UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
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MAR 19 2002

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Nebraska Public Power District
TXU Generation Company LP
Union Electric Company
Pacific Gas and Electric Company
Omaha Public Power District
Arizona Public Service Company
Southern California Edison Company
STP Nuclear Operating Company
Wolf Creek Nuclear Operating Corporation

Name of Facility: Arkansas Nuclear One
Columbia Generating Station
Cooper Nuclear Station
Comanche Peak Steam Electric Station, Units 1 and 2
Callaway Plant
Diablo Canyon Nuclear Power Plant, Units 1 and 2
Fort Calhoun Station
Grand Gulf Nuclear Station
Palo Verde Nuclear Generating Station, Units 1, 2, and 3
River Bend Station
San Onofre Nuclear Generation Station, Units 2 and 3
South Texas Project Electric Generating Station, Units 1 and 2
Waterford Steam Electric Station, Unit 3
Wolf Creek Generating Station

Docket: 50-313; 50-368; 50-397; 50-298; 50-445; 50-446; 50-483; 50-275; 50-323; 50-285; 50-416; 50-528; 50-529; 50-530; 50-458; 50-361; 50-362; 50-498; 50-499; 50-382; 50-482

SUBJECT: OPERATOR LICENSING WORKSHOP MEETING SUMMARY

Dear Sirs:

This letter provides a meeting summary for the NRC sponsored Public Workshop conducted in Arlington, Texas, on March 13, 2002, at the Texas Health Resource Pavilion Auditorium. The workshop was open to public participation and involved discussions between Region IV utility representatives, the public, and the NRC staff.

Enclosed is the workshop summary, including presentation handouts and a list of attendees. We found the workshop to be a valuable opportunity for the exchange of ideas and concerns

between the NRC staff and Region IV licensee representatives concerning the Operator Licensing Program policies and recent revisions.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/NRC/ADAMS/index.html (the Public Electronic Reading Room).

Sincerely,

Anthony T. Gody, Chief
Operations Branch
Division of Reactor Safety

Enclosures:
1. March 13, 2002, Public Workshop Agenda
2. List of Public Meeting Attendees
3. Presentation Handouts

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ENCLOSURE 1

Region IV Counterpart Workshop
March 13, 2002

Location: 601 Ryan Plaza Drive
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Contact: Anthony T. Gody, Chief - Region IV Operations Branch
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Agenda: Wednesday, March 13, 2002

8:00 - 8:15	Opening Remarks	Pat Gwynn Tony Gody
8:15 - 8:45	Simulator Rule	Steve McCrory
8:45 - 9:15	Requalification Inspections	Tony Gody
9:15 - 9:30	Break	
9:30 - 10:00	Examination Schedule for CY' 2002 and 2003	Tony Gody
10:00 - 11:00	Current Events in Operator Licensing	David Trimble
11:30 - 12:30	Lunch	
12:30 - 1:45	NUREG-1021, Revision 8, Supplement 1	John Munro
1:45 - 2:00	Break	
2:00 - 2:45	NUREG-1021 (Continued)	John Munro
2:45 - 3:00	Break	
3:00 - 4:00	Requalification Significance Determination Process	Dick Eckenrode
4:00 - 4:30	Questions and Answers and Closing Remarks	Tony Gody (Panel)

ENCLOSURE 2

Attendees at March 13, 2002, Public Workshop

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ENCLOSURE 3

Licensed Operator Requalification Program Inspection

NRC Inspection Manual
Procedure 71111.11

Biennial review

Two regional specialists
one week on-site
about 96 hours every two-years

examination review may warrant additional inspector week either on-site or in Region IV office

Quarterly review

One resident inspector
about 3 hours per quarter

Inspection Objectives
Biennial

Verify requalification program adequate to ensure safe plant operation.

Assess the facilities effectiveness in tailoring requalification program based on operational performance.

Assess the facilities effectiveness in ensuring licensed operators satisfy the conditions of their licenses as specified in 10 CFR 55.53.

Assess facility performance in a manner to facilitate a decision on the need for additional NRC inspections or NRC-conducted examinations.

Inspection Focus Areas
Biennial

Facility Operating History

Written and Operating Examinations

Requalification Examination Administration

Training Feedback System

Remedial Training

Operator License Conditions

Written and Operating Examination Results

Facility Operating History

Inspectors look for patterns of inadequate operator performance

Review Plant Issues Matrix and Plant Performance Review

Review recent examination and inspection reports

Review Licensee Event Reports

Review Performance Indicators

Review facility internal indicators such as event review reports, human performance evaluations, self-assessments, or quality assurance audits

Written and Operating Examinations

Review sample of exam material (Appendix A checklist)

Plant changes incorporated into examination materials

Incorporation of unit differences into examinations on multi-unit sites

Requalification examination sample methodology review

- retraining 10 CFR 55.59(c)(4)(i)
  - operator performance deficiencies
  - industry operating experience
- requalification subjects 10 CFR 55.59(c)(4)(ii)
- operating tests consistent with UFSAR (e.g., expected operator response times)
- incorporation of PRA insights

Ensure written and operating examinations are operationally valid

- examinations consistent with sample plan and repeatability issues addressed in accordance with NUREG 1021
- appropriate comprehension level
- performance standards clear, objective, and relevant
- written examinations satisfy 10 CFR 55.41 and 10 CFR 55.43 and operating examinations satisfy 10 CFR 55.45

Examination Administration

Assess facilities ability to conduct written and operating examinations.

Ensure any errors in administration are detected and corrected for subsequent examinations.

Use of performance standards in grading both written and operating examinations.

Assess simulator performance and fidelity to the reference plant. Complete simulator fidelity report as needed.

Conduct interviews of various personnel involved in administering examinations to facilitate the identification and assessment of any differences.

Review examination administration measures to ensure a fair and equitable examination as required by 10 CFR 55.49 and verify that corrective actions for previous issues are implemented

Compare operating crew performance in the control room to operating crew performance in the simulator.

Training Feedback

Evaluate use of employee feedback from operators

- Interview responsible individual to ascertain knowledge of program
- Review sample of employee comments and facility response
- Interview facility personnel to determine level of satisfaction

Review facility quality assurance oversight

Remedial Training

Review examples of operator and crew performance and determine if facility identified root causes and implemented corrective actions

Determine if facility evaluates effectiveness of corrective actions

Review remediation plans as appropriate

Observe simulator and job performance measure instruction if possible

Interview personnel regarding effectiveness of remedial training

License Conditions

Maintenance of operator licenses

- determine if licenses are maintained active
- reactivated licenses current and required operator functions conducted "under direction"
- requalification training schedule maintained

Medical fitness program and records

- ensure physical examinations are being performed and documented
- special license conditions being met

Examination Results

Operator failure rates consistent with NUREG 1021

Evaluate significance of failures in accordance with NRC Inspection Manual Chapter 0609, Appendix I, "Operator Requalification and Human Performance Significance Determination Process"

ATTACHMENT 71111.11

INSPECTABLE AREA: Licensed Operator Requalification Program

CORNERSTONES: Initiating Events (10%)
Mitigating Systems(70%)
Barrier Integrity(10%)
Emergency Preparedness (10%)

INSPECTION BASES: The inspection evaluates licensed operator performance in mitigating the consequences of events. Poor licensed operator performance results in increased risk through increased operator recovery rates and increased personnel-induced common-cause error rates assumed in the licensees' individual plant examinations (IPEs).

This inspectable area verifies the following key attributes for which there are no performance indicators: (1) human performance (pre- and post-event human error) in the Initiating Event cornerstone as well as the Mitigating Systems and Barrier Integrity cornerstones;(2) procedure quality issues (post-event operating procedures), in the event licensed operator performance issues are identified and human performance in the Initiating Events and Mitigating Systems cornerstone; and (3) emergency response organization performance [self-assessment, severe-accident management guidelines implementation and actual response] regarding initial and subsequent interactions by licensed operators [emergency action levels (EALs) and protective action recommendations (PARs)] in the Emergency Preparedness cornerstone.

