5	Verify Surveillance Readiness				
13.5.1	Verify Technical Specification cross reference Matrix				
13.5.2	Verify Surveillance Requirements scheduled through EWCS				
13.5.3	Schedule/Perform Surveillances required to insure that all "off-line" requirements will be current through the next scheduled outage.				
13.6	Verify procedures are ready for implementation				
13.6.1	Confirm closure of technical deficiencies previously identified.				
13.6.1.1	Resolve technical deficiencies identified in the review of step 13.6.1				
13.6.2	Assess Surveillance Procedures in five specific areas based on historic weaknesses				
13.6.3	Develop/revise ZAPs required for implementation				
13.7	Install/schedule Fuel Handling Building Modification				
13.8	SQV Readiness Assessment				
13.8.1	SQV Assessment conducted				
13.8.2	Resolve SQV and implementation assessment concerns				
13.9	Department Heads conduct Awareness Tailgates				

13.10	PORC review of SER and Technical Specifications				
13.11	Implement ITS				
13.12	On-Shift Technical Specification Expert Coverage				

COMMONWEALTH EDISON

ZION NUCLEAR STATION

RECOVERY PROGRAM

DEPARTMENT START-UP READINESS ASSESSMENT GUIDELINE

June 5, 1997

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1.0 PURPOSE

The purpose of this procedure is to help assure the plant can be started and returned to full power safely and efficiently.

2.0 RESPONSIBILITIES

2.1 Department Heads

Department Heads are responsible for forming assessment teams, developing assessment plans, conducting assessments, developing and implementing corrective actions to address gaps, and affirming the readiness of their departments to support safe start-up and operation.

2.2 Station Senior Managers

Station senior managers are responsible for reviewing assessment plans and results and proposed corrective actions for assigned departments to ensure the readiness to support start-up and safe operation and to strengthen organizational capabilities.

2.3 Zion Restart Panel

The Zion Restart Panel (ZRP) is responsible for reviewing assessment plans and results and corrective actions in order to validate readiness of the organization to start-up the unit and for recommending start-up to the Site Vice President

2.4 Plant General Manager

The Plant General Manager is responsible for providing focus and expectations, for reviewing assessment plans and results, for approving readiness to start-up, and for recommending to the Site Vice President that the unit be restarted.

2.5 Recovery Program Manager

The Zion Recovery Program Manager, with support from the Work Control/Outage Manager, coordinates the readiness process as part of recovery and restart process. Plant start-up should not occur until each responsible manager has affirmed readiness to restart from his/her department's point of view.

2.6 Work Control/Outage Manager

The Work Control/Outage Manager is responsible for the content of this procedure and shall act as the interpretation contact for any question regarding intent.

3.0 GUIDELINES

Each department head will assure the readiness of his/her department prior to start-up. The department head will determine this readiness by leading an effective assessment of his/her organization.

3.1 Scope and Focus

The scope and focus of the self-assessment will be based on consideration of key performance parameters and issues, recent events and problems, and relevant outage activities. The department head will first meet with the Plant General Manager to review the focus, scope, and expectations for the assessment.

3.2 Guideline

The department head will then form a self-assessment team and define the preliminary focus of the assessment team based on information available. The assessment team will further develop the scope and focus of the self-assessment and document it in a self-assessment plan. The plan will include:

1. Objective
2. Scope:
   - Areas, programs, processes, and capabilities to be assessed
   - Any special focus areas
   - Performance issues and parameters initially considered
3. Criteria for determining readiness in key areas to start-up
4. Methods of obtaining assessment information
5. Team leader and members
6. Schedule

The department head will review the self-assessment plan with his/her senior manager and the ZRP prior to beginning the assessment. The initial self-assessment will start in sufficient time prior to start-up to allow for resolution of any issues that might be identified.

The department head will review the results of the initial assessment with the responsible senior manager and the ZRP. The department head will develop and complete corrective action plans for issues that must be resolved prior to start-up. The Plant General Manager and responsible senior manager will periodically review the progress of the assessment, and any corrective actions being taken to address issues.

The assessment should, as a minimum, assess the organization's readiness to support safe and reliable startup and operation in the following areas:

a. Staffing is adequate and personnel are ready.
b. Procedures, processes, and controls are in place.
c. Required training has been completed.
d. Significant commitments (NTS) are complete.
e. Effective root cause evaluations have been completed for all significant conditions and the associated corrective actions have been completed or an evaluation and determination have been made that the condition will not significantly affect safe start-up and operation

When all start-up issues have been addressed, the department head will document the self-assessment and closure of start-up issues in a self-assessment report and present the results of the assessment to the ZRP. The department head will then sign the assessment affirming that, based on the assessment and to the best of his/her knowledge and judgment, his/her organization is ready to support safe and reliable start-up and operation. Attachment 1 is a suggested format for the final assessment report.

