BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
SBC Communications Section 272 Compliance Biennial Audit Report	)	CC Docket No. 96-150
	)	

DECLARATION OF ROBERT M. BELL
ON BEHALF OF AT&T CORP.

January 29, 2003

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1. My name is Robert M. Bell. My business address is AT&T Labs-Research, 180 Park Avenue, Florham Park, New Jersey 07932.

2. I received a Ph.D. in Statistics from Stanford University in 1980.

3. From 1980 to 1998, I was promoted to Senior Statistician at RAND, a non-profit institution that conducts public policy analysis. While at RAND, I supervised the statistical design and/or analysis of many projects, including several large multi-site evaluations. I also headed the RAND Statistics Group from 1993 to 1995 and taught statistics in the RAND Graduate School from 1992 to 1998. In 1998, I joined the Statistics Research Department at AT&T Labs-Research, where I am a Principal Member of Technical Staff. My main research area is survey research methods.

4. I have authored or co-authored fifty articles on statistical analysis that have appeared in a variety of refereed, professional journals. I am a fellow of the American Statistical Association. I am currently a member of the Committee on National Statistics

organized by the National Academy of Sciences as well as the Academy's Panel to Review the 2000 Census. I have attached a copy of my curriculum vitae as Exhibit RMB-1.

I. PURPOSE AND SUMMARY OF DECLARATION

5. The purpose of this declaration is to address certain statistical and non-statistical methodologies that Ernst & Young, LLP (the "Auditor") used to collect and analyze the evidential matter that serves as the basis for certain findings in the Report of Independent Accountants on Applying Agreed-Upon Procedures dated December 17, 2001 ("Auditor's Report" or the "audit") to evaluate "management's assertion that SBC complied with the requirements of Section 272 . . . during the period from July 10, 2000 to July 9, 2001."[1]

6. Part II(A) explains that the sampling methodologies used by the Auditor are deficient in several important respects. The Auditor deviated from prescribed, agreed-upon procedures by failing to examine all elements in the population when evaluating test criteria. As a consequence, the Auditor's findings are less accurate than they would have been if the entire population of interest had been analyzed. Furthermore, when audit procedures required statistically valid samples, the Auditor sometimes failed to draw any sample or selected a grossly inadequate sample, thereby rendering it impossible to draw any reasonable inferences therefrom. Additionally, with respect to other test criteria, the Auditor's Report is bereft of information needed to confirm that statistically valid samples were used.

[1] Auditor's Report at 1.

7. Part II(B) explains that performance data for four of the seven measurements in the Auditor's Report violate the *General Standard Procedures*. Because the Auditor failed to adhere to prescribed audit procedures and reported performance data relating only to the 95th percentile of orders or services at issue, the Auditor's Report contains no performance results for the vast majority of orders and services for these four measures. Consequently, the limited data that are presented in the Auditor's Report may conceal disparities in performance.

8. Part II(C) explains that the tabulated values in the Auditor's Report are incomplete or misleading. The Auditor's Report omits key information necessary to assess the statistical significance of differences in performance results. Indeed, because the Auditor's Report fails to provide any information regarding sample sizes and standard deviations, it is impossible to calculate standard errors or confidence intervals for the reported "variances" in the reported data. Additionally, the tabulated values reported for certain measurements are misleading or erroneous.

9. Part II(D) explains that the Auditor's Report omits key retail data for certain measurements that are necessary to determine whether the BOC gave preferential treatment to its retail customers and discriminated against non-affiliates. This is a significant gap in the Auditor's analysis and precludes any finding that SBC has satisfied its Section 272 obligations.

10. Part II(E) explains that the metrics business rules in the Auditor's Report are flawed. As a consequence, any findings based thereon are infirm.

11. Part III explains that even the flawed performance data in the Auditor's Report reveal that SBC has violated Section 272 by providing preferential treatment to the BOC and its affiliates. Although SBC asserts that any reported differences in performance results are not statistically significant because of small sample sizes, SBC's analysis glaringly omits any empirical evidence to buttress this conclusion. In all events, even the limited data in the Auditor's Report reveal that many of the differences in performance results are statistically significant. For all of these reasons, there is no sound basis upon which any finding can be reached that SBC has complied with Section 272.

II. THE AUDITOR'S REPORT IS DEFICIENT.

A. The Sampling Methodologies are Deficient.

12. The audit is flawed because the sampling methodologies used by the Auditor are deficient. In direct contravention of audit procedures, the Auditor failed to examine the entire population of interest or failed to draw a statistically valid sample. With respect to other audit procedures, the information that is needed to assess the statistical validity of drawn samples is conspicuously absent from the Auditor's Report.

13. In this regard, an auditor can use an array of techniques to collect and assess the evidential matter that forms the basis for audit findings. Audit sampling, which involves an examination of less than 100% of the elements or units in a given population, is one such technique. However, one of the risks of sampling is that the auditor may render an erroneous finding because the entire population is not examined.[2] In recognition of this risk and

[2] *See* AMERICAN INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS, AUDIT SAMPLING 10 (1999) (stating that "[s]ampling risk arises from the possibility that when a test of controls or substantive test is restricted to

to assure greater accuracy in reported results, the audit plan may require an examination of the entire population at issue when assessing an entity's compliance with specified requirements.

14. The *General Standard Procedures for Biennial Audits Required Under Section 272 of the Communications Act of 1934, As Amended ("General Standard Procedures")* require, in certain circumstances, that sampling techniques be used to evaluate certain test criteria. Furthermore, the audit procedures also specify that the total population of interest must be analyzed in assessing compliance with other test criteria. However, the Auditor did not always examine the entire universe in measuring SBC's compliance with those test objectives.

15. Objective V of the audit purportedly assesses whether the Section 272 affiliate "has conducted all transactions with the Bell operating company ["BOC"] on an arm's length basis with the transactions reduced to writing and available for inspection."[3] Furthermore, Objective VI ostensibly evaluates whether the BOC has properly "accounted for all transactions with the separate affiliate in accordance with the accounting principles and rules approved by the Commission."[4]

16. Procedure 6 in Objectives V and VI required the Auditor to compare the prices, terms and conditions of services and assets on the website of the interLATA affiliate to all written agreements between the BOC and affiliates for interLATA and exchange access

a sample, the auditor's conclusions might be different from those that would have been reached if the test were applied in the same way to all the items in the account balance or class of transactions").

[3] *General Standard Procedures*, Objective V.

[4] *Id.*, Objective VI.

facilities and services.[5] Additionally, the Auditor was required to assess whether these transactions were made available for public inspection at the BOC's headquarters within ten days of their occurrence.[6] Instead of examining all written agreements between the BOC and affiliates for interLATA and exchange across facilities and services, the Auditor obtained a "random sample of 100 affiliate agreements and related pricing addendums."[7] Based upon an examination of the 100 agreements and pricing addendums, the Auditor concluded that three of the transactions were not posted for public inspection within 10 days of their occurrence, and that 12 of the "Internet posting dates could not be verified since these agreements were executed prior to October 8, 1999 and SBC did not retain support for the Internet posting dates."[8] Because the Auditor failed to examine all written agreements in accordance with prescribed procedures, its analysis is incomplete. Therefore, the possibility remains that other transactions violated Commission requirements.