LEVEL OF EFFORT: <u>Biennial Review by Regional Specialist</u>

A biennial review of the licensed operator requalification program will be conducted by regional specialist at the facility licensee's site. The level of effort includes in-office review of tests that may be performed by the regional specialist. Depending on availability, resident staff members may assist the regional specialist during the biennial review.

<u>Requalification Activities Review by Resident Staff</u>

A review of the licensed operator requalification testing and/or training activities will be conducted by the resident staff at least once each quarter.

71111.11-01 INSPECTION OBJECTIVES

01.01 To verify that the facility licensee's requalification program for licensed reactor operators (ROs) and senior reactor operators (SROs) ensures safe power plant operation by adequately evaluating how well the individual operators and crews have mastered the training objectives, including training on high-risk operator actions with senior reactor analyst's (SRA's) input.

01.02 To assess the facility licensee's effectiveness in evaluating and revising the requalification program for licensed operators based on their operational performance, including requalification examinations.

01.03 To assess the facility licensee's effectiveness in ensuring that the individuals who are licensed to operate the facility satisfy the conditions of their licenses as specified in 10 CFR 55.53.

01.04 To supply regional management with the information necessary to assess the performance of the facility licensee's licensed operator requalification program and determine the need for additional inspections or NRC-conducted examinations.

71111.11-02 INSPECTION REQUIREMENTS

02.01 Inspection Composition. For biennial reviews, the inspection should include at least one qualified operator licensing examiner with expertise relevant to the plant(s) being evaluated. Normally, an inspection would include individuals with operations backgrounds and individuals with plant-specific knowledge. For quarterly reviews, the resident staff will use applicable portions of this procedure when completing the simulator review each quarter.

02.02 Sample Selections. When selecting sample areas to inspect within the licensed operator requalification process, a risk-informed, performance-based regulatory approach should be considered in which risk insights, engineering analysis and judgment, including the principle of defense-in-depth and the incorporation of safety margins, and performance history are used to (1) focus attention on the most important activities, (2) establish objective criteria for evaluating performance, and (3) develop measurable or calculable parameters for monitoring system and licensee performance.

No specific number of comprehensive written examination or operating test samples is recommended. Rather, the inspector should choose as many examples as warranted to ensure a sufficient basis for evaluating the effectiveness of the licensee's requalification program.

02.03 Facility Operating History. Assess operator performance since the last requalification program evaluation (inspection or examination) to determine if performance deficiencies have been addressed through the requalification training program.

02.04 Licensee Requalification Examinations. Assess the adequacy of the facility licensee's written examinations and operating tests for requalification.

02.05 Licensee Administration of Requalification Examinations. Observe examinations and tests in progress and interview personnel to assess the facility licensee's effectiveness in conducting written examinations and operating tests to ensure operator mastery of the requalification training program content.

02.06 Licensee Training Feedback System. Assess the effectiveness of the facility licensee's process for revising and maintaining its licensed operator continuing training program up to date, including the use of feedback from plant events and industry experience information.

02.07 Licensee Remedial Training Program. Assess the adequacy and verify the effectiveness of the remedial training conducted since the last requalification examinations and the training planned for the current examination cycle to ensure that it addresses weaknesses in licensed operator or crew performance identified during training and plant operations.

02.08 Conformance With Operator License Conditions. Review the facility licensee's program for maintaining active operator licenses and ensuring the medical fitness of its licensed operators. Assess the facility and operator licensees' compliance with the requirements for maintaining license conditions in accordance with 10 CFR 55.53.

02.09 Written Examination and Operating Test Results. For each requalification cycle, review the number of applicants and the pass/fail results of written examinations, individual operating tests and simulator operating tests.

02.10 Resident Inspector Quarterly Review of Licensed Operators' Requalification Testing and/or Training Activities. At least once each quarter, observe testing and training for SROs and ROs, identify deficiencies and discrepancies in the training, and assess licensed operator performance and evaluator's critique. Emphasis should be placed on observing training on high-risk licensed operator actions, operators' activities associated with the emergency plan and previous lessons learned items or plant experiences.

71111-03 INSPECTION GUIDANCE

General Guidance

Facility licensees are required by 10 CFR 50.54(l-1) to have in effect a Commission-approved operator requalification program that must, as a minimum, meet the

requirements of 10 CFR 55.59(c). In lieu of paragraphs (c)(2), (3), and (4) of that section, the Commission may approve a program developed by using a systems approach to training (SAT), as defined in 10 CFR 55.4. In accordance with 10 CFR 55.59(a), each licensed individual must successfully complete the requalification program developed by the facility licensee and pass an annual operating test and a comprehensive written examination administered at the end of each requalification cycle, not to exceed 24 months in duration.

This baseline inspection procedure is intended to determine if a facility licensee's requalification program meets elements (4) and (5) of a SAT-based program as defined in 10 CFR 55.4. Inspectors should prioritize their activities to ensure that inspection requirements 02.03, 02.04, 02.05,and 02.09 are completed first. Inspection requirements 02.06, 02.07, and 02.08 are to be considered and performed to the extent necessary to conclude that the objectives of the inspection procedure have been met. In some cases a specific inspection requirement need not be addressed because the inspector is satisfied from inspections already conducted or from other information that the licensee's activities are acceptable.

If regional management determines that the facility licensee's licensed operator requalification program is not based on a systems approach to training as defined in 10 CFR 55.4, consult with the headquarters program office regarding the appropriate response. Regional management should submit all proposed enforcement actions related to 10 CFR Part 55 to the Office of Nuclear Reactor Regulation (NRR) staff for review before issuing them.

The region should announce its intent to conduct requalification inspection activities at a facility. In order to better coordinate with the licensee's requalification examination schedule, it is acceptable to conduct this inspection in two annual parts. This should be carefully planned in order to maximize coverage of the inspection procedure while staying within the allotted resources. Although most of the inspection activities will be conducted while the facility licensee administers its annual operating tests, the region may exercise discretion regarding where and when it completes some of the inspection requirements. For example, if the region asks the facility licensee to submit specific examinations to the Nuclear Regulatory Commission (NRC) before the site visit, the inspectors can complete portions of inspection requirements 02.03 and 02.04 before they travel to the facility. It is anticipated that two inspectors will then be able to complete the remaining inspection requirements during a one-week visit to the site. If the region does not ask the facility licensee to submit its examinations in advance, the region may send an inspector to the site to review the examination materials in preparation for the primary inspection. As a third option, the region may dispatch three inspectors to complete all the inspection requirements during a one-week site visit. When planning inspection efforts, keep in mind that the regulations only require the facility licensee to administer a comprehensive written examination every two years unless its approved requalification program requires more frequent examinations.

In accordance with 10 CFR 55.59(c), facility licensees are required to submit to the Commission, upon request, the annual operating tests or comprehensive written examinations used for operator requalification. The region may request those tests and

examinations in writing by sending the licensee a corporate notification letter similar to the one that is used for NRC-conducted examinations. Usually, the region will ask the facility licensee to submit only those examinations and tests that will be administered during the week of the inspection. Other examination materials, such as previously administered examinations and tests, question banks, and sample plans, are normally reviewed on site.

Regional managers will consider overall facility performance in the findings of the NRC's inspection programs and initial examinations. Generally, only the inspection requirements of this procedure will need to be conducted; however, augmented activities can be initiated in accordance with10 CFR 55.59(a)(2)(iii) and program office guidance when necessary to ensure safe plant operation. Those activities could include a full "Training and Qualification Effectiveness" inspection in accordance with Inspection Procedure (IP) 41500, "for cause" examinations in accordance with NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," or operational evaluations of on-shift crews.

