

**Summary of Analyses: Likelihood of Negative Interview Bias  
Against Employee Involved in a Protected Activity**

Carey L. Peters, Ph. D.  
Compensation and HR Planning  
March 2002

I received interview ratings data from Brent Marquand, TVA Office of the General Counsel, containing ratings from three raters (Corey, Kent, and Rogers) on three candidates (Candidate A, Candidate B, and Fiser). Each rater rated each candidate on each of nine interview questions for a total of 81 data points (3 x 3 x 9).

As a first step in analyzing the data, an analysis of variance (ANOVA) was conducted to test for differences between raters in the ratings they gave the candidates. The results were significant ( $p < .05$ ), indicating that there was a statistically significant difference between the three raters. However, an ANOVA alone does not indicate where the significant differences lie (i.e., which rater was different from which other rater(s)). Post hoc analyses were conducted to further explore exactly where the significant differences occurred. These analyses showed that the ratings Corey gave ( $x = 8.46$ ) were significantly higher than the ratings Rogers gave ( $x = 7.52$ ,  $p < .05$ ).

An ANOVA was also conducted to test for differences between candidates in the ratings they received. The results were significant ( $p < .05$ ). Post hoc analyses showed that Candidate A ( $x = 8.73$ ) and Candidate B ( $x = 8.72$ ) received significantly higher ( $p < .05$ ) ratings than Fiser ( $x = 6.70$ ). Plots I and II and Graphs I and II illustrate these findings.

The primary question was addressed next: Did raters' knowledge of candidates' involvement in a protected activity (IPA) negatively bias their ratings against such candidates? To do this, the data were averaged across Corey and Kent to create a category called "knew of involvement in a protected activity." Second, the data were averaged across Candidate A and Candidate B to create a group called "not involved in a protected activity." The result was a 2 x 2 matrix representing answers to the interview questions. One axis of the matrix represented knew of involvement in a protected activity vs. Rogers and the other axis represented not involved in a protected activity vs. Fiser.

A one-way ANOVA was conducted to test for main effects. Results were significant ( $p < .05$ ) and consistent with previous analyses. Raters who knew of candidates' IPA status gave significantly higher ratings than the rater who had no knowledge of IPA status (Rogers). And, candidates who were not IPA received significantly higher ratings than the candidate who was IPA (Fiser).

Because the results from the one-way ANOVA were significant, a test for an interaction was conducted to answer the key question about whether knowledge

CLEAR REGULATORY COMMISSION

Docket No. 50-390 CIVP Official Exh. No. TVA 102  
In the matter of TVA  
Staff \_\_\_\_\_ IDENTIFIED ☒  
Applicant ☒ RECEIVED ☒  
Intervenor \_\_\_\_\_ REJECTED \_\_\_\_\_  
Other \_\_\_\_\_ WITHDRAWN \_\_\_\_\_  
DATE 6/20/02 Witness \_\_\_\_\_  
Clerk BHM

DOCKETED  
USNRC



2003 MAR 10 PM 1:03

OFFICE OF SECRETARY  
RULEMAKINGS AND  
ADJUDICATIONS STAFF

of IPA may have negatively biased ratings against the IPA candidate. A test for an interaction examines factors that moderate the main effects. In other words, the presence of an interaction can highlight the conditions under which the main effects occur and provide a more specific explanation of the overall main effects of the ANOVA.