The Recovery Program Manager shall review and summarize the departmental readiness assessments for all department and will summarize and discuss any exceptions for startup with the Plant General Manager.

The ZRP will review the restart readiness assessments. After the ZRP reviews the assessments, they will submit their recommendations to restart to the Plant General Manager and the Site Vice President.

The Site Vice President will review and approve readiness assessments and grant permission for restart.

The Recover Program Manager will transmit the completed assessment packages to records management for retention as a quality record.

ATTACHMENT 1
DEPARTMENT READINESS ASSESSMENT PROGRAM INSTRUCTION
SUGGESTED SELF-ASSESSMENT REPORT FORMAT

Unit _____
Department _____
Department Head _____
Senior Manager _____
Statement of Affirmation by the department head:

"Based on the results of this self-assessment and completion of required corrective actions and to the best of my knowledge, the Department is ready to support a safe start-up and reliable operation.

Signature: _____
Date:_____

1. Summary results of the self assessment:
   - *1.1. Summary of department readiness and capabilities*
   - *1.2. Key performance areas assessed*
   - *1.3. Significant conclusions*
   - *1.4. Corrective actions taken to address significant findings*
2. Overview of Assessment Plan (from the Plan)
   - *2.1. Scope:*
   - *2.2. Areas, programs, processes, and capabilities to be assessed*
     - 2.2.1. Any special focus areas
     - 2.2.2. Performance issues and parameters initially considered
     - 2.2.3. Criteria for determining readiness in key areas
   - *2.3. Methods of obtaining assessment information*
   - *2.4. Team members*
3. Findings of the Assessment
   - *3.1. Findings*
   - *3.2. Analysis of Findings (significance, implications, aggregate impact or underlying capability or performance gaps)*
   - *3.3. Conclusions*
     - 3.3.1. Comparison with criteria
     - 3.3.2. Assessment of readiness in areas assessed
     - 3.3.3. Issues which must be addressed prior to start-up
4. Corrective Actions Taken (for each issue)
   - *4.1. Actions taken*
   - *4.2. Results*
   - *4.3. Effectiveness in addressing target issue*
   - *4.4. Long-term requirements*
   - *4.5. Statement that issue is closed*

COMMONWEALTH EDISON

ZION NUCLEAR STATION

RECOVERY PROGRAM

SYSTEM READINESS REVIEW

June 5, 1997

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1.0 PURPOSE

This is the guideline for the system readiness assessments and affirmations to be conducted prior to Unit 2 Restart. The purpose of these activities is to ensure that systems important for the safe start up and subsequent reliable operation of Zion Unit 2 are available and operable. The process also provides the opportunity for management to set the expectations of the system engineers for system readiness and for the system engineers to demonstrate their commitment to these expectations.

2.0 REFERENCES

Zion Recovery Plan

3.0 OVERVIEW

The objective of the system readiness review, which includes both the physical walkdown and documentation reviews, is to assure that all system deficiencies are identified, documented and evaluated for their effect on system operability. Operability is defined as the capability of performing their safety and design specified functions. During the review, system engineers will screen selected Zion systems for all outstanding work. At the completion of the assessment, the responsible system engineer affirms that the system is operable and ready to support startup.

At the completion of Z2R14, 12 systems were selected for readiness review. Ten of these twelve are the primary contributors to Core Damage Frequency based on the PRA. The other two systems were selected based on historical issues by Operations personnel. The affirmations of operability by the systems engineers for these systems were performed during the completion of the Z2R14 outage. However, based on the events of February 21, 1997, Plant Management decided that Unit 2 would remain in cold shutdown until specific activities were completed. They also decided that, for the Recovery of Unit 2, the system engineers would be required to come before the Zion Recovery Panel and reaffirm their system's readiness for startup and operation.

For these 12 systems, the process required another physical walkdown, of selected portions of the system by the system engineer and a detailed backlog review of items surfacing after 1/1/97. The results of these reviews provide an updated basis for the assessment of system status. The system status and the

reaffirmation of system readiness will be presented to Zion Restart Panel for final acceptance and to support a readiness recommendation to the SVP.

