

APPENDIX

U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Operator Licensing Examination Report: 50-445/OL 89-01

Construction Permit: CPPR-126

Docket: 50-445

Licensee: TU Electric (TU)
400 North Olive, L.B. 81
Dallas, TX 75201

Facility Name: Comanche Peak Steam Electric Station (CPSES)

Examination at: Comanche Peak Steam Electric Station
Glen Rose, Texas

Examination conducted: Week of July 3, 1989

Chief Examiner:

J. E. Whittemore
J. E. Whittemore, Examiner
Operator Licensing Section
Division of Reactor Safety

8/9/89
Date

Approved:

John L. Pellet
J. L. Pellet, Chief
Operator Licensing Section
Division of Reactor Safety

8/9/89
Date

Inspection Summary

NRC Administered Examinations Conducted During the Week of July 3, 1989
(Report 50-445/OL 89-01)

NRC administered written, walk-through, and simulator requalification examinations to two unit crews consisting of two reactor operators plus two senior reactor operators each and a staff crew consisting of four senior reactor operators. All individuals and crews passed all of the examinations.

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DETAILS

1. Persons Examined

		<u>CREW</u>	<u>SRO</u>	<u>R/D</u>	<u>TOTAL</u>
Requalification Examinations:	Pass-	3	8	4	12
	Fail-	0	0	0	0

2. Examiners

J. E. Whittemore, Chief Examiner
D. N. Graves
K. M. Kennedy
J. L. Pellet
F. W. Victor

3. Examination Report

Performance results for individual examinees are not included in this report since it will be placed in the NRC Public Document Room and these results are not subject to public disclosure.

a. Examination Material Development

The licensee initially submitted developed material late in 1988. NRC reviewers found the following problems with new written and walk-through examination items:

- (1) The facility licensee staff assigned to test preparation did not understand which test items were appropriate for Sections A, "Plant Operations" and B, "Limits and Controls" of the written examination. Several questions designated for Section A required the examinee to use the Emergency Plan Implementing Procedures or to interpret specific Technical Specification LCO's and determine operability. The focus of Section A should be on plant systems and should not require the use of emergency preparedness procedures. Further, it is acceptable to require the operator to recognize Technical Specification LCO's, but questions requiring interpretation or operability determination should be reserved for Section B of the written examination.
- (2) Several written items placed examinees in "double jeopardy." Most often these items required a "yes/no" or "true/false" answer and then required an explanation to support the initial answer with partial credit being allowed for each correct partial answer. The disadvantage is that the examinee can rarely receive partial credit by correctly supporting a wrong initial answer. The licensee initially proposed to require the entire correct answer for full credit. When the Chief Examiner

pointed out that this solution was also unfair to the examinee, most of the items were left as they were initially. It is preferable not to use questions that can be answered "yes/no" or "true/false."

- (3) Many questions could be answered by simple recall of knowledge. Comprehension or synthesis level knowledge was not required to correctly answer the question, or it was merely necessary to look up the correct answer, and no decisionmaking responsibility was required of the examinee.
- (4) The majority of the Job Performance Measures (JPM) questions were look up or recall, and required no analysis or synthesis on the part of the examinee to answer the question. Frequently, the answers to the questions were contained in the procedure that was used to complete the task. Questions used with a JPM are subject to the same content and construction requirements as those submitted for written items.
- (5) The performance standards for JPM steps were often inadequate because of an overuse of the phrase "Same as Element." The element often contained detailed information that should have been in the performance standard for a particular step. For future development, the licensee should consider performance elements that state what the step is, and the performance standard should provide the evaluator with a detailed description of how the step may be successfully accomplished.

In April 1989, the Chief Examiner spent a day at the CPSES facility. The above results of the material review were discussed with the licensee. Also at this time, logistics of examination administration were addressed, and several problems were resolved. In addition, the licensee committed to have completed examination material to the NRC 60 days before the scheduled examination.