17. The Auditor's Report is also flawed because, in those instances where statistically valid samples were required, the Auditor, in some instances, failed to draw any sample or drew an inadequate sample. Objective VII of the audit is designed to evaluate whether "the Bell Operating Company has discriminated between the separate affiliate and any other entity in the provision or procurement of goods, services, facilities, and information, or the

[5] *General Standard Procedures*, Objectives V and VI, Procedure 6.

[6] *Id.*

[7] Auditor's Report, App. A, Objectives V and VI, Procedure 6 at 17.

[8] *Id.*

establishment of standards."[9] Procedure 8 in Objective VII required the Auditor to "[o]bserve . . . at least five randomly selected representatives at each of three randomly selected call centers serving customers in regions where SBC has received 271 approval" who respond to inbound callers seeking new local telephone service.[10] Although the Auditor's Report states that the Auditor observed five BOC service representatives at three call centers, the Auditor's Report provides no information confirming that the five representatives were selected at random as required in the *General Standard Procedures.* As a consequence, it is possible that SBC supervisors handpicked the best representatives for observation, which would lead to biased results.[11]

18. Objective IX of the of the audit assesses whether "the Bell operating company and an affiliate subject to Section 251(c) of the Act have made available facilities, services, or information concerning its provision of exchange access to other providers of interLATA services on the same terms and conditions as it has to its affiliate required under Section 272 that operates in the same market."[12] The audit purports to test SBC's compliance with this requirement through a number of procedures.

[9] *General Standard Procedures*, Objective VII.

[10] *Id.*, Procedure 8.

[11] Procedure 7 in Objective VII required the Auditor to look at scripts from all call centers. However, the Auditor improperly incorporated the "three randomly selected centers" methodology of Procedure 8 into Procedure 7 as well.

[12] *General Standard Procedures*, Objective IX.

19. For example, Procedure 2 of Objective IX required the Auditor to examine "brochures, advertisements of any kind, bill inserts, correspondence, or any other media used to inform carriers of the availability of" exchange access services and facilities and compare the rates and terms offered to the Section 272 affiliate against those offered to unaffiliated carriers based upon a "statistically valid sample of the informational media identified above."[13]

20. The Auditor's Report states that exchange access services and facilities are made available to all carriers through generally available tariffs at the same rates.[14] The Auditor then asserts that SBC notifies carriers of these services/facilities through accessible letters which are posted on the Internet. According to the Auditor's Report, SBC represented that it uses informational media during, *inter alia*, trade shows and customer meetings and also uses published product guides. Importantly, the Auditor's Report reveals that "SBC did not provide examples of these forms of media as none were currently being utilized."[15] This assertion is puzzling at best. Because SBC conceded that it uses these types of informational media, a statistically valid sample of such media should have been examined if they were used *at any point* during the engagement period. Because the Auditor did not examine such informational media -- media that are highly probative in determining whether SBC discriminates against non-affiliates -- the Auditor's analysis is incomplete. Under such circumstances, the Auditor's ultimate finding that exchange access and facilities offered to the affiliate "were made available

[13] *Id.*, Procedure 2.

[14] Auditor's Report, Objective IX, Procedure 2. *See also* Objective X, Procedure 1 and Objective XI, Procedure 2.

[15] Auditor's Report at 32.

at the same rates and on the same terms and conditions to all carriers"[16] is baseless and should be rejected.

21. Procedure 3 in Objective IX required that the Auditor, "[u]sing a statistically valid sample of billed items, inspect underlying details of invoices and compare rates charged, and terms and conditions applied to each Section 272 affiliate with those charged and applied to IXCs for the same services and note any differences."[17] The Auditor's Report states that the Auditor "randomly selected 50 [Billing Authority Numbers] BANs" from a listing of all invoices that the BOCs issued to the Section 272 affiliates and extracted therefrom "100 different USOCs charged to the Section 272 affiliates."[18] However, the Auditor's Report omits information regarding the procedures used in selecting the 50 BANs and 100 USOCs. The sample of 50 BANs clearly is not a simple random sample because the sampling rates (*i.e.* Number of BANs Sampled/Number of BANs Listed) for the BANs shown in Table 8 of the Auditor's Report are dramatically different among the four BOCs.[19] Notably, the Auditor's Report never explains why the sampling probabilities differ among BOCs or whether the sampling probabilities differ within BOCs (such as by invoice amount). The Auditor's Report also provides no information as to whether the 100 USOCs constituted the complete list for these invoices or a sample. Finally, if the USOCs were sampled, the Auditor's Report provides no information as to how the sample was selected. The Auditor's Report is silent as to whether the

[16] *Id.*

[17] *General Standard Procedures*, Objective IX, Procedure 3.

[18] Auditor's Report at 32-33.

[19] *Id.* at 32.

100 USOCs were selected at random. Indeed, depending on how the sampling was conducted, some USOCs may have had a greater chance of being selected than others. If so, this phenomenon would bias results from the sample. Without these missing details about the sampling process, it is impossible to assess the validity of the findings for this procedure.

22. Objective X examines whether "the Bell operating company and an affiliate subject to Section 251(c) of the Act have charged its separate affiliate under Section 272, or imputed to itself . . . an amount for access to its telephone exchange services and exchange access that is no less than the amount charged to any unaffiliated interexchange carrier for such service."[20] Procedure 6 in Objective X required the Auditor to obtain a statistically valid sample of those interLATA services that are offered by SBC and not through a Section 272 affiliate. The Auditor's Report reveals that there were five such services, but that the Auditor selected only one such service (National Directory Assistance). There is no indication that this one service was selected at random. Moreover, even assuming *arguendo* that the one service was selected at random, a sample consisting of one service would not come close to meeting the precision requirements for a statistically valid sample. Consequently, although the Auditor found no difference between the publicly-filed tariff rates and the amounts that the BOC charged to itself for access,[21] the sample is far too small to draw such an inference for the entire population.

[20] *General Standard Procedures,* Objective X.

[21] *See* Auditor's Report at 36.

23. Objective XI evaluates whether "the Bell operating company and an affiliate subject to Section 251(c) of the Act have provided any interLATA facilities or services to its interLATA affiliates and made available such services or facilities to all carriers at the same rates and on the same terms and conditions, and allocated the associated costs appropriately."[22] Procedure 3 in Objective XI required the Auditor to "[o]btain invoices for interLATA network services and facilities for one month . . . rendered by the SBC BOC to the Section 272 affiliates and other interexchange carriers (IXCs) that receive these services from the SBC BOC."[23] In addition, the Auditor was required to use "a statistically valid sample of billed items, inspect underlying details of invoice[s] and compare rates charged, and terms and conditions applied to each Section 272 affiliate with those charged and applied to other IXCs for the same services and note any differences."[24] Although Procedure 3 in Objective XI requires the examination of invoices for one month, the Auditor, with the apparent approval of the Joint Oversight Team, selected a single invoice for a single day -- November 5, 2000 -- for an unidentified interLATA network service/facility and compared it to a single invoice for one unaffiliated carrier.[25] Because the Auditor deviated from the *General Standard Procedures*, no statistically valid inference is possible with respect to invoices for other dates or other unaffiliated carriers.