In order to provide additional confidence in plant readiness and support for Operations, the Operations department selected three additional systems, Main Steam, Containment Spray and Reactor Protection for this review. In addition, based on repetitive material issues, the Operations Manager added the Annunciator System.

4.0 RESPONSIBILITIES

4.1 System Engineer

The System Engineer is responsible for the conduct of the walkdown process on his/her system(s).

4.2 Zion Restart Panel

The Zion Restart Panel is responsible for validating and approving evaluations of potential restart issues. The Panel will review and approve actions, action plans, and closure packages.

5.0 GUIDELINES

5.1 Initial 12 Systems

The 12 initial systems were:

Auxiliary Power (AP)
DC Power (DC)
Diesel Generator (DG)
Feedwater (FW)
Auxiliary Feedwater (AW)
Control Room Ventilation (PV)
Reactor Coolant (RC)
Residual Heat removal (RH)
Safety Injection (SI)
Service Water (SW)
Volume Control(VC)

5.2 Assessment Criteria

The 12 Systems for which the assessment process was completed for the restart from Z2R14 were physically walked down by the system engineer. Specific assessment areas used for the identification of deficiencies are as follows:

- Any condition that deviates from system design requirements.
- Any condition that deviates from good workmanship practices.
- Structural integrity (e.g., bolting adequacy, pressure boundary leakage, missing or inadequacy supports, evidence of water hammer or other excessive loading).
- Housekeeping and cleanliness (including FME concerns) internal and external to equipment and enclosures that could create operability concerns.
- Potential hazards analysis issues - system interaction and fire hazards analysis including transient combustible loading.
- Piping, pump or vessel integrity.
- Electrical separation, cable and connection integrity, raceway adequacy (tray, conduit and bus duct).
- Electrical and instrumental panel fasteners correctly installed.
- Instrumentation installation adequacy.
- Hardware integrity, leakage, connections sealed).
- Unauthorized modifications, including improper loads or attachments on permanent plant equipment.
- Vibration or noise from operating equipment.

Backlogs that were reviewed for Z2R14 restart were: ARs, WRs. ERs, PIFs, NTS, PMs, Furmanite, Operator Workarounds, Temporary Alterations, and the Degraded Equipment List. For the Recovery Program, based on the historical backlog review completed in January, 1997, only issues identified after 1/1/97 will be reviewed, except for ARs and WRs. For ARs and WRs, all items in the backlog will be reviewed.

5.3 Additional Selected Systems

The four additional systems, Main Steam (MS), Containment Spray (CS), Reactor Protection System (RPS) and Annunciators, will require a walkdown by a team led by the responsible System Engineer. Team participants will include members from engineering, operations, RP as required, work control and maintenance. The specific criteria identified above also applies to these systems.

The backlog review includes all open : ARs, WRs, ERs, PIFs, NTS, PMs, Furmanite, Operator Workarounds, Temporary Alterations, and the Degraded Equipment List. All open items in the backlog will be included in this review.

5.4 System Walkdown Results

The system engineer for each of the 16 systems will present the results of the readiness assessment to the Zion Restart Panel in a format similar to Attachment A. In this presentation he/she will make recommendations for the disposition of each open item. Those items recommended for closure prior to restart will reference the specific criteria from the Zion Recovery Program Scope Management Guideline. Corrective action is then scheduled for these items. Those items not recommended as required for restart will have the basis provided.

When all corrective actions are complete and the System Engineer determines that his/her system is ready to support plant restart and continued operation, this Assessment is presented to the Zion Restart Panel for closure. As part of this decision process, the Zion Restart Panel will consider the collective safety significant of those items not required to be completed for restart.

5.5 Review and Approval by the Restart Panel

The Zion Restart Panel will review and approve decisions regarding all potential restart issues and actions, including the results of all system walkdowns.

Attachment A: Format for System Walkdown Results

SYSTEM:

DESCRIPTION:

BACKLOG REVIEW

AR's reviewed _____ # AR's to be worked _____

WR's reviewed _ _____ # WR's to be worked _____

ER's reviewed _____ # ER's to be completed _____

PIF's reviewed _____ # PIF's to be closed _____

PM's reviewed _____ # PM's to be worked _____

Op workarounds reviewed _____ # Op workarounds AR/NWRs to be scheduled _____

Temp Alts reviewed _____ # Temp Alts to be removed _____

Degraded equip. reviewed _____ # Degraded equip. AR/NWRs to be scheduled _____

COMMITMENTS / NTS Open Items

SYSTEM WALKDOWNS

AR's written:_____ # AR's scheduled:_____ __

WR's processed:_____ # WR's completed:_____
Number based upon meeting screening criteria