Since the inspection process relies on sampling a basically sound facility program, the NRC would conduct examinations at the facility only when it has lost confidence in the facility licensee's ability to conduct its own examinations or when the staff believes that the inspection process will not provide the needed insight. Regional management should consider conducting "for cause" requalification examinations or operational evaluations when any of the following conditions exist:

- Requalification inspection findings that indicate an ineffective licensee requalification program(e.g. one yellow finding or multiple white findings based on the Operator Requalification Human Performance Significance Determination Process),
- Operational problems to which operator error is a major contributor, or
- Allegations regarding significant training program deficiencies.

Implement "for cause" examinations through the normal resource planning process, since an inspection activity would be replaced with more resource-intensive examinations. Using the existing inspection planning process will ensure that the regional office and NRR consider the need for conducting examinations with alternative expanded inspection tools available, and will allocate the required resources. Operational evaluations should be considered as a reactive effort based on immediate safety concerns.

Most issues that meet the threshold as defined in IMC 0610*, Appendix B, for assessment using the SDP will relate to mitigating activities and should be assigned to the Mitigating Systems cornerstone. Should the finding clearly relate to the breech of a barrier, it should be assigned to the Barrier Integrity cornerstone. Should the finding clearly relate to an error by the operator that would cause an event had it been on the actual plant, it should be assigned to the Initiating Events cornerstone. In all cases, the inspector should provide a rationale for the cornerstone assignment.

Specific Guidance

03.01 Inspection Composition. Refer to paragraph 02.01.

03.02 Sample Selections. Refer to paragraph 02.02.

03.03 Facility Operating History. Review the following documents to determine the effectiveness of the facility's licensed operator requalification training program:

a. Most recent plant issue matrix (PIM) report, and plant performance review (PPR) report.

b. Recent examination and inspection reports [e.g., emergency preparedness or emergency operating procedure (EOP) inspections] related to operator training or performance.

c. Resident inspector observations and reports regarding operator performance.

d. Licensee event reports (LERs).

e. Other indications of operator performance, such as technical specification (TS) violations, internal event reports, human factors information system (HFIS) reports, and NRC performance indicators [e.g., engineered safety feature (ESF) actuations and reactor scrams or trips].

In particular, look for patterns of operator performance that create concern regarding the continued safe operation of the facility. If safety concerns are identified, consider, in consultation with the operator licensing program staff, such actions as holding management meetings, conducting operational evaluations, or taking appropriate licensing or enforcement actions.

03.04 Licensee's Requalification Examinations. Assess the facility licensee's examination materials [questions, scenarios, and job performance measures (JPMs) banks], sample plans, and proposed and completed examinations and tests, as described below. NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," contains additional information that may be useful to the inspector in conducting the evaluations. The inspector should use IMC 0609 Appendix I, "Operator Requalification Human Performance SDP," to determine the significance associated with the inspection finding as it relates to the sample size. The inspector should not interfere with the facility licensee's requalification examination process by suggesting modifications to test items or examination schedules. If there are significant concerns regarding the quality of the examinations, inform the facility licensee and refer the concerns to regional management as soon as possible.

The following activities facilitate this assessment:

a. Review a representative sample of the facility licensee's examination materials:

1. The checklists for open reference written test items, JPMs, and dynamic simulator scenarios in Appendix A provide guidance.

2. Compare plant changes to examination materials to determine whether system and procedure changes are being incorporated into the appropriate written questions, JPMs, and dynamic simulator scenarios. The resident inspectors, other knowledgeable personnel from the Division of Reactor Projects, and the NRR project manager may be able to provide information regarding substantial procedure or system modifications that should have been incorporated into the continuing training and testing programs. The 10 CFR 50.59 periodic reports also contain information on plant changes.

3. For plants at which operators hold multi-unit licenses, review the methodology for incorporating unit differences in the facility licensee's requalification examinations. Include both written examinations and operating tests using the simulator in this review. Review the extent to which unit differences are identified in training materials and the simulator as they are used in requalification training and examinations. Evaluate exceptions to training guidelines and simulator fidelity standards taken in the requalification program for negative training potential. Verify that operators receive specific training on unit differences.

b. Review the methodology (i.e., sample plan) that the facility licensee uses to construct its requalification examinations.

1. Assess whether the facility licensee's comprehensive written examinations and annual operating tests point to areas in which retraining is needed [10 CFR 55.59(c)(4)(i)].

(a) Determine if the facility licensee addressed the operator performance deficiencies identified under inspection requirement 02.03.

(b) Determine if the facility licensee has incorporated current industry events applicable to the facility into training and testing, as appropriate.

2. Assess whether the facility licensee's written examinations measure the operators' knowledge of subjects covered in the requalification program and provide a basis for evaluating their knowledge of abnormal and emergency procedures [10 CFR 55.59(c)(4)(ii)].

3. Determine if the operating tests are consistent with activities described in the updated final safety analysis report (UFSAR). Determine if operator response times specified in the accident analysis are evaluated during the operating test. Be careful about determining if the simulator scenario accurately matches the assumptions in the accident analysis. Operating test scenarios may include equipment malfunctions beyond those assumed in the accident analysis. In such a case, the operating test scenario may not be a valid measure of UFSAR operator response times.

4. Determine if the licensee has incorporated probabilistic risk assessment (PRA) insights into the comprehensive written examinations and annual

operating tests. Refer to NRC Manual Chapter 2515, Appendix C, "Use of Insights Derived From Probabilistic Risk Assessment (PRA)." Coordinate with regional senior risk analysts (SRAs) to provide risk insights.

c. Evaluate the quality and content of a sample of the facility licensee's comprehensive written examinations and annual operating tests for the current requalification program cycle. Assess the ability of the examinations to identify operators who possesses a satisfactory level of safety-significant knowledge, skills, and abilities. Ensure the examination items are operationally valid. If the facility is not administering a written examination during the current inspection and if examinations were not reviewed during the previous inspection, review a sample of the examinations that were last given. The following activities facilitate this evaluation:

1. Determine if the examinations are consistent with the sample plan, and verify that test item repeatability issues are addressed in accordance with NUREG-1021.

2. Analyze and compare the comprehension level tested on selected written examinations and operating tests administered during the period under review with the comprehension level tested on other examinations administered or planned during that requalification cycle.

3. Determine whether the expected performance standards are clear, objective, and relevant.

4. Verify that the RO and SRO written examinations adequately sample the items stated in 10 CFR 55.41 and 10 CFR 55.43 and that the operating tests adequately sample the items listed in 10 CFR 55.45.

03.05 Licensee Practices in Administering Requalification Examinations. Observe examinations and test in progress and interview personnel to assess the facility licensee's effectiveness in conducting written examinations and operating tests to ensure operator mastery of the requalification training program content.
The inspector should use IMC 0609, Appendix I, "Operator Requalification Human Performance SDP," to determine the significance associated with the identified issues.

a. Observe as many examination activities as possible to assess the facility licensee's effectiveness in conducting written examinations and operating tests. Focus on those activities that give the greatest insight into the facility licensee's ability to evaluate its operators' mastery of the training program content. Resident inspectors should periodically observe simulator training for licensed operators noting deficiencies and discrepancies in the training and assessing operator performance. Coordinate with the resident inspector(s) to ensure that all pertinent issues are understood and that actions and staffing levels in the simulator are consistent with normal control room practices. The following activities facilitate this assessment:

1. Determine whether the examinations are conducted as planned and whether any errors in administration are detected and corrected for subsequent examinations.

2. Determine whether the facility licensee's examination practices gave proper consideration to minimizing undue operator stress (e.g., scheduling, timing of segments, security measures) and the potential for negative training (e.g., testing crew configuration different from operations).

3. Assess the facility evaluators' use of performance standards by grading selected written examination questions and operating tests in parallel and assessing discussions regarding crew and operator performance following the administration of the operating tests. If there are concerns regarding the facility licensee's grading practices, inform the facility licensee of the concerns and refer the concerns to regional management as soon as possible. The following activities facilitate this assessment:

   (a) Determine whether the performance standards are applied consistently and objectively.

   (b) Determine whether crew and operator performance errors made during simulator evaluations are detected and adequately addressed by the facility's evaluators.