[22] *General Standard Procedures* at 50.

[23] *Id.* at 51.

[24] *Id.*

[25] *See* Auditor's Report at 39.

B. The Reporting Formats for Four of the Seven Measurements Violate the *General Standard Procedures.*

24. Objective VIII of the audit is designed to evaluate whether "the Bell operating company and an affiliate subject to Section 251(c) of the Act have fulfilled requests from unaffiliated entities for telephone exchange service and exchange access within a period no longer than the period in which it provides such telephone exchange service and exchange access to itself or to its affiliates."[26] Procedure 3 in Objective VIII required the Auditor to provide performance data for the first nine months of the engagement period for seven listed performance measures.[27] Attachment A-7 in the Auditor's Report contains seven tables purportedly corresponding to the performance data required for the seven measures identified in Objective VIII, Procedure 3. For Texas, the Auditor examined data for nine months from July 2000 to March 2001. Performance results for Oklahoma and Texas are limited to March 2001.

25. As explained in more detail below, the performance data for *four*[28] of the seven measurements in Attachment A-7 deviate from audit procedures and may obscure disparities in performance. For each measurement, the *General Standard Procedures* state explicitly that the Auditor is required to provide data showing the percentage of services completed "within each successive . . . period" until 95% completion. Instead of reporting percentages for each successive period, the Auditor reported only the single interval for the 95th

[26] *General Standard Procedures* at 41.

[27] *Id.* at 42-43.

[28] The four measures are: (1) Performance Measurement 2 (Time from BOC Promised Due Date to Circuit Being Placed in Service); (2) Performance Measurement 3 (Time to Firm Order Confirmation); (3) Performance Measurement 6 (Time for PIC Change Request to Implementation); and (4) Performance Measurement 7 (Time to Restore PIC After Trouble Incident).

percentile of orders or services at issue. By reporting only the 95th percentile, the Auditor failed to provide any information about service times for the vast majority of customers. Consequently, the data in the Auditor's Report could conceal large disparities in service.

26. **Performance Measurement 2.** The *General Standard Procedures* required the Auditor to present data regarding the "Time from BOC Promised Due Date to Circuit Being Placed in Service (measured in terms of percentage installed within each successful 24 hour period, until 95% installation completed)."[29] The Auditor should have reported data on the percentage of orders installed within 24 hours (1 day), the percentage of orders installed within 2 days, and so forth, until the 95th percentile of installed orders was reached. However, the data for Performance Measurement 2 provide no information regarding the percentage of orders installed during each successive 24-hour period, but simply show the single interval (*i.e.* days) at which the 95th percentile of orders in question was completed. Thus, for example, the Texas data for Performance Measurement 2 simply reveal that, in March 2001, the 95th percentile of DS0 orders was completed within a seven-day interval for the BOC and affiliates and a five-day interval for non-affiliates. However, the Auditor's Report glaringly omits information regarding the actual percentages of orders that were installed in each successive 24-hour period for these orders. As a result, the Auditor's Report may conceal disparities in performance for the BOC and affiliates and non-affiliates that occurred with respect to DS0 orders completed within 1, 2, 3 or 4 days.

[29] *General Standard Procedures* at 43.

27. Indeed, because the performance data for Performance Measurement 2 report the single interval (*i.e.* days) at which the 95th percentile of orders was completed, critical information regarding the installation intervals for the vast majority of customers is concealed. To fully understand the extent to which these types of data omissions can mask actual performance, an examination of the Texas July 2000 data for Performance Measurement 4 for DS0 orders on page 3 of Attachment A-7 is instructive.

28. According to the data for Performance Measurement 4, approximately 35% of the troubles reported by non-affiliates were restored within one hour, while approximately 61% of the troubles reported by BOC and affiliates were restored within the same interval. Furthermore, it took 3 hours for approximately 61% of troubles reported for non-affiliates to be restored -- an interval three times longer than that experienced for 61% of the troubles reported by BOC and affiliates. Critically, on its face, the Auditor's Report shows that non-affiliates experienced substantially longer restoral times for maintenance and repair services. However, if the Auditor elected to limit the data for Performance Measurement 4 to only the restoral interval experienced by the 95th percentile of trouble tickets, such limited reporting would have provided an incomplete and misleading picture of actual performance. In that connection, because a small percentage of troubles reported by BOC and affiliates took an exceptionally long time to restore, it would appear as if restoral times were longer for BOC and affiliates than for non-affiliates. Indeed, the data for the 95th percentile of troubles show that it took 19 hours to restore service for troubles reported by BOC and affiliates, but 13 hours to restore service reported by non-affiliates. Clearly, if the table for Performance Measurement 4 showed only the performance results for the 95th percentile of troubles, the actual inferior

service received by non-affiliates would be masked. By the same token, because the performance data for Performance Measurement 2 report only the installation interval for the 95th percentile of installed orders, actual disparities in performance may be concealed. The same problem applies to Performance Measurements 3, 6 and 7 as well.

29. **Performance Measurement 3.** Performance Measurement 3 purportedly assesses the time that elapses before receipt of a firm order confirmation ("FOC"). According to the *General Standard Procedures*, the Auditor was required to report data on the "Time to Firm Order Confirmation (measured in terms of percentage received within each successive 24-hour period, until 95% completed)."[30] Instead of reporting the data as required, the Auditor simply reported the 95th percentile of FOC intervals. These defects in performance reporting omit critical information regarding the FOC timeliness for the vast majority of orders.

30. Furthermore, in reporting the FOC intervals for Performance Measurement 3, the Auditor reported a specific number of days for BOC and affiliates. In sharp contrast, in a number of instances for DS1 and DS3 orders for non-affiliates, the Auditor simply reported that the FOC interval was greater than 5 days.[31] Indeed, the table for Performance Measurement 3 reveals 13 instances where the FOC interval reported for non-affiliates is simply identified as "[g]reater than 5 days," while the corresponding value for the BOC and affiliates is always shown as a specific number of days (most often 1 day). The Auditor's reliance on the "Greater than 5 days" category to report the FOC times for non-affiliates conceals the extent of

[30] *General Standard Procedures* at 43.

[31] *See* Auditor's Report, Attachment A-7, Objective VIII, Procedure 3.

disparities of performance. Indeed, it is impossible to discern from the table whether the FOC times for non-affiliates were 6, 16, or 60 days. In order to determine the actual differences in performance results, the Auditor should have reported the actual percentages of orders that received a FOC during each successive 24-hour period until 95% of the orders were captured in the performance results for both affiliates and non-affiliates.

31. **Performance Measurement 6.** According to the *General Standard Procedures*, the Auditor was required to provide data on the "Time from PIC change request to implementation (measured in terms of percentage implemented within each successive 6 hour period, until 95% completed)."[32] However, the data for Performance Measurement 6 in the Auditor's Report flout the requisite audit procedures. The Auditor did not present data on time intervals for PIC changes for each *successive* 6-hour period, but rather reported only the 6 hour interval at which the 95th percentile for PIC change request implementation occurred.