The entire sample pool of the finalized material was received in the NRC Region IV office more than 60 days prior to the examination week. During review of the additional material, it was found that problems noted in the initial review phase still existed and only marginal improvement had been made. NRC did not discuss these problems with facility personnel until the examination preparation week when the examination was assembled. Additional problems with material were discussed with the licensee in early June. The specific problems uncovered at this time and noted to the licensee were the following:

- ° The dynamic simulator scenarios contained steps that were considered Individual Simulator Critical Tasks (ISCT), but these were not so identified in the operator evaluation criteria. One example of this was that plant conditions

required a manual scram to prevent a challenge to plant safety, but the scenario contained no evaluation criteria as required by ES-601.

- ° It was noted that often there were questions slated for a particular written Section A static simulator that could not be used together on the same examination. This occurred because the text of one question would give away the answer to another question. These questions that were mutually exclusive and could have negatively impacted examination validity if used together, were not identified by the facility licensee.

b. Examination Development

During the week of June 19, 1989, the Chief Examiner traveled to the CPSES site. The Chief Examiner and one CPSES contractor, who had signed an ES-601 security agreement form, assembled Sections A and B written examinations considered to be satisfactory by both parties. These examinations were time validated by having the designated facility representatives take the examinations. These examinations were graded by NRC and both designated licensee representatives passed the written examinations. At this time, the representatives were informed that these examinations could be counted as their annual written requalification examinations if the CPSES program permitted this. Also at this time, security agreements were signed by the designated facility representatives. After some modification of the examinations, the facility representatives and the Chief Examiner agreed on the final written examination versions.

After finalizing the written examinations, JPMs were selected and assembled into walk-through examinations. This task required considerable effort since examinees could not be examined on JPMs to which they had already been exposed either for validation or practice. The team was able to assemble examinations meeting this requirement because the licensee had developed and instituted a tracking system which indicated the individuals that had been exposed to specific JPMs. More problems were discovered when the selected JPMs were subjected to a final extensive review before administering examinations. The most significant problem involved the JPM followup questions. Many of these questions were deleted or rewritten. Another area that had to be corrected was the misidentification of critical steps within the JPMs. The majority of the action required was redesignating previously designated "Critical" steps as "Non-critical." A third area requiring correction was to improve individual step performance standards.

Simulator scenarios were selected and agreed to by the facility representatives and NRC. There were no major improvements or corrections required after resolving the critical item evaluation issue noted previously. In attempting to evaluate the facility

licensee's relative strengths in material development for the three examination areas, NRC considers simulator scenario development to be the strongest.

When examination assembly was complete, the Chief Examiner met with the designated facility evaluators at the request of the licensee. During this meeting, NRC answered questions about administering walk-through examinations. In response to a specific question, the evaluators were told that it was always acceptable to stop an examination and question or consult with the NRC examiner. The four facility evaluators and a designated administrative assistant signed pre-examination security agreements.

c. Examination Administration

- (1) On July 3, 1989, written examination Section B was administered to two groups of six operators separately in back-to-back sessions. Simultaneously with the first written examination session, walk-through examinations consisting of the five common JPMs were conducted with four of the six operators scheduled to take the second session of the written examination. Precautions were taken so that individuals not involved in the written or walk-through examinations were separated and monitored to preclude any compromise. Twelve individuals were administered written and walk-through examinations in this manner. At the conclusion of the day's examinations, the NRC examiners debriefed individual facility evaluators to obtain immediate results and findings of the three partial walk-through examinations conducted.

The facility licensee demonstrated a lack of attention to detail because the written examinations failed to provide alternate format or rearrangement of the order of questions within the individual written examinations. This action had been previously requested by NRC to facilitate examinees use of common material with minimum risk of compromise.

- (2) On July 5, 1989, written examination Section A was administered to two groups of six operators separately in back-to-back sessions in the CPSES simulator. Simultaneously with the first written examination session, walk-through examinations consisting of the five uncommon JPMs were conducted with four of the six operators scheduled to take the second session of the written examination. Precautions were taken so that individuals not involved in the written or walk-through examination were separated and monitored to preclude any chance of compromise. Twelve individuals were administered written and walk-through examinations in this manner. At the conclusion of the day's examinations, the NRC examiners debriefed individual facility evaluators to obtain immediate results and findings of the three walk-through examinations completed that day.

The facility licensee demonstrated a lack of attention to detail by failing to page check the Section A examinations before they were administered. Consequently, one of the questions that should have been included in the examination was missing. This error was not discovered until the examination was actually being administered to the second group. Fortunately, the included questions were sufficient to serve as a valid examination. A further lack of attention to detail was demonstrated by the licensee's failure to provide alternate orders for the individual examinations as discussed in c.(1) above.