OVERALL ASSESSMENT / ANALYSIS OF ITEMS FOUND DURING WALKDOWN:

SIGNIFICANT ISSUES REQUIRING CORRECTIVE ACTION:

RESULTS OF CORRECTIVE ACTION:

DISCUSS THE OVERALL HEALTH AND RELIABILITY OF THE SYSTEM. Based upon those items now scheduled to be complete prior to restart and additional testing to be completed at higher modes. In addition, what is the safety significance and the likelihood of plant interruptions because of items not scheduled to be complete prior to startup.

My system is ready to support safe, reliable operation for the next cycle.

System Engineer Signature:_____
Date: _____

COMMONWEALTH EDISON

ZION NUCLEAR STATION

RECOVERY PROGRAM
SCOPE MANAGEMENT GUIDELINE

Revision 1

June 5, 1997

TABLE OF CONTENTS

1.0 PURPOSE

This is the guideline for establishing, managing, and completing the scope of work necessary for safe start up and subsequent reliable operation of Zion Unit 2.

2.0 REFERENCES

Zion Recovery Plan
Department Readiness Assessment Guideline
Start-up and Power Ascension Program
Problem Identification Processing ZAP 700-08
Integrated Problem Reporting Process NSWP-A15

3.0 OVERVIEW

The Zion Recovery Program action plans, system readiness assessment program, department readiness, and other activities will produce issues that potentially must be addressed prior to restarting the unit. The set of issues and actions that are evaluated as required for start-up will comprise the scope of work for completion of the Recovery Program. This guideline covers the following aspects of managing that scope of work:

- Review of potential sources of restart issues,
- Identification of potential restart issues,
- Evaluation to determine those issues which must be addressed prior to restart,
- Documentation of the evaluation of potential restart issues,
- Review and approval of those evaluations by a Restart Panel,
- Scheduling and tracking of restart actions,
- Managing accountability for completion of restart actions,
- Closure of restart actions,
- Review and approval of readiness to restart by the Zion Restart Panel, and Site Vice President

4.0 RESPONSIBILITIES

4.1 Recovery Program Manager

The Recovery Program Manager, assisted by the Work Control/Outage Manager, will be responsible for the process (described in this guideline) for managing the Recovery Program scope, including:

- receipt of potential new restart issues,

- presentation of potential issues and results to the Zion Restart Panel (or sub-committees),
- disposition of issues evaluated,
- tracking and status reporting of issues and actions,
- coordination of closure activities, and
- recommending actions to avoid or remove potential barriers to effective and timely resolution of restart issues.

4.2 Work Control/Outage Manager

The Work Control/Outage Manager, will establish and maintain files, a database, performance indicators, and schedules for tracking restart issues and actions to closure. He/she will also coordinate the completion of the overall outage work scope.

4.3 Zion Restart Panel

A Zion Restart Panel (ZRP) will be appointed by the Site Vice President. The Zion Restart Panel will be responsible for

- setting standards and expectations for the Zion organization for determining readiness to start-up,
- validating and approving evaluations of potential restart issues,
- adding or deleting outage scope items,
- reviewing and approving system and department readiness assessments,
- reviewing, evaluating, and approving actions, action plans, and action plan closure packages,
- assessing overall readiness to restart, and
- recommending to the Site Vice President readiness to restart.

The Site Vice President will appoint a chairman and vice chairman of the restart panel. The chairman will be responsible for leadership of the panel, scheduling of meetings, signing approval on behalf of the panel, and speaking for the panel. A quorum of the ZRP will consist of the Chairman or Vice-Chairman and three additional members.

The ZRP may designate sub-committees to conduct preliminary reviews of sets of potential restart issues (for example, initial system readiness reviews or the preliminary review of the sources in Table 1). In these cases, the ZRP will provide clear expectations, designate in writing the sub-committee scope of review and membership, and review and approve the results of the sub-committee review.

Following satisfactory closure of all restart action items and completion of readiness assessments and after considering other inputs, the Restart Panel will recommend restart of the unit to the Site Vice President.

4.4 Site Vice President

The Site Vice President is responsible for approving the Recovery Plan and this guideline and revisions to them. He is also responsible for final approval of readiness to start-up.

5.0 GUIDELINES

5.1 Initial Review of Sources of Potential Restart Issues

An initial review of sources of potential restart issues will be performed by review teams under the direction of designated managers. Some of the initial sources of potential restart issues are listed in Table 1.