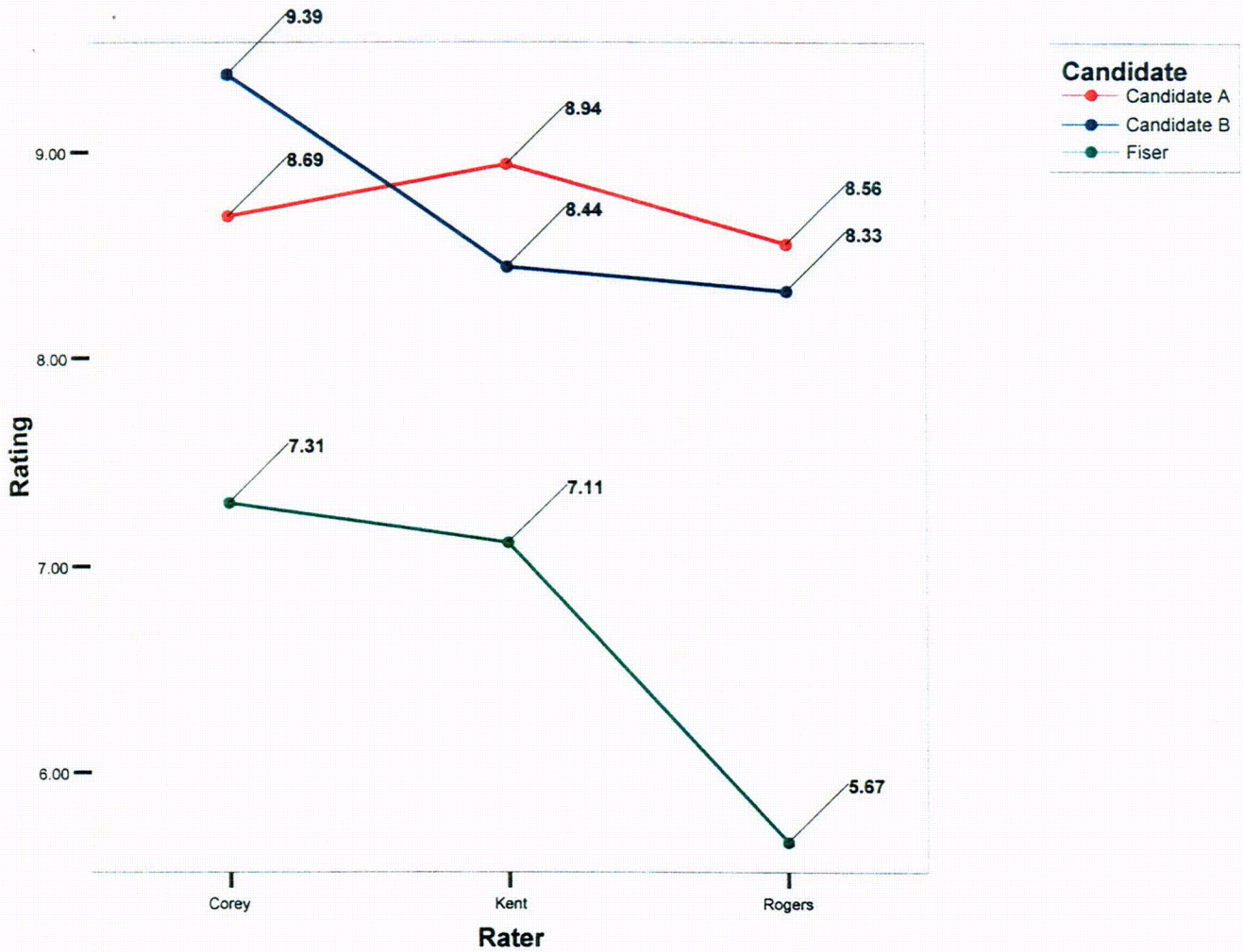
In this situation, the interaction was used to test whether Fiser's low ratings were contingent on raters' knowledge of IPA. These results were significant and show that ratings were lowest when the rater did not know of candidates' IPA. In other words, Fiser's low ratings were due in large part to Rogers, the only rater who did not know of Fiser's IPA status. The raters who knew of Fiser's IPA status gave him *higher* ratings than Rogers. The results can be restated from the standpoint of the raters. The overall higher ratings given by the raters who knew of Fiser's IPA status were due in large part to the ratings they gave to Fiser, which were significantly *higher* than the ratings Rogers gave Fiser. Plots III and IV illustrate these findings.