   (c) Determine whether any errors made by individual operators during the walk-through examinations are detected and adequately addressed by the facility's evaluators.

   (d) Determine whether the facility evaluators effectively identify individuals and crews requiring remediation, and appropriately indicate when removal from shift activities is warranted.

   (e) Determine whether post-examination critiques of operators and crews are effective in pointing out strengths and weaknesses and if they accurately appraise the observed performance.

4. Determine whether plant events are factored into the requalification training program based on the review of LERs and plant performance indicators completed under inspection requirement 02.03.

5. Determine the licensee's use of industry experience in the requalification training program.

6. Assess the facility licensee's Operations Department level of involvement in the requalification testing.

b. Assess the simulator's performance and its fidelity to the reference plant to determine if it is adequate to support the requalification program. Also assess the

safety impact of any negative training caused by simulator deficiencies. Refer to 10 CFR 55.45.

1. Record any simulator performance deficiencies noted during the inspection, particularly while observing the dynamic simulator operating tests.

2. If any simulator deficiencies are noted that impact operator actions as described in the most recent version of ANSI/ANS 3.5, complete a simulator fidelity report, as outlined in ES-501 of NUREG-1021, and document in the inspection report.

c. Interview an operator, an instructor, a training supervisor, and an evaluator regarding the facility's policies and practices for administering examinations. If the interviews result in conflicting information, additional interviews may be needed to clarify the differences. Refer to the suggested interview topics in Appendix B when conducting these and other interviews. These interviews assist the inspector in determining whether:

1. The training staff understands the operating test performance standards and how they are to be implemented.

2. Management guidance and expectations parallel the actual conduct of testing as it was observed.

3. The operators understand the facility licensee's policies and practices and what is expected of them during the examinations.

4. The operators are aware of simulator performance deficiencies and the potential for negative training.

5. The interviewees' perception and knowledge of examination security are consistent with administrative procedures.

d. Review examination security measures to ensure compliance with 10 CFR 55.49, which prohibits applicants and facility licensees from engaging in any activity that compromises the integrity of any application, test, or examination required by 10 CFR Part 55. The following activities facilitate this review:

1. Review the facility licensee's process for maintaining examination security. Review facility guidelines on allowed overlap between examinations in current exam cycle tests and prior year examination.

2. Monitor the examination while it is being administered and review the results to determine if there is any indication of examination compromise.

3. If examination security problems were noted in the past, determine what corrective action(s) have been taken to preclude recurrence.

e. Observe the activities of one or more operating crews in the control room and compare this performance with performance observed in the simulator on requalification examinations. Examples of activities to compare are performance of surveillances, supervisory oversight, command and control, communication practices, log keeping, crew assignments and responsibilities, staffing levels, shift turnover, and management presence. Coordinate this observation with the resident inspectors observations of control room activities.

03.06 Licensee Feedback System. Evaluate the effectiveness of the facility licensee's process for revising and maintaining its licensed operator continuing training program up to date, including the use of feedback from plant events and industry experience information.

a. Evaluate whether the facility licensee's use of employee feedback from operators, instructors, and supervisors is effective. The following activities facilitate this evaluation:

1. Determine who is responsible for obtaining employee feedback and compare that individual's understanding of the program goals to the management expectations for the program.

2. Review and evaluate a representative sample of the employee comments to determine if the program's consideration of the comments, recommendations, and their implementation are appropriate. Determine if requalification program changes are backlogged and the cause for the backlog. Determine whether program changes are prioritized on the basis of safety. Compare these findings with management expectations.

3. Interview facility personnel to determine whether they know of, use, and are satisfied with the system used to gather and implement feedback. Refer to paragraph 03.05.c for related guidance and to Appendix B for suggested interview topics.

b. If warranted by previous facility performance, review the facility quality assurance/quality control (QA/QC) oversight activities in accordance with 10 CFR Part 50 (Appendix B) and evaluate the licensee's ability to assess the effectiveness of its requalification program and to implement appropriate corrective actions.

03.07 Licensee's Remedial Training Program. Verify the adequacy and effectiveness of the remedial training conducted since the last requalification examinations and the training planned for the current examination cycle to ensure that it addresses weaknesses in licensed operator or crew performance identified during training and plant operations. The inspector should use IMC 0609 Appendix I, "Operator Requalification Human Performance SDP," to determine the significance associated with the identified issues.

a. Remedial training includes the additional training provided to operators to correct deficiencies that prevent them from successfully passing the requalification examination and the training provided to operators to correct generic or individual

weaknesses observed during the previous requalification cycle examination. The following activities facilitate this review:

1. Review examples of operator and crew performance weaknesses since the last inspection and determine whether the facility licensee identified their root causes and implemented appropriate corrective actions.

2. Determine if the facility licensee confirms the effectiveness of its corrective actions at the completion of retraining with a suitable evaluation method.

3. Review the remediation plans (e.g., lesson plans, reference materials, and attendance documentation) to assess the effectiveness of the remedial training.

4. When possible, observe applicable simulator and JPM instruction to assess the effectiveness of the remedial training.

5. Interview selected facility personnel to verify the effectiveness of remedial training. Refer to paragraph 03.05.c for related guidance and to Appendix B for suggested interview topics.

03.08 Conformance With Operator License Conditions. Review the facility licensee's program for maintaining active operator licenses and ensuring the medical fitness of its licensed operators. Sample the following activities during alternate inspections to verify the facility and individual licensees' conformance with the requirements of 10 CFR Part 55. In order to focus the review, the inspector is encouraged to solicit observations and insights in this area from resident inspectors.

a. Review the facility licensee's program for maintaining active operator licenses and assess compliance with 10 CFR 55.53(e) and (f). The following activities facilitate this review:

   1. Sample records for at least one operating crew to determine if crew members are maintaining active licenses. Review records of licensed staff operators (i.e., those not assigned to shift crews) to ensure that their licenses have been activated before standing watch.

   2. Determine if any operator licenses were reactivated since the last inspection and verify that the operator's qualifications were current and the required operator functions were performed "under direction."

   3. Determine if all requalification training is completed on schedule or made up in accordance with the facility's program. Sample training attendance records to include the end of the last 2-year requalification cycle.

b. Review the facility licensee's program for ensuring the medical fitness of its licensed operators and assess compliance with 10 CFR Part 55, Subpart C,

"Medical Requirements," and Subpart F, "Licenses," item 55.53(i). The following activities facilitate this review:

1. Review a representative sample (i.e., approximately 10 percent) of the licensed operators' medical records to verify that the required physical examinations are being performed and documented.

2. Verify that operator licensees are complying with special license conditions, as applicable, and that those operators who do not meet medical standards are precluded from performing licensed duties.

03.09 Written Examination and Operating Test Results. At the end of the testing cycle, review licensee requalification examination results. Assess whether operator failure rates are consistent with the guidance of the most recent version of NUREG 1021. The inspector should use IMC 0609 Appendix I, Operator Requalification Human Performance SDP, to determine the significance associated with requalification examination failure rates.

03.10 Resident Inspector Quarterly Review of Licensed Operators' Requalification Testing and/or Training Activities. At least once each quarter, observe testing and/or training for SROs and ROs, note deficiencies and discrepancies, and assess licensed operator performance and evaluator's critique. Emphasis should be placed on observing testing and/or training on high risk licensed operator actions, operators' activities associated with the Emergency Plan, and previous lessons learned items or plant experiences. The inspector should use IMC 0609 Appendix I, "Operator Requalification Human Performance SDP," to determine the significance associated with the inspection finding as it relates to the sample size.

a. Review simulator evaluations for previously identified weaknesses, and observe those areas during control room activities. Suggested observation areas are:

- Crew performance in terms of clarity and formality of communication
- Ability to take timely action in the safe direction
- Prioritizing, interpreting, and verifying alarms
- Correct use and implementation of procedures, including the alarm response procedures
- Timely control board operation and manipulation, including high-risk operator actions
- Oversight and direction provided by the shift supervisor, including ability to identify and implement appropriate technical specifications actions such as reporting and emergency plan actions and notifications
- Group dynamics involved in crew performance

The inspector may observe different crews to gain an understanding of differences in personality, performance, and group dynamics involved. The inspector may factor this experience into daily observation of control room operation to draw conclusions on the effectiveness of simulator training. The inspector should discuss any concerns, findings, or insights with the applicable regional specialist.

b. Compare simulator board configurations with actual control room board configuration for consistency, especially with recent modifications implemented in the control room.