32. Thus, for example, the Dallas performance data for Performance Measurement 6 for the third quarter of 2000 report values of "7-12 hours" for both BOC and affiliates and non-affiliates. However, the Auditor's Report does not show the actual percentages of PIC changes that were implemented within each successive 6-hour period until 95% of the PIC changes were completed. As a result, the wide range of these periods relative to the values of the endpoints means that substantial differences in actual performance can be masked. As Figure 1 below illustrates, substantial differences in distributions can be concealed by equal 95th percentiles of 7-12 hours.

[32] *General Standard Procedures* at 43.

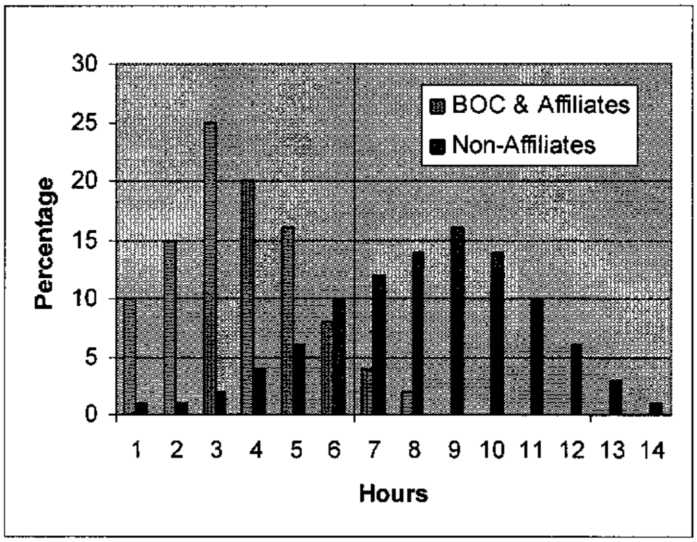

Figure 1. Example of distinct distributions with 95th percentile of 7-12 hours.

33. The second and third rows of the table for Performance Measurement 6 in the Auditor's Report indicate that, in Houston and San Antonio, for the same period, the 95th percentiles for PIC change interval were 0-6 hours for BOC and affiliates and 7-12 hours for non-affiliates. Obviously, those values could mask even larger disparities than those illustrated in Figure 1 above. On the other hand, those values might also be associated with distributions that are nearly identical (if 95.5% of changes were completed within 6 hours for the BOC and affiliates, but only 94.5% of such changes were implemented in the same interval for non-affiliates). Thus, the table for Performance Measurement 6 conveys absolutely no useful information for assessing the relative PIC change intervals for the BOC and affiliates and non-affiliates and should be disregarded.

34. **Performance Measurement 7.** According to the *General Standard Procedures*, the Auditor was required to prepare data on the "Time to restore PIC after trouble

incident (measured by percentage restored within each successive 1 hour interval, until resolution of 95% restored)."[33] Although the Auditor's Report purportedly includes data on this measure (Performance Measurement 7), the report does not include data reflecting the percentages of orders restored within each successive one-hour interval. The report simply reports the single interval (*i.e.* hours) it took to restore PIC after trouble incidents for the 95th percentile of trouble tickets. Thus, performance data for the vast majority of trouble tickets are excluded.

C. Tabulated Values Are Incomplete, Misleading, or Erroneous.

35. Section 272 (c) establishes an "unqualified prohibition against discrimination by a BOC in its dealings with its Section 272 affiliate and unaffiliated entities." Implementation of the Non-Accounting Safeguards of Section 271 and 272 of the Communications Act of 1934 as Amended, *First Report and Order and Further Notice of Proposed Rulemaking*, 11 FCC Rcd 21905, ¶ 197 (1996). The Commission has also emphasized that a "stringent standard" must be applied in evaluating compliance with this anti-discrimination provision. *Id.*

36. When making comparisons of SBC's performance for non-affiliates and affiliates, it is important to use statistical procedures. By allowing for variability in the services received by customers, statistical analysis can control the risk of rendering an inappropriate conclusion. To avoid concluding incorrectly that SBC has discriminated against non-affiliates, a

[33] *General Standard Procedures* at 43.

statistical test of the null hypothesis should be performed whenever results suggest a lack of parity condition.

37. The tables for the seven measurements in the Auditor's Report include a column for the "variance" (a value which purportedly reflects the differences in reported results for BOC affiliates and unaffiliated entities).[34] When the value reported in the variance column in the performance data in the Auditor's Report is a percentage, a positive percentage indicates discriminatory treatment vis-à-vis non-affiliates, while a negative percentage (shown in parentheses) indicates preferential treatment for non-affiliates. The reverse is true for Performance Measurements 2, 3, 5, 6, and 7, where the variance column displays differences of durations. In those cases, a negative value in the variance column denotes discriminatory service for non-affiliates.[35]

38. In order to assess whether the variances shown in the performance results are meaningful, the Commission must determine whether the differences in reported results are statistically significant or due to random variation. In order to make such an assessment, the Auditor should have provided some measure of uncertainty -- a standard error, confidence interval, test statistic, or P-value -- for each value in the variance column. Furthermore, the

[34] The term "variance" in the Auditor's Report is distinctly different from and should not be confused with the standard meaning in statistical practice where the variance of a random quantity equals the square of the standard deviation.

[35] These tables use inconsistent formats for showing negative values (*i.e.* rows where non-affiliates received discriminatory service). Parentheses are used for Performance Measurements 5 and 7. Negative signs are used for Performance Measurement 2 and part of the table for Performance Measurement 3. In the table for Performance Measurement 3, negative values also are reported in the text as "X Days vs. Greater than 5 Days." For Performance Measurement 6, the negative values are incorrectly labeled "N/A."

Auditor's Report omits any reference to sample sizes in the performance results. In addition, the table for Performance Measurement 5 fails to show standard deviations corresponding to each mean time in the table -- information that is essential in order to compute standard errors or other measures of uncertainty for means or differences in means. The lack of information on sample sizes and standard deviations, where appropriate, renders it impossible for this Commission or interested parties to compute standard errors or confidence intervals for the reported values in the variance column.[36]

39. Furthermore, many tabulated values in the variance column are otherwise misleading or meaningless. For example, the table for Performance Measurement 4 (Time to restore and trouble duration) contains erroneous values in the variance column whenever there is a blank value in either the BOC and affiliates or non-affiliates column. In that connection, the DS0 data reported for July 2000 includes a blank space in the "Within 8 Hours" cell for BOC and affiliates, presumably because no troubles lasted exactly 8 hours. However, because the table shows that 92.59% of the troubles for BOC and affiliates were restored within 7 hours, at the very least, that same percentage of troubles must have been restored by the eighth hour. Thus, the "Within 8 Hours" cell for BOC and affiliates should have been filled in with a value of 92.59%. As a consequence, the correct value for the variance should be 4.29% (92.59% - 88.30%) -- a variance which indicates that troubles reported by affiliates were less likely to have been restored within 8 hours. However, the table erroneously reports a large negative value

[36] Sample sizes and standard deviations alone would be insufficient for computing any of the measures of uncertainty for 95th percentiles. Calculations for such measures require access to individual values for all of the largest intervals.