Table 1 Sources of Potential Restart Issues

	Issue
1.	Past due Preventive Maintenance
2.	Past Critical Preventive Maintenance
3.	Past due Surveillances /Performance Tests
4.	Open Furmanite jobs
5.	Open Commitments / PIFs
6.	Open Root Cause Evaluations
7.	Operability Assessments
8.	Temporary Alterations
9.	Operator Work-Arounds
10.	Control Room Deficiencies
11.	Procedure Changes
12.	Caution Cards
13.	Open Out of Services
14.	PT-14's
15.	Degraded Equipment
16.	Open Engineering Requests
17.	Open Design Changes
18.	Minor Action Requests
19.	Corrective Maintenance Backlog
20.	AIT/Level 1 Action Items

For these initial reviews, the teams will evaluate the issues against the criteria in Table 2, determine which potential issues must be resolved prior to start-up, document their evaluation, and present the results to the ZRP or a sub-committee. Those issues whose resolution is determined to be required before start-up will then assigned to an individual accountable for resolution. The results of Department, System, and Operational Readiness Assessments will be reviewed, evaluated, presented and approved in a similar fashion.

5.2 Identification and Evaluation of Potential Restart Issues

Other potential restart issues may emerge during the Recovery Program. A potential restart issue can be identified by anyone. Individuals are expected to identify potential restart issues in their areas of accountability and in other areas in which they become aware of potential restart issues.

Potential restart issues are identified using the Problem Identification Form (PIF) and the normal process described in ZAP 700-08/NSWP-A15. The Event Screening Committee (ESC) determines if the problems presented to it daily are potential restart issues and assigns accountability for evaluation of the problem to the responsible department. The decisions of the ESC are validated by the Condition Review Group, the group of senior managers that review PIFs as a part of the problem identification process. The responsible department manager will assign the potential restart issue to the appropriate individual for evaluation whether the issue must be completed prior to restart. The assigned individual will evaluate the issue against the criteria in Table 2.

Table 2 Restart Issue Selection/Screening Criteria

Table 2 Restart Issue Selection/Screening Criteria

Level 1 Resolves a safety or operability issue.
Level 2 Issues not meeting criterion 1 will be also screened against the following criteria to determine resolution requirements.
2.1 Eliminates a component failure, deficiency, or condition which could result in entry into an LCO Action Statement.
2.2 Resolves a deficiency or condition which: a. could result in failure or inability to perform a required surveillance test during the outage or the subsequent operating period; b. could increase the risk to operation or safety associated with performing a surveillance; c. could result in the failure to meet a license requirement or a commitment to an outside regulatory agency.
2.3 Restores degraded critical components or conditions which could result in a plant transient, power reduction, or shutdown.

2.4 Resolves conditions which have directly resulted in repetitive safety system or power block component failures.
2.5 Restores licensing basis deficiencies to conformance with specifications (e.g., EQ, seismic, environmental, Appendix R.)
2.6 Corrects equipment with design basis deficiencies (i.e., deficiencies in safety-related SSC or other Technical Specification components not in conformance with design basis documents such as the FSAR). Documentation deficiencies may be completed post-outage if justifiable as having no safety impact.
2.7 Corrects deficiencies in configuration management programs, processes, engineering analysis codes or documentation which have a reasonable probability of affecting equipment operability. Documentation deficiencies may be completed post-outage if justifiable as having no safety impact.
2.8 Eliminates conditions which may create an unacceptable potential for personnel radiation exposure, an unplanned release of radioactivity to the environment, or discharge of effluent in excess of limits.

Actions resolving safety or operability issues (Level 1) will be completed before start-up. Other issues will be evaluated using a second set (Level 2) of criteria to determine if their resolution is required before start-up. In addition, the ZRP will evaluate or assign individuals to evaluate the aggregate negative impact of deficiencies, backlogs or conditions on safety, operability or reliability of plant systems and equipment.

Assigned individuals will perform an evaluation, make a decision whether the item is required for restart or not, and document it. The evaluation will be documented (using the PIF) in sufficient detail that a technically qualified person can understand the basis for the decision. The assigned individual will also recommend whom should be assigned to take actions to address the issue. The responsible manager, in coordination with the Recovery Program Manager, will assign an individual (who may be different from the individual performing the evaluation above) accountable for resolution of the issue. In most cases, the evaluation, restart scope decision, and resolution will be handled by the same individual evaluating or resolving problems or condition in accordance with the station corrective action program (ZAP 700-08).