71111.11-04 RESOURCE ESTIMATE

It is estimated that approximately 96 hours, on average, of direct inspection effort (DIE) will be required to conduct the biennial review. The effort includes a regional specialist's in-office review of tests. It is expected that the actual hours required to complete the inspection may vary from the estimate. The inspection hours allocated for the inspection procedure are budget estimates for the typical plant regardless of the number of units at the site. The hours expended during an inspection should be tailored for the facility licensee and accurately recorded. Depending on availability, resident staff members may assist the regional specialist during the biennial review. An additional 3 hours a quarter is estimated for the resident staff to review licensed operator requalification activities.

71111.11.05 REFERENCE

IMC 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process"

END

Appendices:

A. CHECKLIST FOR EVALUATING FACILITY TESTING MATERIAL

B. SUGGESTED INTERVIEW TOPICS

APPENDIX A
CHECKLIST FOR EVALUATING FACILITY TESTING MATERIAL
(Circle yes [Y] or no [N])

Written Examination Questions Checklist

Y / N 1. Does each question have a documented link to important licensee tasks, knowledge and abilities (K/As), and/or facility learning objectives?

Y / N 2. Is each question operationally oriented (i.e., is there a correlation between job demands and test demands)?

Y / N 3. Is each question written at the appropriate level of knowledge (fundamental knowledge, comprehension, or application/analysis)? Refer to Appendix B, "Written Examination Guidelines," of NUREG-1021, "Operator Licensing Examinations for Power Reactors," for guidance.

Y / N 4. Is the context of each question realistic and free of window dressing and backwards logic?

Y / N 5. Does each question possess a high K/A importance factor (3 or greater) for the job position?

Y / N 6. Does each question appear to have the ability to discriminate between an operator who possesses a satisfactory level of safety significant knowledge and an operator who does not?

Y / N 7. Is each question appropriate for the written examination and the selected written examination format (e.g., short answer; multiple choice)?

Y / N 8. Does any question have the potential of being a "double jeopardy" question?

Y / N 9. Is each question clear, precise, and easy to read and understand?

Y / N 10. Is there only one correct answer to each question?

Y / N 11. Does any question pose situations and problems that differ from those presented during training?

Additionally, For Open-Reference Questions

Y / N 1. Does each question require an appropriate use of references (i.e., use of analysis skills or synthesis of information either to discern what procedures were applicable or to consult the procedures to obtain the answer)?

Y / N 2. Is any question a "direct look-up" question (i.e., one that immediately directs an operator to a particular reference where the answer is readily available)?

Y / N 3. Are there any questions given in a static scenario setup that takes advantage of the simulator control room setting?

Job Performance Measure (JPM) Quality Checklist

Y / N 1. Is each task supported by the facility's job task analysis?

Y / N 2. Is each task operationally important (i.e., meets threshold criterion of K/A at 3 or above or as determined by the facility)?

Y / N 3. Is each task designed as either SRO only, RO/SRO, or AO/RO/SRO?

4. Does each JPM include: (Refer to Appendix C, "Job Performance Measures Guidelines," of NUREG-1021, "Operator Licensing Examinations for Power Reactors," for guidance.)

Y / N a. Initial conditions

Y / N b. Initiating cues

Y / N c. References, including associated procedures

Y / N d. Performance standards that are specific in that exact control and indication nomenclature and criteria (switch position, meter reading) are specified, even if these criteria are not specified in the procedural step

Y / N e. System response cues in the performance standards that are complete and correct so that the examiner can properly cue the operator, if asked

Y / N f. Statements describing important actions or observations that should be made by the operator

Y / N g. Criteria for successful completion

Y / N h. Identification of the critical steps and their associated performance standards

Y / N i. Validated time limits (average time allowed for completion)

Y / N j. JPMs identified as time critical or not time critical

Y / N k. Restrictions on the sequence of steps

Simulator Scenario Review Checklist

Qualitative Attributes

Y / N 1. Is each scenario of the appropriate scope, depth, and complexity with clearly stated objectives? (Refer to Appendix D, "Simulator Testing Guidelines," of NUREG-1021, "Operator Licensing Examinations for Power Reactors," for guidance.)

Y / N 2. Are the initial conditions realistic?

Y / N 3. Does each scenario consist mostly of related events?

4. Does each scenario event description include:

Y / N a. The point in the scenario when it is to be initiated?

Y / N b. The malfunction(s) that are entered to initiate the event?

Y / N c. The symptoms/cues that will be visible to the crew?

Y / N d. The expected operator actions (by shift position)?

Y / N e. The event termination point?

Y / N 5. Is no more than one non-mechanistic failure (e.g., pipe break) incorporated into each scenario without a credible preceding incident such as a seismic event?

Y / N 6. Is each event valid with regard to physics and thermodynamics?

Y / N 7. Is the sequencing/timing of each event reasonable, and does it allow for the examination team to obtain complete evaluation results commensurate with the scenario objectives?

Y / N 8. Has the simulator modeling been altered?

Y / N 9. Can each rating factor in each crew competency be evaluated?

Y / N 10. Has each scenario been validated?

Y / N 11. If the sampling plan indicates that the scenario was used for training during the requalification cycle, has the facility determined whether it should be modified or not used?

The following criteria list scenario traits that are numerical in nature. A second set of numbers indicates a range to be met for a set of two scenarios. Therefore, to complete this part of the review, the set of scenarios must be available.

<u>Quantitative Attributes</u>

Y / N 1. Total malfunctions inserted: 4 to 8 / 10 to 14

Y / N 2. Malfunctions that occur after EOP entry: 1 to 4 / 3 to 6

Y / N 3. Abnormal events: 1 to 2 / 2 to 3

Y / N 4. Major transients: 1 to 2 / 2 to 3

Y / N 5. EOPs used beyond primary scram response EOP: 1 to 3 / 3 to 5

Y / N 6. EOP contingency procedures used: 0 to 3 / 1 to 3

Y / N 7. Approximate scenario run time: 45 to 60 minutes (one scenario may approach 90 minutes)

Y / N 8. Crew critical tasks: 2 to 5 / 5 to 8

Y / N 9. Are Technical Specifications exercised during the test?

COMMENTS:

APPENDIX B
SUGGESTED INTERVIEW TOPICS

Activity	Suggested Interview Topics/Questions
General	Former positions at the facility: How long? Licensed?
	Current position and duties: How long? Licensed? Requalification program responsibilities?
Exams, performance standards, simulator, and security	Examinations: How developed? Sampling plan? Appropriate coverage? License level? Practiced/covered in training? Duplicate quizzes? Too easy/hard? Too long/short? Were references necessary? How compare with NRC exams?
	Performance standards: How are they formulated? Operations versus training? Are they endorsed by management? Are they objective? How are they communicated to evaluators? Do the operators know what is expected of them? Are they applied consistently?
	Performance feedback: Is it timely? Is it objective? What happens if you fail? How could feedback be improved?
	Administration: Operating/training crew = test crew? What happens if you miss an exam? Measures to mitigate undue stress?
	Simulator: Does it respond correctly? Is hardware current? Any negative training?
	Security: Are exams common? How is security ensured? Are there formal procedures? Responsibility? Do you feel comfortable with process? Do security measures cause undue stress? Are you aware of any incidents? What would you change if you could?
Feedback system	Feedback collection: How is it done? Who collects comments? Who is solicited? Does the QA/QC Department oversee the program?
	Comment resolution: Who does it? Is it timely? Safety basis for changes? How is management involved? How are changes promulgated? Were they resolved to your satisfaction? Feedback to originator? Recent examples?
	Overall, how effective is your training program? The examination program? The feedback system? How would you improve it?
Remedial training program	Program development: How are remedial training needs identified? Individual/crew exam results? On-the-job performance/events? Generic weaknesses? Who develops remedial training programs? How is Operations involved?
	Implementation: Is it appropriate? Is it effective? How is remediation verified? How would you improve it?

