



TECHNICAL DOCUMENTATION

Document Number: 021003B

Exhibit __.2 to Direct Testimony on Reopening of Warren R. Fischer

REPORT ON REFUND OWED TO MICHIGAN PAY TELEPHONE ASSOCIATION ET AL.

CASE NO. U-11756

PUBLIC VERSION

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ATTACHMENTS

- Attachment __.2.A:** *Summary of Refunds owed by SBC Ameritech Michigan and Verizon North, Inc.*
- Attachment __.2.B:** *Analysis of Refunds owed by SBC Ameritech Michigan*
(Confidential – NOT INCLUDED)
- Attachment __.2.C:** *Analysis of Refunds owed by Verizon North Inc.*
(Confidential – NOT INCLUDED)
- Attachment __.2.D:** *Summary of SBC Ameritech Michigan Bill Data*
(Confidential – NOT INCLUDED)
- Attachment __.2.E:** *Summary of Verizon North, Inc. Bill Data* **(Confidential – NOT INCLUDED)**

EXECUTIVE SUMMARY

This Technical Document prepared by QSI Consulting quantifies the refund owed by SBC Ameritech Michigan (“Ameritech”) and Verizon North, Inc. (“Verizon”) to the complainants in this case for excessive rates charged for payphone services. The refund covers the period from April 15, 1997 through June 30, 2002. The refund owed was calculated on a per-phone, by-month basis so that refund dollars could be easily calculated when applied to the number of payphone lines purchased by a payphone service provider from Ameritech or Verizon. The per-phone refund was calculated by comparing averages of actual charges paid by the complainants with the cost-based rates that should have been charged under the FCC’s New Services Test. The following graphic summarizes the approximate refund owed to each complainant.