As a follow-up, one-way ANOVAs were conducted to test for differences between raters for Fiser only and for differences between candidates for Rogers only. Both ANOVAs were significant ( $p < .05$ ). Post hoc analyses showed that Fiser ( $x = 5.67$ ) received significantly lower ratings than Candidate A ( $x = 8.56$ ) and Candidate B ( $x = 8.33$ ,  $p < .05$ ) when considering only ratings from Rogers. Post hoc analyses showed that Rogers ( $x = 5.67$ ) gave significantly lower ratings than Corey ( $x = 7.31$ ) and Kent ( $x = 7.11$ ,  $p < .05$ ) when considering only ratings received by Fiser.

Correlations between the three raters were all significant ( $p < .05$ ), indicating strong consistency in their ratings.

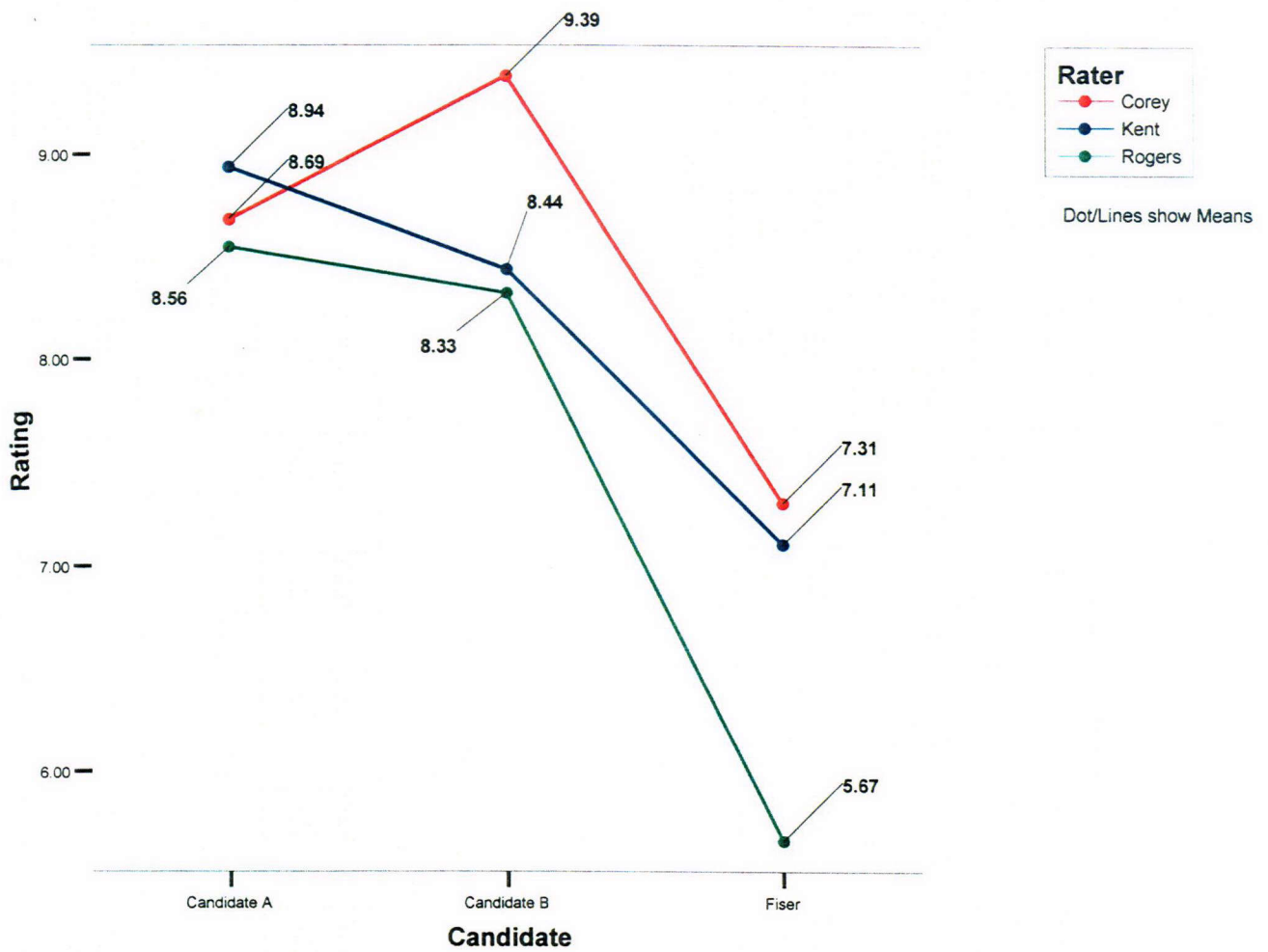
In conclusion, the results of all analyses were very consistent with each other. Taken together, the results clearly and strongly indicate that the ratings Fiser received were most likely not lower because Corey and Kent knew he was involved in a protected activity.