(88.30%) in the variance column which suggests that non-affiliates received preferential treatment.

40. In addition, the reported values in the variance column in the table for Performance Measurement 6 are nonsensical. The term "N/A" in the Auditor's Report purportedly indicates that no comparison is possible because of the absence of data. Thus, for example, the variance reported for the fourth quarter of 2000 is "N/A" because no data are reported for the BOC and affiliates for Dallas, Houston, and San Antonio. Rather curiously, however, the performance data for Performance Measurement 6 report "N/A" in the variance column for the third quarter of 2000, even though comparative data have been provided for BOC and affiliates and non-affiliates. In this regard, in the third quarter of 2000, the performance results show that, for BOC and affiliates in Houston and San Antonio, the time from PIC change request to implementation was 0-6 hours, and that the comparable interval for non-affiliates was 7-12 hours for the 95th percentile. Because comparative data exist, the variance column logically should have reported a difference in performance results instead of "N/A."

41. Additionally, variance values of "0" are reported for Performance Measurement 6 for the first quarter of 2001 in Texas. The performance data for the first quarter of 2001 show that the time from PIC change request to implementation is 0-6 hours for both BOC and affiliates and non-affiliates in Texas for the 95th percentile of PIC change requests. As noted hereinabove, however, the data may conceal differences in performance that are as long as 6 hours. As a consequence, the Auditor's assertion that there are no differences in performance results in Texas for the first quarter of 2001 is unsubstantiated and misleading.

D. The Auditor's Report Omits Key Retail Data.

42. Section 272(e)(1) requires SBC to "fulfill any requests from an unaffiliated entity for telephone exchange service and exchange access within a period no longer than the period in which it provides such telephone exchange service and exchange access to itself or to its affiliates."[37] Indeed, in its *Texas 271 Order*, this Commission stated that, "[b]ased on the evidence in the record, SWBT demonstrates that it will comply with Section 272(e), which requires SWBT to fulfill requests for, among other things, telephone exchange and exchange access services from unaffiliated entities within the same time period SWBT fulfills such requests for its own retail operations." *Texas 271 Order*, ¶ 412 (footnote omitted).

43. Objective VIII required the Auditor to assess whether SBC fulfilled requests from unaffiliated entities for exchange access and services within the same period that it provided such access and service "to itself" (*i.e.* to its own retail customer).[38] However, the data in the Auditor's Report address only the services that SBC provides to non-affiliates and its Section 272 affiliates. Critically, the Auditor's Report omits data concerning the special access services that the BOC provides directly "to itself" (*i.e.* to its own retail customers). Indeed, the business rules used to calculate the performance results for the measurements in the Auditor's Report state explicitly that "[r]etail customers of SBC are not part of this reporting process."[39] It is absolutely critical that the Commission determine whether the BOC provisions the special

[37] 47 U.S.C. § 272(e)(1).

[38] *General Standard Procedures,* Objective VIII.

[39] *See* Auditor's Report, Attachment A-6, Objective VIII, Procedure 2 at 1-2, 4, 7, 9.

access portion of interexchange services to retail customers directly, as opposed to its Section 272 affiliates. If the BOC does provision the special access portion of interexchange services to its retail customers directly, this aspect of its performance is not captured in the performance data in the Auditor's Report. Under such circumstances, this Commission should require SBC to provide its retail performance data for all measures included in the Auditor's Report. Moreover, the exclusion of such data precludes a finding that SBC complied with its statutory obligations throughout the audit period.

E. The Business Rules Are Flawed.

44. Performance measurements serve no useful purpose unless they accurately capture the actual performance they are intended to measure. Performance Measurement 1 measures the percentage of orders completed by the customer's desired due date. Performance Measurement 2 assesses the Time from BOC Promised Due Date to Circuit Being Placed in Service.[40] However, the business rules governing these measures in the Auditor's Report state that "[o]rders missed due to customer reasons will be included in the denominator and counted as 'made' in the numerator."[41] The business rules also state that, beginning in 2001, all customer misses shall be excluded from the measure.[42] If these measures are designed to assess delays in provisioning that are attributable to the BOC (rather than the customer), the inclusion of misses due to customer reasons in the performance data for calendar year 2000 skews the accuracy of reported results.

[40] *See* Auditor's Report, Attachment A-6, Objective VIII, Procedure 2 (Service Categories 1 and 2).

[41] *Id.*

[42] *Id.*

III. THE PERFORMANCE DATA SHOW THAT SBC HAS DISCRIMINATED AGAINST NON-AFFILIATES.

45. Even the inadequate data in the Auditor's Report show that SBC discriminated against non-affiliates. SBC management contends that "[t]hese variances are statistically insignificant due to the extremely low volume of affiliate orders (or troubles) as compared to that of the non-affiliate orders for the service categories measured each month."[43] As noted above, the Auditor's Report omits pertinent information (*e.g.* sample sizes) that is necessary to compute standard errors and confidence intervals; and SBC management has not filled this gap by providing the omitted data. However, even the inadequate and incomplete data in the Auditor's Report belie SBC's claims that the differences in performance results are statistically insignificant.[44]

46. **Performance Measurement 1.** The data for Performance Measurement No. 1 (Successful Completion According to Desired Due Date) provide evidence that the BOC and affiliates received preferential treatment during the DS0 provisioning process. For example, the Texas data show that, from December 2000 through March 2001, higher percentages of orders for the BOC and affiliates were completed by the desired due date than those for non-affiliates. Indeed, in December 2000, 94.23% of the DS0 orders for BOC and affiliates were completed by the desired due date, while only 84.01% of DS0 orders for non-affiliates were completed by the due date. In February 2001, 92.93% of the DS0 orders for BOC and affiliates

[43] Auditor's Report at Attachment B-2, SBC Management Response, Objective VIII, Procedure 3.

[44] Because of the fundamental defects in the data presented for Performance Measurements 2 and 6, it is impossible to discern whether there are statistically significant differences in performance results for the BOC and affiliates and non-affiliates.

were completed by the desired due date, while only 73.73% of DS0 orders for non-affiliates were completed by the due date. In March 2001, SBC's performance deteriorated further. During that same month, 90.57% of the DS0 orders for BOC and affiliates were completed by the due date, while only 58.93% of the DS0 orders for the non-affiliates were completed by the due date in Texas – a difference of 31.64%.[45] Notably, the differences in reported results in December, February and March are all statistically significant with P-values[46] of 0.036, 0.00013, and 0.00013, respectively.[47]

47. **Performance Measurement 3.** Performance Measurement 3 purports to assess the time period to return a FOC. The reported data reveal that SBC returns FOCs to the BOC and affiliates more quickly than those for non-affiliates. Indeed, the FOC intervals for DS1 and DS3 were longer for non-affiliates in all 18 comparisons where the 95th percentiles differed. For half of those comparisons, the difference was "Greater than 5 Days" for non-affiliates versus one day for BOC and affiliates, so that the full extent of the disparities in performance is

[45] Auditor's Report, Attachment A-7, Objective VIII, Procedure 3, Measurement 1 at 1.

[46] The P-value is the probability of observing a disparity favoring the BOC and affiliates as large as or larger than the observed disparity, under the assumption that nondiscriminatory service is being provided (the null hypothesis). Small P-values provide evidence of discrimination against non-affiliates.