- (3) The morning of July 6, 1989, was set aside for the facility licensee and the NRC to grade written examinations and to finalize grading of the walk-through examinations. Subsequent comparison of grading results between the two parties revealed that there was 100% agreement and that all examinees had passed all phases of the examination to this point. During the afternoon, the dynamic simulator examination was administered to one of the three crews using a facility prepared scenario. Again, the facility licensee and NRC agreed that all examinees and the crew passed this phase of the examination.
- (4) On July 8, 1989, the two remaining crews were evaluated using a common set of scenarios, but different from the set used on the previous day. The two crews were kept separate and monitored to preclude any risk of compromising the scenarios. Again, the facility licensee and the NRC were in total agreement that all individuals and both crews had passed the examinations.

d. Examination Results

All examinees passed all phases of the examination as evaluated by the facility licensee and the NRC. The written examination results indicated (1) lack of knowledge of the excess letdown system and its operation; and (2) deficiencies in diagnostic ability for RCS instrument failure.

A total of six examinees failed seven individual JPMs (one person failed two). JPM 9012, entitled "Responding to Anticipated Transient Without Trip," was failed by four examinees. The licensee is encouraged to determine whether the root cause of this was a performance problem, a problem with the evaluation tool, or both and to correct it. Among the examinees, a total of 227 questions out of a possible 240 JPM followup questions were answered correctly. One individual answered 85% of the followup questions. All others performed better.

There were no critical performance errors observed during administration of the simulator examinations. There were obvious

communication weaknesses noted in the performance of one crew. The remaining two crews demonstrated this problem to a lesser degree.

e. Site Visit Summary

The NRC met with the facility licensee training staff to provide them preliminary results and findings. At this time, all significant weaknesses were noted. These weaknesses were mostly development, not examinee performance oriented. Throughout the process, specific problems relating to material had been relayed to the facility evaluators and designated technical representatives.

An exit meeting was held at the CPSES site at the conclusion of the examinations. The following personnel were present:

<u>NRC</u>	<u>TU</u>	<u>CASE</u>
S. Burris	G. Bell	E. Ottney
J. Pellet	H. Bruner	M. Thero
R. Warnick	J. Donahue	
J. Whittemore	J. Kelley, Jr.	
J. Wiebe	J. McMahon	
	J. Walker	
	A. Scott	

It was noted that the facility representatives had proved to be adept at solving complex logistic problems that had to be overcome to preserve examination integrity. Further, facility representatives had demonstrated technical expertise and a willingness to work long hours; these are considered to be major factors in the successful outcome of the examination process.

It was also noted that the performance of the shift Reactor Operator assigned to Unit 1 during the walk-through examinations was very helpful.

The following items were communicated to the licensee representatives as comments, observations, suggestions, or deficiencies:

- (1) All 12 operators and all three crews passed the examinations. Based on this and in spite of the programmatic weaknesses encountered, the CPSES licensed operator requalification program is evaluated to be satisfactory.
- (2) The facility evaluators performed well; they were considered to be competent and thorough.
- (3) There were minimum of examinee performance problems. Nearly all weaknesses were in the material development area.

- (4) The facility demonstrated resistance to NRC comments and suggestions for improving the initial material submitted. This was difficult to understand since most comments were made to improve examination fairness and examinee's ability to pass the examination.
- (5) More attention to detail is needed to preclude the problems encountered during the preparation and administration of the written examinations, i.e., failure to alter examination format or to include all questions that were intended for the examination.
- (6) The NRC encourages the facility licensee to use the simulator for administering walk-through examinations whenever possible for the purpose of improving examination validity.
- (7) Simulator scenario development is considered to be the strongest area of the facility's ability to develop valid examination material.
- (8) During simulator examinations, crew members consistently failed to assure that communications were received or acknowledged.
- (9) Command and control responsibilities were often unclear to the point where it was difficult to determine which crew member was in charge.
- (10) Crews consistently overfed steam generators when responding to transients using the emergency procedures.
- (11) Crews did not effectively judge or estimate how long a time was needed in order to see the reactivity effects of normal boration.