Plot I: Rater by Candidate



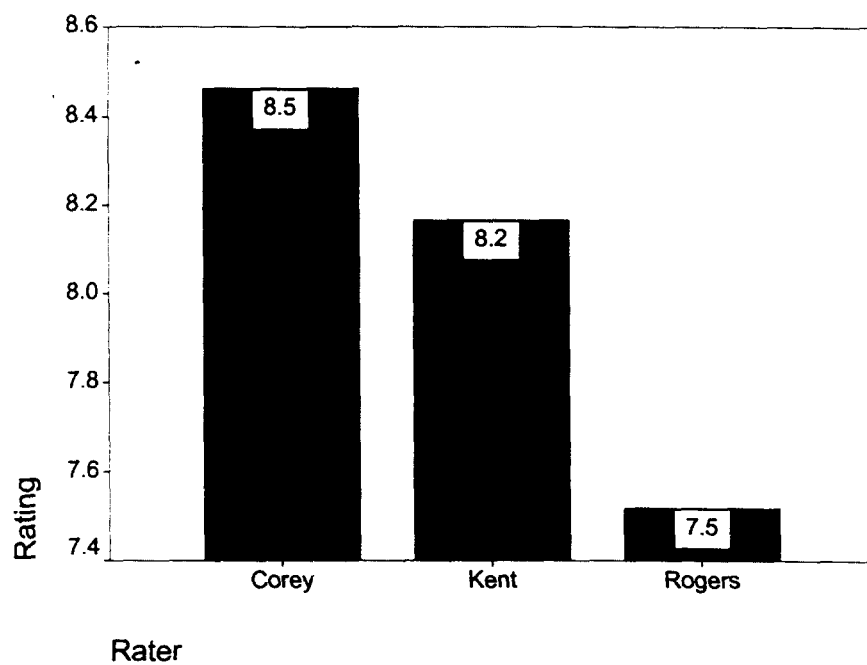
FB 000010

Plot II: Candidate by Rater



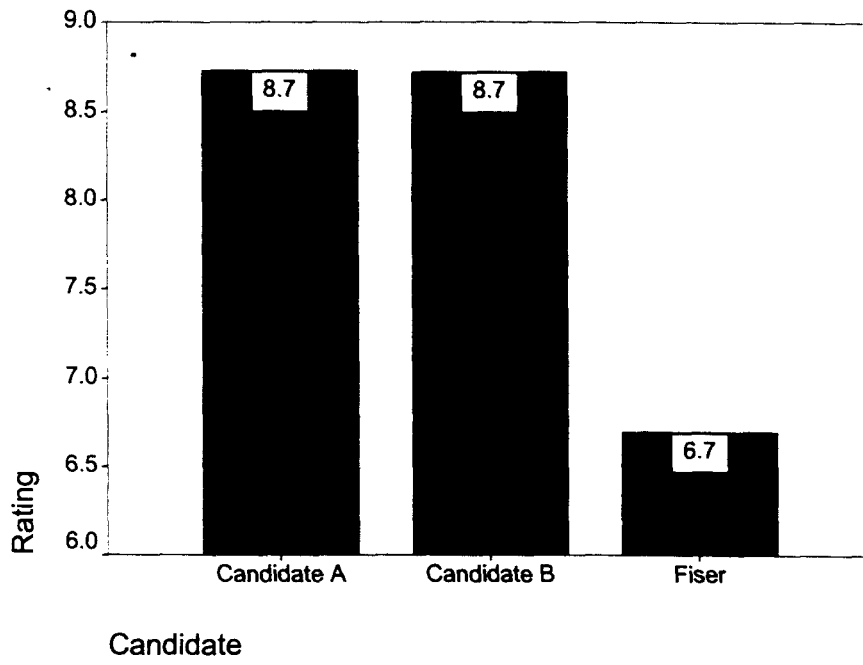
FB 000011

Graph I: Average Ratings for Raters



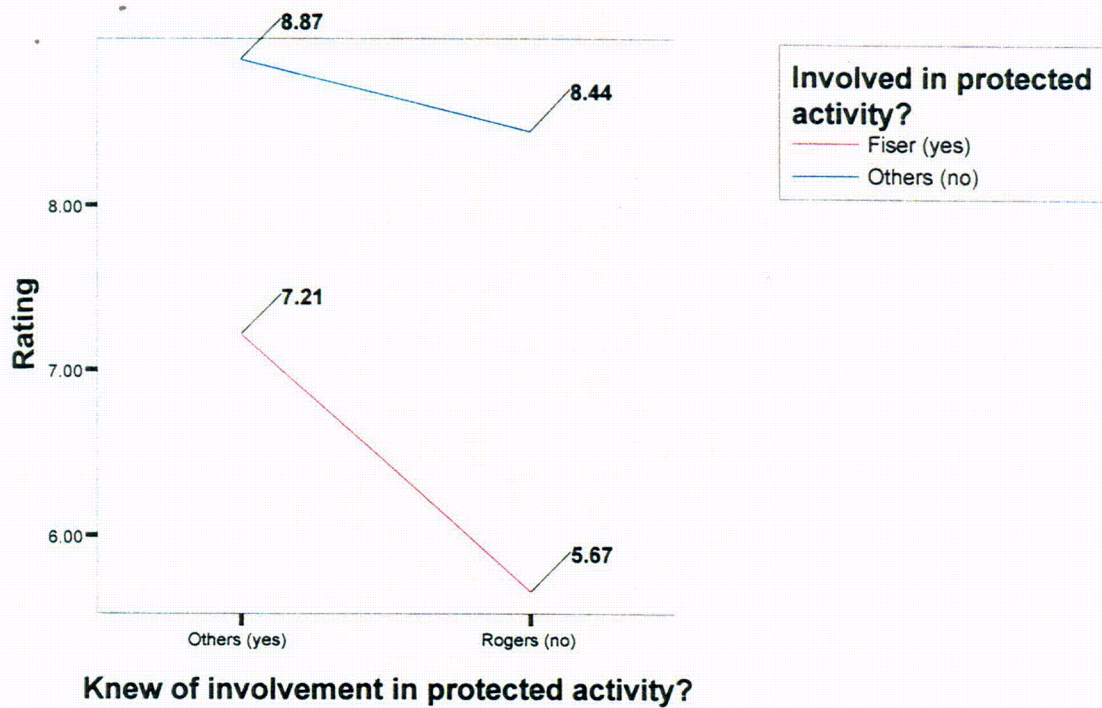
FB 000012

Graph II: Average Ratings for Candidates



FB 000013

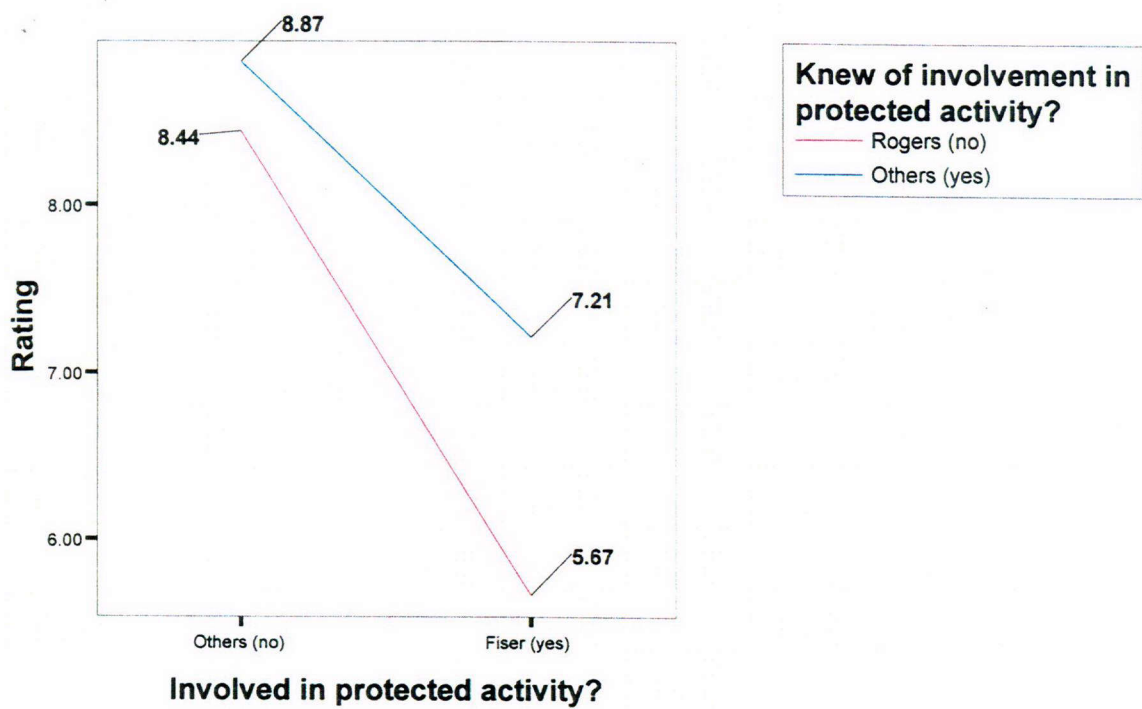
### Plot III: Knew by Involvement



FB 000014