[47] Sample sizes, needed to perform statistical tests, were inferred from the reported percentages. For example, 92.93% of BOC and affiliate transactions were completed by the due date. The smallest sample size consistent with this percentage is 99 transactions. This technique implies *minimum* counts as follows: December affiliates, 49 of 52; December non-affiliates, 226 of 269; February affiliates, 92 of 99; February non-affiliates, 87 of 118; March affiliates, 48 of 53; and March non-affiliates, 33 of 56. The P-values are based on Fisher's exact test for 2-by-2 tables (one-sided P-values). If the true sample sizes are actually higher than the inferred minima, then the correct P-values would be even smaller and more significant.

concealed. In all events, the Auditor's Report reflects a systematic pattern of discriminatory service accorded non-affiliates.[48]

48. Thus, for example, the Texas data on Performance Measurement 3 for DS1 orders show that: (1) in July 2000, FOCs were returned to DS1 BOC and affiliates within four days, while those for DS1 non-affiliates were returned after more than five days; (2) in August 2000, FOCs were returned to DS1 BOC and affiliates within 3 days, while those for DS1 non-affiliates were returned in five days; (3) in September 2000, FOCs for DS1 BOC and affiliates were returned in two days, while those for DS1 non-affiliates were returned in four days; and (4) from October 2000 through December 2000, FOCs for DS1 BOC and affiliates were returned in one day, while those for DS1 non-affiliates were returned in more than five days.[49]

49. The Texas data for Performance Measurement 3 relating to DS3 orders show that, from July 2000 through March 2001, SBC consistently discriminated against DS3 non-affiliates in favor of DS3 BOC and affiliates in returning FOCs. For example, in July 2000, it took SBC three days to return FOCs to DS3 BOC and affiliates, but more than five days to return FOCs to DS3 non-affiliates. In August, October, November, and December 2000, it took SBC one day to return FOCs to DS3 BOC and affiliates, but more than five days to return FOCs

[48] Because of the fundamental defects in the performance data which are discussed in Part II(B), it is impossible to compute the P-values for the reported results for Performance Measurement 3. Given the limited data that are available in the Auditor's Report, any information regarding statistical significance for this measurement must rest on the overwhelming pattern of longer FOC times for non-affiliates than those for the BOC and affiliates.

[49] Auditor's Report, Attachment A-7, Objective VIII, Procedure 3, Measurement 3 at 2.

to DS3 non-affiliates.[50] In January 2001, SBC took one day to return FOCs to DS3 BOC and affiliates, but five days to return FOCs to DS3 non-affiliates. In March 2001, it took SBC one day to return FOCs to DS3 BOC and affiliates, but three days to return FOCs to DS3 non-affiliates. Moreover, as noted hereinabove, because the Auditor, in many instances, failed to report the actual performance results for non-affiliates but simply reported whether the FOC times for non-affiliates were "Greater than 5 days," the full extent of the disparities in performance remains a mystery.

50. Similarly, the data for Performance Measurement 3 for Oklahoma and Kansas show that, in March 2001, SBC returned FOCs to DS3 BOC and affiliates within one day, but took more than five days to return FOCs for DS3 non-affiliates.[51]

51. **Performance Measurement 4.** Performance Measurement 4 measures the time to restore and trouble duration. In accordance with audit procedures, the Auditor was required to report the percentage restored within each successive one-hour interval, until resolution of 95% of all incidents reported. Even a cursory examination of the performance data for Performance Measurement 4 shows a consistent pattern of preferential treatment given to BOC and affiliates for DS0 orders and this is confirmed by statistical analysis which shows that any differences are statistically significant, as shown in paragraphs 59-60 and 66, *infra*. Indeed, the Texas data for DS0 orders show that non-affiliates virtually always had a lower percentage of troubles restored at each time interval through 10 hours.

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[50] *Id.*

[51] *Id.*

52. For example, In July 2000, 61.11% of the DS0 orders for BOC and affiliates in Texas were restored within one hour, while only 34.85% of the DS0 orders for non-affiliates were restored within the same interval -- a difference of 26.26%.[52] In August 2000, 55.56% of the DS0 orders for BOC and affiliates in Texas were restored within one hour, while only 31.84% of the DS0 orders for non-affiliates were restored within the same interval.[53]

53. In September 2000, 52.17% of the DS0 orders for BOC and affiliates in Texas were restored within one hour, while 29.62% of the DS0 orders for non-affiliates were restored within one hour -- a difference of 22.55%.[54] In October, 54.94% of the DS0 orders for BOC and affiliates in Texas were restored within one hour, while 28.27% of the DS0 orders for non-affiliates were restored with the same interval.[55]

54. Similarly, in November and December 2000 and in January, February, and March 2001, the percentage of DS0 orders of BOC and affiliates in Texas that were restored within one hour exceeded the percentages of DS0 orders of non-affiliates that were restored within the same interval by 24.43%, 23.63%, 17.74%, 11.10%, and 6.78%, respectively.[56]

[52] Auditor's Report, Attachment A-7, Objective III, Procedure 3, Measurement 4.

[53] *Id.*

[54] *Id.*

[55] *Id.*

[56] *Id.*

55. Furthermore, the Texas data show that the percentages of DS0 orders of BOC and affiliates in Texas that were restored within two hours exceeded the percentages of DS0 orders for non-affiliates that were restored within the same interval by the following:[57]

July 2000	19.08%
August 2000	21.86%
September 2000	18.52%
October 2000	22.38%
November 2000	14.82%
December 2000	24.35%
January 2001	17.31%
February 2001	4.34%
March 2001	1.04%

56. Moreover, the Texas data for Performance Measure 4 are littered with numerous other examples demonstrating that SBC discriminated against non-affiliates when restoring service for reported DS0 troubles.[58]

57. Similarly, the data for Oklahoma show that SBC discriminated against non-affiliates when restoring service reported for DS0. In March 2001, although 60.98% of DS0 troubles reported by BOC and affiliates were restored within one hour, only 33.55% of those reported by non-affiliates were restored within the same interval -- a difference of 27.43%.[59]

58. Additionally, the Kansas data show that SBC discriminated against non-affiliates that reported DS0 troubles. In March 2001, 58.82% of the DS0 troubles reported by

[57] *Id.*

[58] *Id.*

[59] Auditor's Report, Attachment A-7, Objective VIII, Procedure 3, Measurement 4 at 6.

BOC and affiliates were restored within one hour, but only 30.71% of DS0 troubles reported by non-affiliates were restored within the same interval.[60]

59. SBC has broadly asserted that any differences in performance results in the Auditor's Report are statistically insignificant because of the small volume of orders; however, SBC has failed to provide any empirical data to buttress that blanket assertion. In fact, although no sample sizes are reported for Performance Measurement 4, reasonably large sample sizes can be inferred from the observed percentages each month for DS0. Table 1 below shows the inferred samples sizes for DS0.[61] The month-to-month stability of both sets of samples sizes for Texas strongly suggests that those sample sizes are indeed correct.