5.3 Review and Approval by the Restart Panel

The Restart Panel will review and approve decisions regarding all potential restart issues and actions—including negative decisions—and assignment of accountability. As described under Responsibilities, the ZRP may designate and empower sub-committees to perform preliminary reviews of sets of potential restart issues. The ZRP will review and approve the results of sub-committees' reviews.

5.4 Scheduling and Tracking

The Work Control/Outage Manager will establish and maintain a database of potential issues and actions evaluated as required for restart. Information about potential restart issues will be input to the database. The status of the issue and associated actions will be recorded and maintained in the database.

In addition, the Work Control/Outage Manager will coordinate and integrate schedules for individual actions or action plans and maintain a schedule for tracking completion of milestones and closure of issues. He/she will periodically publish a progress summary and status report of the restart actions.

5.5 Managing Accountability

The Recovery Program Manager will schedule periodic accountability meetings of the Zion management team to review Recovery Program progress and results. The purpose of these meetings will be to review progress of the overall Recovery Program, to review selected individual plans in order to check and adjust plans to achieve expected results, and to share important lessons among the Zion team.

5.6 Closing Issues and Actions

When individual actions are completed or issues resolved, the accountable individual will document completion using the form provided in Appendix A. Some objective evidence (a revised procedure, training attendance records, etc.) of completion should be attached tot the form. The form and attachments will then be submitted to the Recovery Program Manager, who will review the package and approve closure of the item. When all actions associated with action plans, system readiness assessments, or department readiness assessments (including any corrective actions for system and department readiness assessments) are completed, the accountable individual will document the assessments and actions taken, key results or indicators, the effectiveness of the actions, and any follow-up actions. The form provided in Attachment A should be used and any additional discussion or documentation attached. Final closure packages for action plans or assessments will be submitted to the Recovery Program Manager, who will review the packages and then submit them to the ZRP for review and approval. Packages will be filed by the Work Control/Outage Manager for subsequent review, if requested, by the NRC and retention.

5.7 Restart Panel Readiness Assessment

The ZRP will review all restart action closure packages. If requested by the ZRP, the accountable individual will present a review of the actions or action

plans to the ZRP. In addition, individuals (such as system engineers and department heads) will present the results of readiness assessments to the Restart Panel. Based on this and other input, the Restart Panel will determine the readiness of Zion Unit 2 and the Zion organization for restart.

5.8 Independent Verification

Site Quality Verification (SQV) will provide independent verification of the effectiveness of the Recovery Program through observation of restart scope management, review of evaluations, review of restart actions, review of the database and schedule of actions and issues, observation of presentations to the Restart Panel, and review of closure packages.

The Safety Review Board (SRB) will identify and review key information about the Recovery Program and management process and provide independent input regarding the Recovery Program effectiveness to the Restart Panel and the Site Vice President.

5.9 Site Vice President Assessment and Restart Decision

Based on the recommendation of the Restart Panel, input from SQV and the SRB, and other input, the Site Vice President will determine the readiness of the unit and the organization to restart and authorize initiation of the Start-up and Power Ascension Program.

Attachment A: Format for Closure of Restart Issues

Commonwealth Edison
ZION STATION UNIT 2
RESTART ISSUE CLOSURE

ISSUE TRACKING IDENTIFIER:

ISSUE TITLE:

ISSUE DESCRIPTION:

CLOSURE DOCUMENTATION:

Provide objective evidence (copies of revised procedures, training attendance records, etc.) of closure, when possible. For final closure of action plans or assessments, provide the following information to support closure:

1. Summary
2. Discussion of actions taken
3. Results of actions taken and comparison to expected results
4. Discussion of the effectiveness of the actions taken and any lessons learned
5. Any recommended or required follow-up actions necessary to insure resolution is sustained
6. Any lists of items included in issue

I affirm that the above issue/action has been satisfactorily addressed and closed.