MICHIGAN PAYPHONE NEW SERVICES TEST REMAND

SUMMARY OF INTEREST-ADJUSTED REFUNDS OWED BY SBC AMERITECH MICHIGAN AND VERIZON

| COMPLAINANT | SBC AMERITECH | VERIZON |
|---------------------------------------------------|-------------------------|----------------------|
| SUMMARY OF ALL COMPLAINANTS | \$ 12,544,787.95 | \$ 610,280.92 |
| 4M COMMUNICATIONS, INC. | \$ 1,248,753.98 | \$ 140,982.93 |
| A&L COMMUNICATIONS, INC. | \$ - | \$ - |
| A&R COMMUNICATIONS, INC. | \$ 264,073.88 | \$ 37.99 |
| A&S COMMUNICATIONS, INC. | \$ 11,697.68 | \$ - |
| AMERICAN PAYTEL CORPORATION | \$ 353,513.97 | \$ 48,111.34 |
| BELL COIN SYSTEMS, INC. | \$ - | \$ - |
| CASUAL COMMUNICATIONS CORP. | \$ 29,541.14 | \$ - |
| CHRISTIAN BROTHERS PAYPHONES | \$ 10,912.00 | \$ 557.40 |
| D&L COMMUNICATIONS, INC. | \$ 6,448.02 | \$ - |
| DAVREN INDUSTRIES | \$ 162,454.21 | \$ 3,328.17 |
| DOC COMMUNICATIONS | \$ - | \$ - |
| DONTEL COMMUNICATIONS | \$ 18,812.50 | \$ 1,344.70 |
| ETM COMMUNICATIONS, INC. | \$ 67,119.80 | \$ 1,409.92 |
| FIRST MICHIGAN TELECOMMUNICATIONS | \$ - | \$ - |
| GERLACH COMMUNICATIONS, INC. (GCI) | \$ 19,456.27 | \$ - |
| GREAT LAKES TELECOMMUNICATIONS CORP. ¹ | \$ 2,421,399.52 | \$ 90,076.53 |
| THE HAVERHILL COMPANY, INC. | \$ 4,167.16 | \$ - |
| INDEPENDENT TELECOMMUNICATIONS COMPANY | \$ 344,039.88 | \$ 5,521.54 |
| J&M SPECIALTIES | \$ 2,218.78 | \$ 218.67 |
| KSM COMMUNICATIONS, INC. | \$ - | \$ - |
| LAKES PUBLIC TELEPHONE | \$ 35,442.89 | \$ - |
| LAUREN COMMUNICATIONS | \$ - | \$ - |
| LEADER IN NEW COMMUNICATIONS, INC. | \$ 2,272.85 | \$ 598.11 |
| LEONARD BERTYN | \$ 4,196.28 | \$ - |
| MG COMMUNICATIONS | \$ 28,559.30 | \$ 1,527.57 |
| MICHIGAN PAYTEL, INC. | \$ - | \$ - |
| MICHIGAN PUBLIC TELEPHONE CO. | \$ 470,960.87 | \$ 26,621.65 |
| MIDWEST AUTOTEL SERVICES, INC. | \$ 103,792.12 | \$ - |
| MIDWEST TELECOMMUNICATIONS | \$ 63,967.07 | \$ 10,960.84 |
| NATCOM INC. | \$ 83,369.36 | \$ 4,146.11 |
| NORTH AMERICAN INTERSTATE, INC. | \$ 1,415,944.88 | \$ 36,206.50 |
| NORTH AMERICAN PUBLIC COMMUNICATIONS | \$ - | \$ - |
| OAKLAND PAY PHONES, INC. | \$ - | \$ - |
| PDCOM, INC. | \$ 204,237.41 | \$ 4,958.40 |
| P&M PAYPHONE SERVICE | \$ 16,245.96 | \$ 758.55 |
| PEOPLES TELEPHONE COMPANY, INC. | \$ - | \$ - |
| PHONETEL TECHNOLOGIES, INC. ² | \$ 2,404,035.42 | \$ 91,901.96 |
| PHOTO QUICK, INC. | \$ 35,369.19 | \$ 1,970.28 |
| PREMIERE ENTERPRISE CORP. | \$ 25,248.38 | \$ 591.27 |
| PUBLIC PAYTEL | \$ - | \$ - |
| RAINBOW COMMUNICATIONS CORPORATION | \$ 19,053.42 | \$ 1,014.72 |
| REPUBLIC TELEPHONE, INC. | \$ 110,397.05 | \$ 5,500.55 |
| RESOURCE PAYPHONE, INC. | \$ 387,435.13 | \$ 13,648.56 |
| RJ&E ENTERPRISES, INC. | \$ 34,660.97 | \$ 1,901.13 |
| SADOWSKI CONTRACTING, INC. | \$ 32,484.47 | \$ 1,751.86 |
| SAROKI GROUP | \$ 435,027.83 | \$ 1,656.25 |
| SHEFFIELD SYSTEMS, INC. | \$ 986,990.03 | \$ 45,470.96 |
| SMI COMMUNICATIONS, INC. | \$ 88,892.21 | \$ 16,204.80 |
| STERLING COMMUNICATIONS | \$ 6,195.68 | \$ - |
| SUBURBAN PAYPHONES | \$ 10,545.22 | \$ - |
| T&B PAYPHONES MGT., INC. | \$ 79,964.06 | \$ 17,155.07 |
| TELECOM VENDOR SERVICES WEST MICHIGAN | \$ - | \$ - |
| TELECOM CONCEPTS | \$ 37,774.02 | \$ 1,697.87 |
| TELE-SERV, INC. | \$ 2,664.07 | \$ 177.19 |
| TOM MURPHY SALES | \$ 32,655.01 | \$ 1,785.44 |
| TRI-COUNTY I.PT. | \$ 11,187.33 | \$ 555.16 |
| UNITED PAYPHONES, INC. | \$ - | \$ - |
| VISIONCOMM, INC. | \$ 13,064.12 | \$ 666.74 |
| WEST MICHIGAN PAY PHONES | \$ 68,816.19 | \$ 1,977.28 |
| WEST MICHIGAN PAY-TEL, INC. | \$ 41,189.88 | \$ 22,958.11 |
| X-CHANGE COMMUNICATION | \$ 287,733.36 | \$ 3,808.85 |
| FOUR C'S COMMUNICATIONS | \$ 10,264.16 | \$ 519.94 |

INTRODUCTION

This Technical Document is provided in response to the Michigan Public Service Commission's ("MPSC") Order and Notice of Hearing on October 3, 2002 which reopened the record in Case No. U-11756. Consistent with the position taken by Michigan Pay Telephone Association et al. ("the Complainants") that Ameritech and Verizon have been out of compliance with the FCC's New Services Test since April 15, 1997, this report determines the refund owed to each complainant due to excessive rates charged to Michigan payphone service providers since April 15, 1997.