Table 1

FINDINGS FOR PERFORMANCE MEASUREMENT NO. 4, DS0

	Implied Sample Size		
State/Month	BOC & Affiliates	Non-Affiliates	P-Value[a]
Texas			
July 2000	162	1188	<.0001
August 2000	171	1454	<.0001
September 2000	184	1337	<.0001
October 2000	162	1493	<.0001
November 2000	187	1491	<.0001
December 2000	162	1342	<.0001[b]
January 2001	155	1546[c]	<.0001
February 2001	153	1161	.0279
March 2001	162	1444	.2808

[60] *Id.*

[61] Inferred sample sizes were computed by checking each possible sample size (1, 2, 3, ...) to determine whether the percentages for that column, which are all reported to four significant digits, could be produced by that sample size. The inferred sample size is the smallest integer that would work. For non-affiliates in January 2001, this algorithm produced an initial sample size of 6583, far greater than the value for any other month. Instead, I used an inferred sample size of 1546, which was consistent with 13 of the 14 percentages in the column, to allow for the possibility of a single misprint in the Auditor's Report.

Oklahoma			
March 2001	41	152	.0011
Kansas			
March 2001	34	140	.0031

[a] One-sided P-values from the Wilcoxon two-sample test after trimming top 5 percent of values from each group (produced by Proc NPAR1WAY, SAS Version 8). Small values indicate evidence of discrimination against non-affiliates.
[b] Corrected to account for an error in the non-affiliates December 2000 column of the Auditor's Report table.
[c] Adjusted downward to allow for a possible error in the BOC and affiliates January 2001 column of the Auditor's Report table.

60. The last column of Table 1 contains P-values for statistical tests of parity in the distributions of trouble duration.[62] Small values (near 0) indicate evidence of discrimination against non-affiliates. For every comparison except one (*i.e.* March 2001 in Texas), the hypothesis of parity is rejected at the 0.05 level.[63] Consequently, there is strong evidence that non-affiliates consistently received discriminatory service throughout the relevant period in Texas and in the only month studied for Oklahoma and Kansas.

61. Similarly, the data for DS1 orders show that SBC has discriminated against non-affiliates in favor of the BOC and affiliates. In this regard, the Texas data show that

[62] Once samples sizes are determined, it is easy to compute the number of transactions at each value up through the 95th percentiles for BOC and affiliates and for non-affiliates. Because values beyond the 95th percentiles were not available, I used only the lowest 95 percent of the data for each group (deleting some proportions of observations at the 95th percentile, if necessary). Because the distribution of trouble durations is clearly not a normal distribution, I used a nonparametric test, the Wilcoxon two-sample test (performed by Proc NPAR1WAY, SAS Version 8). Because the top 5 percent of observations from each group were trimmed before performing the test, the P-values may be slightly inaccurate.

[63] The column labeled "Non-Affiliates," December 2000 on page 3 of Attachment A-7 contains an error. The value for Within 6 Hours is shown as 86.83% -- a value which exceeds the values in the next two rows. Because values must monotonically increase within rows, there must be an error -- most likely the 86.83% (otherwise two values must be in error). The P-value in Table 1 for December 2000 was computed based on changing 86.63% to 80.18%. That change produces the shortest possible trouble durations for non-affiliates (consistent with a single error in the table) and, therefore, the smallest possible difference in the two distributions. Even so, the P-value for December 2000 is less than .0001.

the percentages of DS1 orders of BOC and affiliates that were restored within one hour exceeded those for non-affiliates by the following amounts during the periods identified:

July 2000	21.95%
August 2000	16.70%
September 2000	16.30%
October 2000	17.06%
November 2000	16.81%
December 2000	18.36%
January 2001	13.10%
February 2001	11.91%
March 2001	13.43%

62. Similarly, the Texas data show that the percentage of DS1 orders for BOC and affiliates in Texas that were restored within two hours exceeded those of non-affiliates that were restored within the same interval by the following percentages for the periods identified:

July 2000	16.49%
August 2000	11.28%
September 2000	14.32%
October 2000	15.36%
November 2000	11.80%
December 2000	12.84%
January 2001	11.06%
February 2001	10.49%
March 2001	10.76%

63. The Texas data also reveal that, from July 2000 through March 2001, the percentage of DS1 orders for BOC and affiliates that were restored within 3, 4, 5, 6, 7, and 8 hours consistently exceeded those of non-affiliates that were restored within the same intervals.[64]

[64] Auditor's Report, Attachment A-7, Objective VIII, Procedure 3, Measurement 4 at 4.

64. The data for Oklahoma also show that SBC discriminated against non-affiliates in favor of the BOC and affiliates when restoring troubles reported for DS1.[65] Thus, for example, while 41.46% of the DS1 troubles reported by BOC and affiliates were restored within one hour, only 30.85% of those for non-affiliates were restored within the same interval -- a difference of 10.61%. Additionally, although 58.54% of the DS1 troubles reported by BOC and affiliates were restored within two hours, only 47.52% of those for non-affiliates were restored within the same interval in Oklahoma.[66] Furthermore, although 71.54% of the DS1 troubles reported by BOC and affiliates were restored within three hours, only 62.77% of those reported by non-affiliates were restored within the same interval -- a difference of 8.77%.

65. The Kansas data in the Auditor's Report show that, although 37.50% of DS1 troubles reported by the BOC and affiliates were restored within one hour, only 28.57% of the troubles reported for DS1 orders for non-affiliates were restored within the same interval.[67] The Kansas data also show that greater percentages of DS1 troubles reported by BOC and affiliates were restored within 2, 3, 4, 5, and 6 hours than those reported by non-affiliates in the same intervals.

66. Moreover, although SBC argues that these differences in performance results are statistically insignificant because of small sample sizes, reasonably large sample sizes can be inferred from the observed percentages in the performance data for Performance

[65] *Id.* at 6.

[66] *Id.*

[67] *Id.*

Measurement 4. The data in Table 2 below show the inferred sample sizes for DS1 -- data which confirm a pattern of discrimination against non-affiliates. Indeed, the P-values in Texas are all less than 1 in 10,000. The disparity in Oklahoma is statistically significant at the 0.05 level (P = 0.0123), while the Kansas disparity falls a little short of meeting that criteria (P = 0.0599).

Table 2
FINDINGS FOR PERFORMANCE MEASUREMENT NO. 4, DS1

	Implied Sample Size		
State/Month	BOC and Affiliates	Non-Affiliates	P-Value[a]
Texas			
July 2000	429	2208	<.0001
August 2000	551	2616	<.0001
September 2000	470	2589	<.0001
October 2000	494	2697	<.0001
November 2000	537	2538	<.0001
December 2000	419	2313	<.0001
January 2001	483	2658	<.0001
February 2001	457	2569	<.0001
March 2001	505	2629	<.0001
Oklahoma			
March 2001	123	282	.0123
Kansas			
March 2001	72	259	.0599

[a] One-sided P-values from the Wilcoxon two-sample test after trimming top 5 percent of values from each group (produced by Proc NPAR1WAY, SAS Version 8). Small values indicate evidence of discrimination against non-affiliates.