Issue Owner: _____ Date: ____ ___

Responsible Senior Manager: _____ Date: _____

Approved:
Zion Restart Panel Chairman: _____ Date: _____

Appendix A
Zion Level One PIF Recommendations

Recommendation / Action	Owner	Due Date
RECOMMENDATION: **The role of the QNE as an integral support for the control room crew during significant reactivity changes needs to be reviewed.** **ACTION:**		
Revise roles and responsibilities of QNE and document that each QNE understands the expectations and the duties of his position including the interfaces with the Unit Supervisor and NSOs.	G. Vanderheyden	Completed with Action Plan 3.
Revise Operating Policies/Procedures identifying at which points the QNE is required in the Control Room during reactivity changes during normal and abnormal operation.	G. Vanderheyden	Completed with Action Plan 3.
Include QNE in the Operator Training and Remediation exercises as a crew member to strengthen the QNE as an active crew member.	Training Mgr.	Completed with Action Plan 2.
Evaluate the QNE as an active member of the shift crew.	G. Vanderheyden	Completed with Action Plan 2.
RECOMMENDATION: **The reactivity management Zion Administrative Procedure and Operations Policy should be re-examined to ensure that clear, consistent guidance is provided and that unrealistic expectations are not being imposed.** **ACTION:**		
Revise roles and responsibilities of shift management for Rectivity Management.	G. Vanderheyden	Completed with Action Plan 3.
Reinforce the expectations during the Operations Crew Remedial Training.	G. Vanderheyden	Completed with Action Plan 2.
Evaluate crew performance using the revised Policies as the standard.	G. Vanderheyden	Completed with Action Plan 2.
RECOMMENDATION: **The expectation for three way communications should be reviewed to ensure appropriateness during transient conditions. During this event, communications became a distraction and led to a degradation of teamwork when a number of expected alarms were communicated.** **ACTION:**		
Revise Operations Standards for communication expectations for normal and off-normal conditions.	G. Vanderheyden	Completed with Action Plan 3.
Reinforce the expectations during the Operations Crew Remedial Training	G. Vanderheyden	Completed with Action Plan 2.
Evaluate crew performance using the revised Policies as the standard.	G. Vanderheyden	Completed with Action Plan 2.

Appendix A
Zion Level One PIF Recommendations

Recommendation / Action	Owner	Due Date
RECOMMENDATION: **The methodology for tracking of LCOs in the control room should be improved to ensure awareness of the operating crew for all LCOs in effect on the unit. The new method should also ensure that the time of LCO entry is recorded when equipment is made inoperable for periodic or surveillance testing.** **ACTION:**		
Revise LCO tracking procedure and establish clear expectations within the procedure for proper logkeeping.	G. Vanderheyden	6/30/97
Evaluate the effectiveness of the improved tracking procedure and crew performance during the Operational Readiness period.	G. Vanderheyden	7/20/97
Initiate corrective action as required.	G. Vanderheyden	7/20/97
RECOMMENDATION: **The process for developing 'night orders' for the operating shift should be re-reviewed given the elimination of the Operating Engineer position. The new process should ensure adequate content and proper direction.** **ACTION:**		
Revise Operating Policy on Night Orders emphasizing operations philosophy and expectations with regard to conduct of operations instead of schedule. The Operations Manager or Shift Operating Supervisor may initiate Night Orders.	G. Vanderheyden	6/10/97
RECOMMENDATION: **Several operator workarounds were evident during the course of this event that were not included in the operator workaround list. The threshold for determining and documenting a workaround requires attention.** **ACTION:**		
Revise operations procedure on threshold identification of Operator Workaround to insure proper station attention is provided to these challenges.	G. Vanderheyden	In accordance with Recovery Plan.
Operations, Engineering and Work Control will identify, schedule and resolve Operator Workarounds prior to Unit 2 Restart.	G. Vanderheyden	In accordance with Recovery Plan.
Operations will take ownership of the Workaround program and manage closeout / resolution..	G.Vanderheyden	5/20/97
RECOMMENDATION: **Weaknesses were identified in the Temporary Procedure process that allows more than one change to exist to a procedure at a time and also to allow changes to exist for extended periods of time that should be addressed.** **ACTION:**		
Revise procedure change practice and implement the electronic change methodology (Operations Initially).	M. Weis	Completed with Action Plan 5.
Add additional resources during Operation's Remedial Training as well as during Unit 2 startup to accommodate shift crew needs for procedure revisions.	M. Weis	Complete