END

Region IV Facility Examination Requests

INITIAL EXAMINATIONS LICENSEE REQUEST: N-NRC AUTHOR, F-FACILITY AUTHOR, S-SPLIT DEVELOPMENT

Fac.	ANO1	ANO2	CAL	CGS	CP	CNS	DC	FCS	GG	PV	RB	SON	STP	W3	WC
FY02 1	F 8/19/02 6R 2U	F 2/11/02 7R 10U	F 7/29/02 8R 2I 1U			F 8/5/02 6R 3I 3U		F10/22/01 Retake						F 1/21/02 8R 1I 3U	F 12/10/0 3R 6I 3U
2								F 9/8/02 6R 3I 2U	F 6/26/02 7R 1U						
FY03 1		F 7/14/03 6R 3I 3U		F 10/7/02 6R 6I 3U	N 11/4/02 10R 10I 1U	N 6/16/03 6R 3I 3U	F 10/21-11/1/02 10R 3I 2U		F 10/03 7U	F 11/18/02 12L	F 2/10/03 6R 3I 3U		S 8/18/03 6R 3U 3I	F 8/25/03 3R 2I 3-5U	
2										F 7/21/03 5R 1I 5U					
FY04 1	F 1/12/04 4R 2I 2U		F 3/?/04 6R 4I 2U					F 3/7/04 6R 3I 2I	F 2/??/04 6R 2I		F 9/6/04 12R 6I	S 12/15/03 6R 4I 5U			F 5/??/04 3R 6I 3U
2															
FY05 1		F 12/??/04 6R 3I 3U	9/05 6R 2I 2U	F 9/15/04 4R 4I 4U			2/05 10R 6I 2U	7/24/05 6R 3I 2U	F 8/??/05 5R 2I 2U	7/??/05 5R 1I 5U			S 7/??/05 6R 3I 3U		
2															
FY06												12/9/05 6R 4I 5U			

Requal Observation and Review Schedule

Arkansas*	
Callaway*	
Columbia	Observations scheduled wk of 12/9/02
Comanche	Observations scheduled wk of 3/3/03
Cooper	Observations to be scheduled during 11-12/03
Diablo Canyon*	
Ft. Calhoun	Observations scheduled wk of 9/23/02
Grand Gulf*	
Palo Verde	Observations scheduled wk of 9/9/02
River Bend	Observations scheduled wk of 5/13/02
San Onofre*	
South Texas*	
Wolf Creek	8/4/03 OP test only (biennial 7-10/02)
Waterford	Observations to be scheduled during 9/03

*Need updated information of requal schedule (written and operating tests) during CY '03

NUREG-1021, Revision 8 Supplement 1 (Changes)	<u>ES-201</u> • Exams developed per 55.40(b) IAW NUREG-1021 • Deviations from intent of ES • All banks are treated equally • Identity of pre-validated items - Source • BC pre-exam call to licensee • Personnel restrictions clarified • Security and Integrity Guidelines attachment clarified • Reference Material - Drawings and diagrams added • Outline quality checklist updated

ES-202

- Background = RIS-2001-01
- Take exam w/ medical pending

ES-204

- Regional deferrals of experience and training

ES-301

- No train ≠ no test
- Reasonable JPM times
- Instrument / component failures

ES-302

- Negotiate copies of test material
- Brief surrogates and STAs
- Station-keeping JPMs
- When to stop a JPM (303/E)

ES-401

- Audit Exam Independence, Includes Practice Exams and Quizzes
- Random/systematic sampling
- Documentation required
- SRO-only questions
- 75/15/10
- 30-question K/A match-up
- Tiers /groups ± one
- New / modified forms

ES-402

- Time limit extended to 6 hrs
- Extensions only when warranted

ES-403

- Fix questions before banking
- Copy answer sheet before grading

ES-501 • Facility submittal guidelines clarified • BC lessons learned call • Quality documentation thresholds • Security measures/activities • Resolve all facility comments • Fidelity report only as required **ES-502** • Retrieve invalid questions • Feedback to facility licensee	**ES-605** • Temporary disability restrictions **Appendix C** • JPM initial conditions **Appendix E** • Written time limit 6 hours • Answer questions based on plant • When to stop a JPM

OPERATOR REQUALIFICATION

HUMAN PERFORMANCE

SIGNIFICANCE DETERMINATION PROCESS

Operator Requalification SDP

- Exam Grading

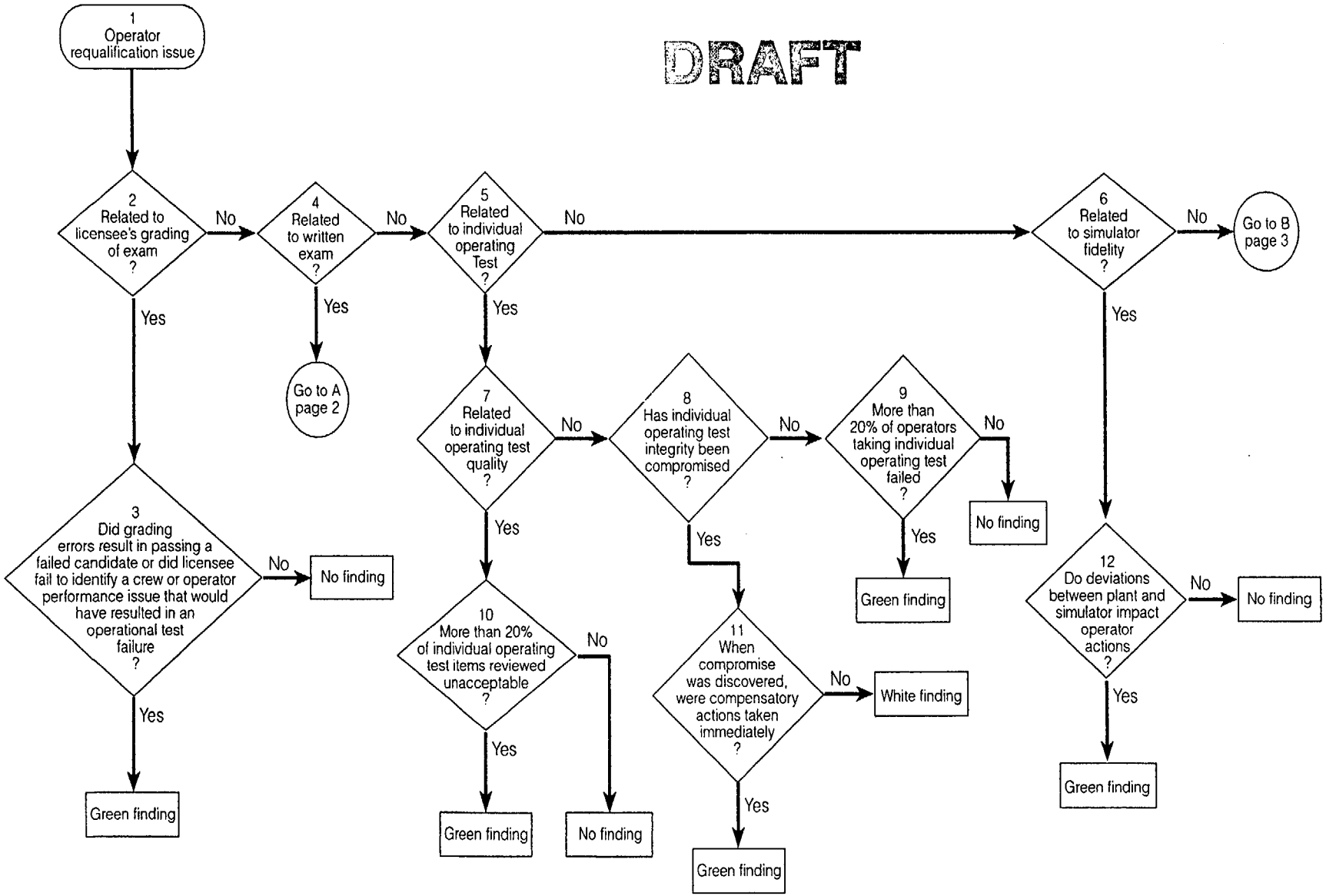
- Written Exam
  - Quality
  - Security
  - Performance