# Plot IV: Involvement by Knew



FB 000015

**July 18, 1996 SELECTION REVIEW BOARD RESULTS  
PWR CHEMISTRY PROGRAM MANAGER (VPA 10703)**

Question No.	<u>John Corey</u>			<u>Charles Kent</u>			<u>H.R. (Rick) Rogers</u>		
	Candidate B	Candidate A	Fiser	Candidate B	Candidate A	Fiser	Candidate B	Candidate A	Fiser
1	10	8.5	7	8	9	7.5	8	9	5
2	9	8.7	7	8	9	7	9	9	5
7	10	8.5	7.5	8.5	9	7	9	8	5
9	9.5	9	7.8	8	9	7	8	8	7
11	9.5	9	7	8.5	8.5	7	8	9	6
12	9	9	7.5	9	9.5	7.5	8	9	6
15	10	8.5	7	8.5	9	6	8	8	5
16	8.5	8	7	8.5	8	7	8	8	5
17	9	9	8	9	9.5	8	9	9	7
Subtotal:	84.5	78.2	65.8	76	80.5	64	75	77	51
* * *	*	*	*	*	*	*	*	*	*

FB 000016

<b>Total Score:</b>	<b>Candidate A</b> 235.7	<b>Candidate B</b> 235.5	<b>Gary Fiser</b> 180.8
---------------------	-----------------------------	-----------------------------	----------------------------