

## TEXAS UTILITIES GENERATING COMPANY

## OFFICE MEMORANDUM

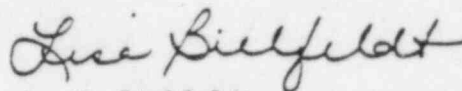
To: R. G. Tolson

Dallas, Texas July 27, 1983

Subject: Protective Coating Adhesion Tests

Per your request I have reviewed the results of adhesion tests performed during backfit inspections (per QI-QP-11.4-23) of miscellaneous steel in Unit 1. For the purposes of this analysis, miscellaneous steel was defined as all steel substrate items inspected in the backfit program except the containment liner. Of the 3625 adhesion test results reviewed, 25 or 0.69% were unacceptable. A one-sided confidence interval for the binomial parameter  $p$  (the proportion of successes) was developed with  $\alpha = .02$ .

In sum, we can be 98% confident that greater than 99% of the protective coatings on miscellaneous steel in Unit 1 have acceptable adhesion.



L. M. Bielfeldt  
Special Project Engineer

$\frac{25 \text{ failed}}{3625} = 0.69\%$

DEC 20 1983

MEMORANDUM FOR: John W. Clark, Chief  
Management Analysis Branch  
Division of Budget and Analysis, RM

FROM: Lee Abramson, Statistical Advisor  
Dan Lurie, Mathematical Statistician  
Management Analysis Branch, RM/B

SUBJECT: TRIP REPORT ON COMANCHE PEAK BACKFIT INSPECTION

On November 29-30, we met with Frank Hawkins (RIII), Claude Johnson (RIV) and Lisa Bielfeldt (Texas Utilities Generating Company (TUGC)) in the TUGC offices in Dallas. We also conferred by telephone with TUGC and plant staff located at Comanche Peak. The purpose of the meeting was to review the statistical analysis of the backfit inspection program at Comanche Peak Units 1 and 2, with the intention of providing an estimate of the total amount of coating which might flake off in the event of an accident.

The backfit inspection program is required to verify that the containment coatings were properly applied, both to the steel and concrete liners and to the miscellaneous items (miscellaneous steel, pipe hangers, conduit supports and cable tray supports). The liners were divided into test areas of approximately 100 square feet and three adhesion tests and five scratch tests (to measure coating thickness) were performed in each test area. Miscellaneous items were divided into test areas of between 5 and 100 square feet, whenever possible, and three adhesion and five scratch tests were performed in each test area. If a test area was less than 5 square feet, only one adhesion test and five scratch tests were performed.

If any adhesion or scratch test indicated a defect, the extent of the defective area was delineated with additional tests and the entire defective area was repaired. However, since the actual area tested was a very small fraction of the total area of the coating (the adhesion test covers a circle about one inch in diameter and the scratch test is only a few inches long), the possibility exists that defective sections of coating, not sampled by the test procedure, still remain.

In order to estimate the total amount of coating which might flake off in the event of an accident, it is necessary to estimate the total area of the defective coating still remaining after the backfit inspection has identified and repaired the defective areas which it happens to have tested. The residual defective area can be estimated from the observed failure rates for the adhesion and scratch tests as performed, along with an estimate of the average size of the defective areas which were repaired. With this information for the various liners and miscellaneous items, it is possible to calculate a confidence interval for the residual defective area.

DEC 20 1983

At the meeting, we requested Ms. Bielfeldt to provide us with the data described above. Since the analyses performed to date by TUGC were designed to confirm that the average thickness of the coating met the technical specifications rather than to estimate the percentage of defective coating, it will be necessary for TUGC to analyze the backfit inspection records to provide us with the requested data. Furthermore, in order to ascertain that the data we will receive is appropriate for making the required estimates, we asked Ms. Bielfeldt to send us a sample of the data as soon as she collects it. We expect to receive this sample data by the end of the year.

Lee Abramson, Statistical Advisor

Dan Lurie, Mathematical Statistician  
Management Analysis Branch, RM/B

cc: F. Hawkins, RIII  
C. Johnson, RIV  
E. Triner, RM/B

bcc: L. Abramson, RM/BMA  
D. Lurie, RM/BMA  
RM/BMA Subj/Chron

RM/BMA	RM/BMA			
Abramson:bb	Lurie			
12/14/83	12/14/83			

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*L. M. Bielfeldt*

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Special Project Engineer

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