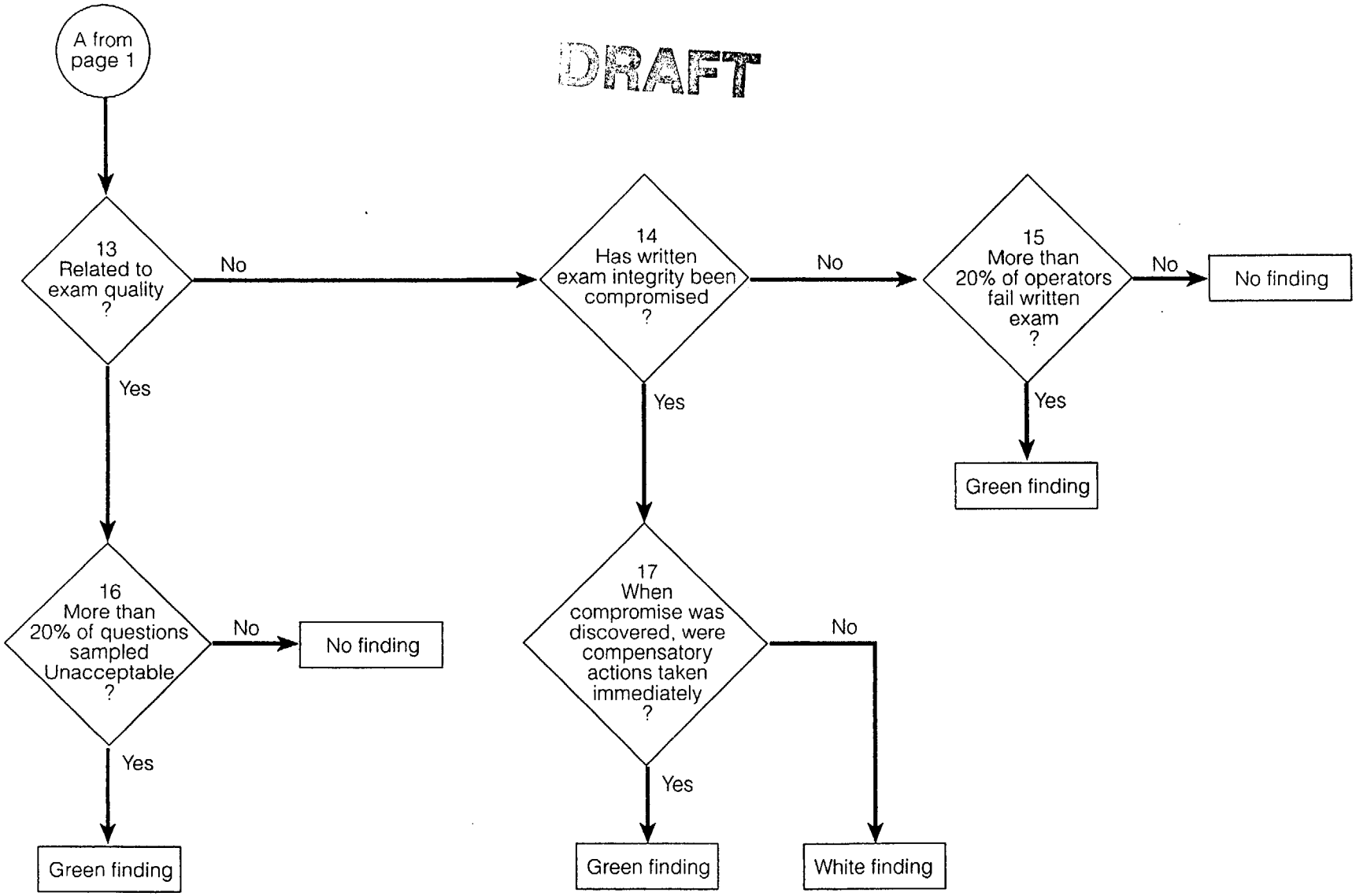
- Individual Operating Test
  - Quality
  - Security
  - Performance

- Simulator Operating Test
  - Simulator Fidelity
  - Scenario Quality
  - Security
  - Operational Test Performance
    - Single/Multiple Crew Failures
    - Remediation

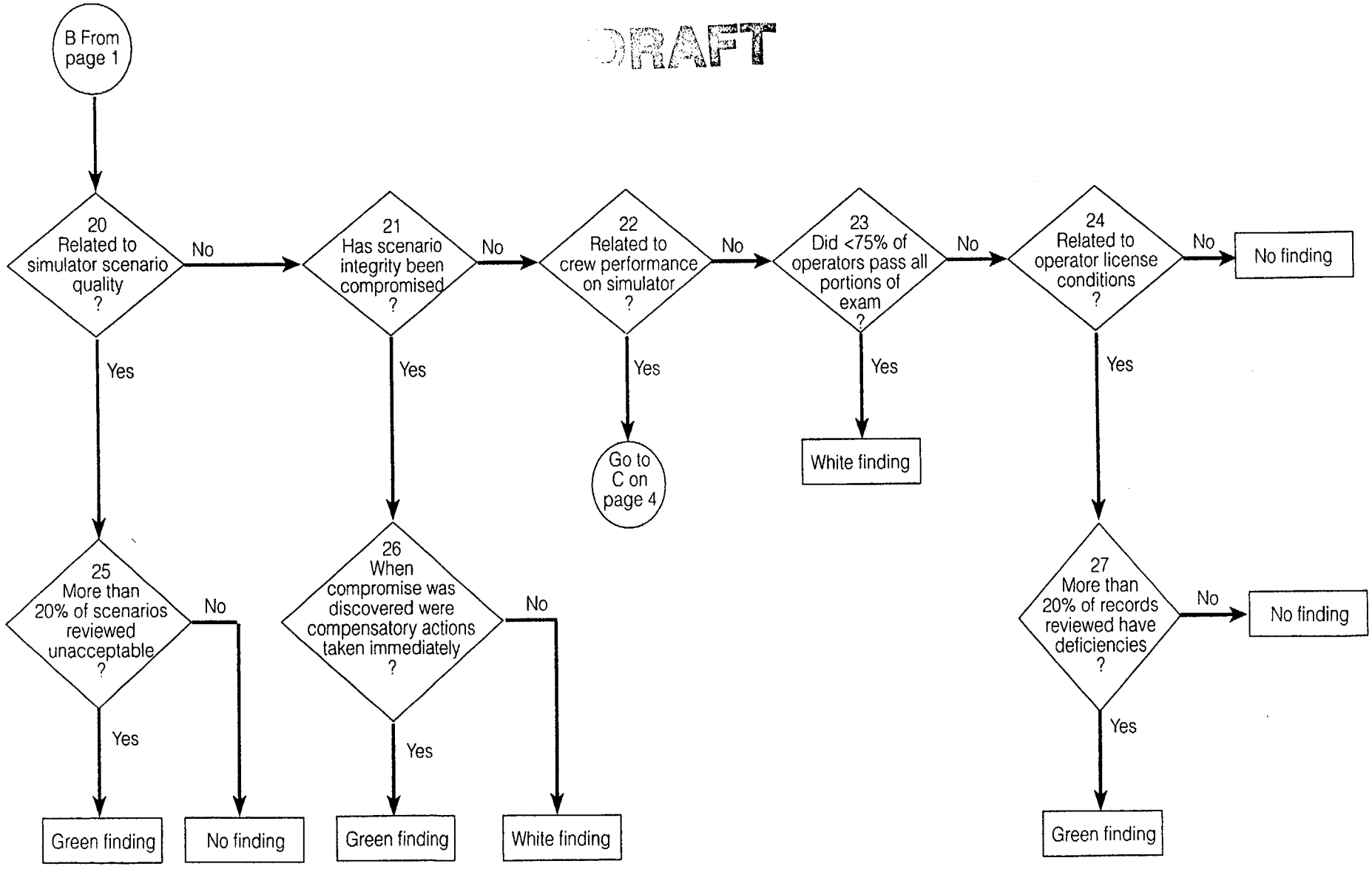
- Operator License Conditions
  - Records Deficiencies