Appendix A
Zion Level One PIF Recommendations

Recommendation / Action	Owner	Due Date
RECOMMENDATION: **Unitization issues complicated the replacement of a vacancy on shift to the extent that three turnovers were required until a Secondary NSPO was finally in place. This and similar possible distractions from control room duties should be resolved in a manner that minimized the impact on operations.** **ACTION:**		
Revise Operating organization, crew structure, shift rotation and implement.	G.Vanderheyden	Complete
RECOMMENDATION: **The control room crew became overloaded prior to the event with emerging tasks, determination of testing of the pump, preplanning of the shutdown, and other issues. This planning and coordination burden should be removed from the control room crew to free them to execution the plan.** **ACTION:**		
Revise position descriptions for each shift position specifying specific accountabilities.	G.Vanderheyden	Completed with Action Plan 3.
Implement the Operations Work Control Center to minimize control room distractions and to improve work coordination..	G.Vanderheyden	Complete
Train Shift Managers and Unit Supervisors on the operation of the OWCC.	Training Mgr.	7/18/97
Validate the effectiveness of the Operations Work Control Center through the weekly accountability meetings with the Work Control Department.	Operations Work Control Center Manager	7/18/97
RECOMMENDATION: **The fundamental knowledge weaknesses identified tin this event require changes to be made to the licensed operator requalification program to include not only reactor fundamentals but also simulator practice of normal shutdown and operation at or near the Point of Adding Heat.** **ACTION:**		
Schedule each operating crew for reactor physics, heat transfer, fluids and other refresher training, including simulator scenarios.	Training Mgr.	Completed with Action Plan 2.
Examine the operating crews to evaluate knowledge level. Passing criteria is $\geq$ 80%.	Training Mgr.	Completed with Action Plan 2.
Training and Operations to look at task matrix once per year for those areas which reveal performance problems and factor into cycle training.	Training Mgr.	6/14/97
Establish a change to the Operation's Training Advisory Committee program to assure that at least once per year a review is performed of infrequent tasks for inclusion in the cycle training.	Training Mgr.	7/10/97

Appendix A
Zion Level One PIF Recommendations

Recommendation / Action	Owner	Due Date
RECOMMENDATION: **Oversight expectations for main control room demeanor and allocation of operator work load should be emphasized. Such clear oversight expectations then need to be enforced.** **ACTION:**		
Develop Management Expectations for Control Room Demeanor and workload allocation.	G.Vanderheyden	Completed with Action 3.
Reinforce the expectations during the Operations Crew Remedial Training	G.Vanderheyden	Completed with Action Plan 2.
Evaluate crew performance using the Management expectations as the standard.	G. Vanderheyden	Completed with Action Plan 2.
RECOMMENDATION: **More effecti· ISEG and SQV oversight needs to be established.** **ACTION:**		
ISEG and SQV oversight of operating activities will be revised and implemented.	R. Zyduck	6/7/97
Revise expectations for monitor watches in the Control Room in ISEG procedures and document understanding of these expectations with each member of the ISEG group.	R. Budowle	6/7/97
Reinforce the roles and responsibilities and document with each ISEG member.	R. Budowle	6/7/97
RECOMMENDATION: **Pump start criteria should be added to the Containment Spray Pump performance test (PT-6C). Additionally, a calibrated stopwatch should be required by procedure and used during surveillance's which time events that establish equipment operability.** **ACTION:**		
Revise containment spray pump procedure PT-6C to include specific pump start criteria and include the use of calibrated stop watch	G.Vanderheyden	6/30/97
Initiate procedure revision requests if necessary for other component procedures that may have similar deficiencies	G.Vanderheyden	6/30/97

Appendix A
Zion Level One PIF Recommendations

Recommendation / Action	Owner	Due Date
RECOMMENDATION: **Two actions directed by GOP-4 in step 5.21.f should be divided into two distinct steps for human factor reasons.** **ACTION:**		
Revise GOP-4 step 5.21.f into two distinct steps	G.Vanderheyden	6/14/97
RECOMMENDATION: **Procedure adherence needs to be revisited in terms of standards, guidance and oversight. This applies for actions related to the unauthorized reactor start-up and deficiencies noted in the Containment spray Pump performance test.** **ACTION:**		
Revise Operations Standards documents to ensure proper standards, guidance and oversight are included as related to the unauthorized reactor startup and deficiencies noted in the containment spray pump performance test.	G.Vanderheyden	Completed with Action Plan 3.
Develop and implement crew Remediation training focusing on procedure adherence and other conduct of standards.	G.Vanderheyden	Complete
RECOMMENDATION: **Additionally, the Team reviewed existing requirements for Fitness for Duty testing following an event of this nature. The Director of Corporate Nuclear Security has committed to review the threshold at which testing would be a required consideration, as directed by Nuclear Security Guideline 207.** **ACTION:**		
Review and revise existing event response procedures for Fitness For Duty testing as appropriate based on Corporate Procedure direction.	M. Weis	6/14/97