67. **Performance Measurement 5.** Performance Measurement 5 assesses the mean time to clear network/average duration of trouble.[68] The Texas data show that, from July 2000 through September 2000 and from December 2000 through February 2001, the average duration of troubles reported for DS0 orders for non-affiliates was longer than that for BOC and

[68] Auditor's Report, Attachment A-7, Objective VIII, Procedure 3, Measurement 5 at 7.

affiliates.[69] The four largest differences in absolute value all favored BOC and affiliates, and the non-affiliates' averages were 47% to 93% higher than those for the BOC and affiliates in those months. A one-sample test rejects the hypothesis that the nine variances for Texas are centered at 0 ($P = 0.022$ for a one-sided test).

68. The Texas data also show that SBC discriminated in favor of the BOC and affiliates when clearing DS1 troubles. From July 2000 through March 2001, the average duration of DS1 troubles reported by non-affiliates was consistently longer than that reported by BOC and affiliates. If non-affiliates were actually receiving parity services, the pattern observed in Texas would be expected to occur only one time in 512.

69. The March 2001 results for DS0 and DS1 orders in Oklahoma and Kansas are similar to those in Texas.[70] For example, in March 2001, the mean time to clear DS0 troubles in Oklahoma that were reported by non-affiliates was approximately twice as long as that for BOC and affiliates (3.69 vs. 1.68).[71] Similarly, in March 2001, the mean time to restore DS1 troubles reported by non-affiliates was longer than that reported by BOC and affiliates in Oklahoma.[72]

70. The data for Performance Measurement 5 in Kansas also show that the mean time to restore troubles reported by non-affiliates was longer than that for BOC and

[69] *Id.*

[70] Statistical inferences (*e.g.* computation of P-values) cannot be performed with the Oklahoma and Kansas data that are reported for Performance Measurement 5 because only one month of data is reported for these states, and the Auditor's Report suppressed both sample sizes and standard deviations for this measurement.

[71] Auditor's Report, Attachment A-7, Objective VIII, Procedure 3, Measurement 5 at 7.

[72] *Id.*

affiliates. In March 2001, it took 1.97 hours to clear DS0 troubles reported by BOC and affiliates, but 3.56 hours to clear those reported by non-affiliates -- a difference of 1.59 hours. In addition, the DS1 trouble clearance time for non-affiliates was higher than that for BOC and affiliates.[73]

71. **Performance Measurement 7**. Performance Measurement 7 measures the time to restore PIC after trouble incidents.[74] The March 2001 data for Kansas show that it took SBC 48 hours to restore PIC for 95% of troubles reported by non-affiliates, but only 29 hours to restore PIC for 95% of troubles reported by BOC and affiliates.[75] Similarly, it took SBC 48 hours to restore LPIC after troubles reported by non-affiliates, but 33 hours to restore LPIC after troubles reported by BOC and affiliates.[76]

72. The data for Performance Measurement 7 for Oklahoma show that, in March 2001, it took SBC 93 hours to restore PIC after troubles reported by non-affiliates, but only 43 hours to restore PIC after troubles reported by BOC and affiliates.[77]

[73] *Id.*

[74] Auditor's Report, Attachment A-7, Objective VIII, Procedure 3 at 9.

[75] *Id.*

[76] *Id.*

[77] *Id.* Statistical inferences (*e.g.* computation of P-values) cannot be performed with the Oklahoma and Kansas data that are reported for Performance Measurement 7 because: only one month of data is reported for these states; the Auditor's Report failed to comply with the *General Standard Procedures* for this measurement; and the Auditor's Report suppressed sample sizes.

CONCLUSION

Because of the serious deficiencies in the statistical and non-statistical methodologies that the Auditor used to assess compliance with test criteria, there is no sound basis upon which any finding could be made that SBC has complied with Section 272. Remarkably, even the flawed and woefully inadequate data in the Auditor's Report confirm that SBC has discriminated against its competitors. Although SBC asserts that the performance data are inherently unreliable because of the small volumes for certain measurements, SBC provides no empirical data to support this assertion. Moreover, SBC's assertion is belied by the consistent patterns of inferior service received by affiliates and by the reasonably large samples that can be inferred from the observed percentages in the data presented for certain measures.

I hereby declare under penalty of perjury that the foregoing is true and accurate to the best of my knowledge and belief.

Executed on January 29, 2003

Robert Bell

Robert M. Bell

ROBERT M. BELL

EDUCATION

Ph.D., Statistics, 1980, Stanford University

M.S., Statistics, 1973, University of Chicago

B.S., Mathematics, 1972, Harvey Mudd College

PROFESSIONAL EXPERIENCE

1998-Present -- Principal Member Technical Staff, Statistics Research Department, AT&T Labs - Research, Florham Park, NJ

1991-1999 -- Senior Statistician, RAND, Santa Monica, California; Head, RAND Statistics Group (1993-1995); Member, RAND Graduate School Faculty (1991-1998)

1988-1991 -- Statistician, Social Policy Department, RAND, Santa Monica, California

1980-1988 -- Associate Statistician, Economics and Statistics Department, RAND, Santa Monica, California

1975-1979 -- Teaching Assistant/Research Assistant, Department of Statistics, Stanford University.

1973-1975 -- Consultant and Mathematical Assistant, Economics Department, The RAND Corporation, (also intermittently during educational leave).

RESEARCH AREAS

Experimental Design and Survey Development. Dr. Bell supervised statistical design of Project Alert, an experiment of drug abuse prevention in thirty California and Oregon junior high schools. This work has involved data collection and analysis for sample selection/assignment, development of a series of 30 page questionnaires, and design of sampling procedures for several secondary analyses.

Data Analysis. Dr. Bell supervised the main data analysis in Project ALERT. He previously supervised analysis of clinical data from the National Preventive Dentistry Demonstration Program, a study of school-based preventive treatments. Data from that study included one to five annual examinations of 30,000 children in 10 communities, over 10,000 replicate examinations, and 20,000 surveys.

Statistical Methodology. Dr. Bell's methodological interests include survey research methods, analysis of data from complex samples, record linkage methods, analysis of missing data, measurement and scaling, robust procedures, empirical Bayes estimation, and sample reuse methods.

PROFESSIONAL ORGANIZATIONS/HONORS

Member, Committee on National Statistics, National Academy of Sciences, 2001-present.
Chair, Committee to Review the 20000 Decade Design of the Scientists and Engineers Statistical Data System (SESTAT), National Academy of Sciences, 2002.
Member, Panel to Review the 2000 Census, National Academy of Sciences, 1998-present.
Elected Fellow, American Statistical Association, 1998.
Chair, American Statistical Association Subcommittee, Census Advisory Committee of Professional Associations, 1997-1998; Member, 1995-2000.
Member, Panel on Alternative Census Methodologies, National Academy of Sciences, 1995-1999.
Member, Committee on Minorities in Statistics, American Statistical Association, 1995-2000.
Member, Panel to Evaluate Alternative Census Methods, National Academy of Sciences, 1992-1994.
Visiting Lecturer for American Statistical Association, 1984-1986.
Program Chairman, Applied Statistics Workshop, Southern California Section of American Statistical Association, 1984.
Institute of Mathematical Statistics, since 1979.
American Statistical Association, since 1974.

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