Operator Requalification Human Performance SDP
(February 15, 2002)
Page 1




A from page 1
DRAFT
13 Related to exam quality ?
No
Yes
14 Has written exam integrity been compromised ?
No
Yes
15 More than 20% of operators fail written exam ?
No
No finding
Yes
Green finding
16 More than 20% of questions sampled Unacceptable ?
No
No finding
Yes
Green finding
17 When compromise was discovered, were compensatory actions taken immediately ?
No
Yes
Green finding
White finding

DRAFT


B From page 1
20 Related to simulator scenario quality ?
No
Yes
21 Has scenario integrity been compromised ?
No
Yes
22 Related to crew performance on simulator ?
No
Yes
Go to C on page 4
23 Did <75% of operators pass all portions of exam ?
No
Yes
White finding
24 Related to operator license conditions ?
No
No finding
Yes
25 More than 20% of scenarios reviewed unacceptable ?
No
Yes
Green finding
No finding
26 When compromise was discovered were compensatory actions taken immediately ?
No
Yes
Green finding
White finding
27 More than 20% of records reviewed have deficiencies ?
No
No finding
Yes
Green finding

Simulator Operational Evaluation

September 21, 2000

DRAFT

Number of Crews
with
UNSAT Performance in the
Annual Operating Test

Number of Crews that took the Annual Operating Test (Includes Dual Units)	1	2	3	4	5	6	7	8
4	G	W	Y	Y	NA	NA	NA	NA
5	G	W	Y	Y	Y	NA	NA	NA
6	NF	G	W	Y	Y	Y	NA	NA
7	NF	G	W	Y	Y	Y	Y	NA
8	NF	G	W	W	Y	Y	Y	Y
9	NF	G	G	W	Y	Y	Y	Y
10	NF	G	G	W	W	Y	Y	Y
11	NF	NF	G	W	W	Y	Y	Y
12	NF	NF	G	G	W	W	Y	Y
13	NF	NF	G	G	W	W	Y	Y
14	NF	NF	G	G	W	W	W	Y
15	NF	NF	G	G	G	W	W	Y
16	NF	NF	NF	G	G	W	W	W

NF = < 20% Failure Rate - No Finding
G = 20 - 34% Failure Rate
W = >34 - 50% Failure Rate (NUREG-1021, Rev 8 - UNSAT Requalification Program)
Y = >50% Failure Rate
NA = Not Applicable

Note: If more than 16 crews are tested, or more than 8 crews are UNSAT in a given cycle, use the percentages above to determine the appropriate color.

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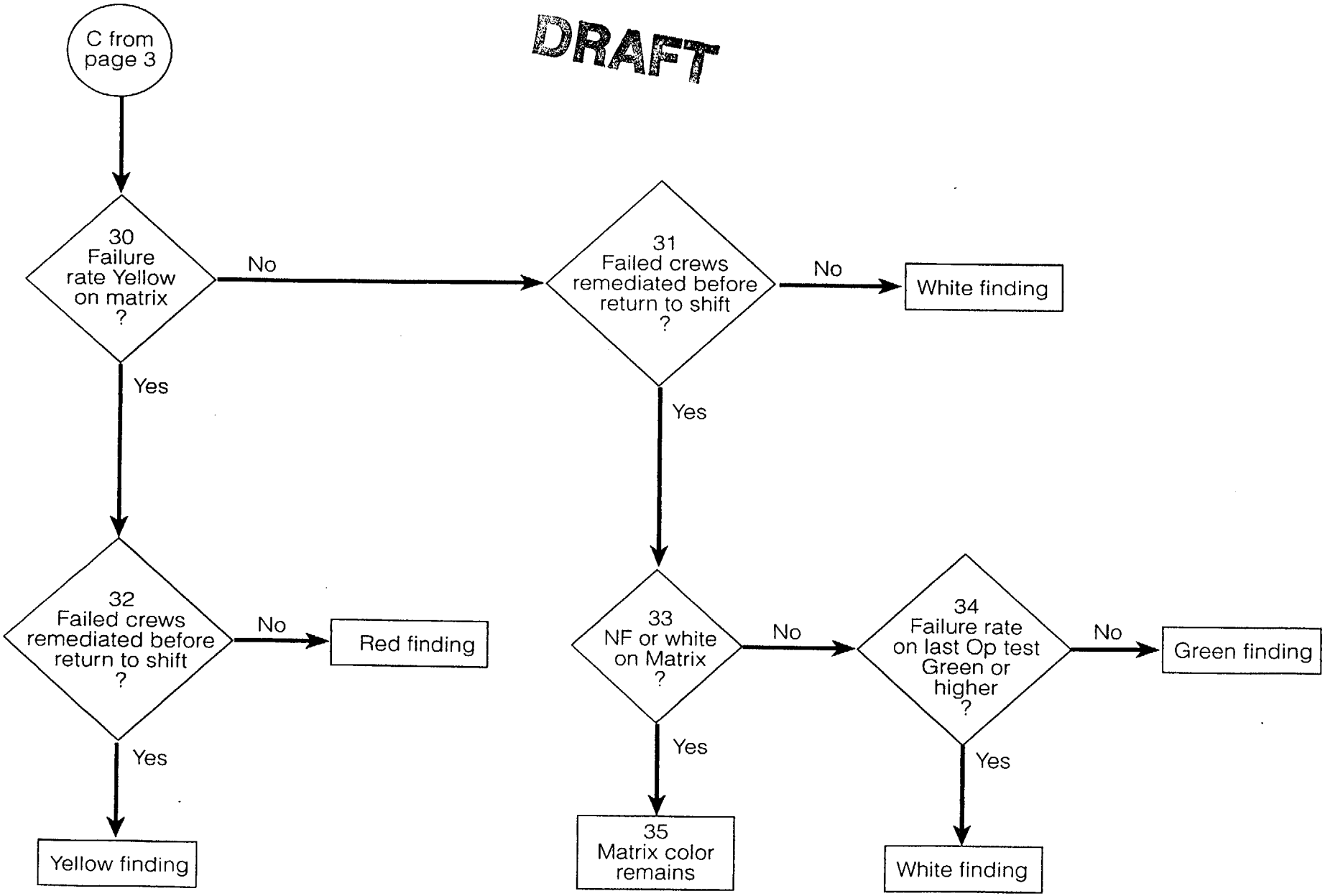
C from page 3
30 Failure rate Yellow on matrix ?
No
Yes
31 Failed crews remediated before return to shift ?
No
White finding
Yes
32 Failed crews remediated before return to shift ?
No
Red finding
Yes
Yellow finding
33 NF or white on Matrix ?
No
Yes
35 Matrix color remains
34 Failure rate on last Op test Green or higher ?
No
Green finding
Yes
White finding

First Year Experience

Potential Color	Exceeded Criteria
Yellow	4 of 7 (57%) crews fail simulator exam
White	Exam compromise not immediately corrected
Green	10 of 44 (22%) operators failed written exam
Green	2 of 10 (20%) crews failed simulator exam
Green	Exam scenario compromised, but corrected immediately by selecting a different scenario
Green	Simulator setup saved on computer automatically uploaded to several other non-secure stations