The analysis detailed in this Technical Document is comprised primarily of Ameritech and Verizon bill data received from complainants involved in this proceeding. The Complainants initially attempted to obtain a detailed record of payphone service charges and usage statistics from Ameritech and Verizon for all payphone service providers included in this complaint. However, the defendants refused to provide the requested information on the grounds that the request was overly burdensome. The MPSC agreed with the defendants at the conclusion of a meeting to address discovery issues on January 9, 2003. Consequently, QSI was required to construct a refund analysis using bill data provided by individual complainants in this proceeding.

An algorithm comparing actual charges to cost-based rates was developed to ascertain the amount that actual rates charged by Ameritech and Verizon exceeded cost-based rates. Complainant witness Michael Starkey calculates what the cost-based rates should have been in his direct testimony according to the FCC's New Services Test.¹ Billed data derived from electronic and paper sources was used to calculate average charges paid per-line by month to Ameritech and Verizon for key payphone rate elements such as the access line, end user common line charges, local usage, call screening, call blocking and touch tone service on a per-line basis. The rate elements were also verified against tariffs provided by Ameritech and Verizon. Per-line average charges were then multiplied by the number of payphone lines in service by complainant for each month to approximate the total charges paid each month.

QSI determined the per-line charge that should have been paid in accordance with the FCC's New Services Test by calculating cost-based rates using the Total Service Long-Run Incremental Cost ("TSLRIC") plus applicable shared and common costs for the Ameritech and Verizon network elements required to provide payphone service. QSI then multiplied the number of phone lines per month by the cost-based rates to derive total cost-based charges. The resulting difference between actual charges and cost-based rate charges represents the refund owed for each month of service. Simple interest based upon the United States Savings Bond, Series EE rates was then added to each month's refund amount to arrive at an interest-adjusted refund by complainant for the period April 1997 through June 2002.

¹ See Attachment 2 to the direct testimony of Michael Starkey.

I. SCOPE OF TASK UNDERTAKEN

I.A. General Parameters

QSI Consulting was engaged by the Complainants in this proceeding to calculate the refund owed by Ameritech and Verizon to each individual complainant for the period April 15, 1997 through June 30, 2002 (hereafter “the refund period”). From the beginning of this phase of the proceeding when the MPSC reopened the record, the Complainants requested detailed billing records from both Ameritech and Verizon to calculate the charges paid for payphone line service, features and usage to each local exchange carrier (“LEC”) during the refund period. When Ameritech and Verizon refused to provide the requested billing information for each complainant, QSI was asked to calculate the refund owed to its clients by alternative means.

QSI determined that one approach for determining charges paid to Ameritech and Verizon over the refund period was to calculate a representative average of the charges paid by phone line per month. A compilation of detailed billing records from each complainant was not performed due to the highly voluminous nature of billing records covering a period of 63 months for over 60 payphone service providers. Additionally some of the Complainants are no longer in business or have merged with other telecommunications service providers. Therefore, a per-phone average was deemed an efficient and representative way of estimating charges paid over the refund period to Ameritech and Verizon for the network elements at issue in the New Services Test.

This per-phone average was then compared to TSLRIC-based rates for the network elements and usage required to provide the payphone services used by the Complainants. The difference, representing the refund owed per phone line per-month, was then adjusted for interest accrued on a simple basis using the United States Savings Bond, Series EE rates in effect during each month of the refund period. This interest-adjusted refund amount was then multiplied by the number of phones each complainant had by month during the refund period to estimate the approximate refund owed.

I.B. Amount of Bill Data Examined

QSI received and analyzed bill data from the payphone service providers listed in the table below covering various points in time of the refund period.

| PAYPHONE SERVICE PROVIDER | AMERITECH | | VERIZON | |
|-----------------------------------------------------------|--------------------------------------|---------------------|--------------------------------------|----------------------------------|
| | TOTAL BILLS UTILIZED (04/97 – 06/02) | PAPER OR ELECTRONIC | TOTAL BILLS UTILIZED (04/97 – 06/02) | PAPER OR ELECTRONIC |
| 4M Communications, Inc. | 21,010 | Electronic | 14,235 | Paper Keyed into Electronic Form |
| PhoneTel Technologies, Inc. | 47,992 | Electronic | 1,232 | Electronic |
| Resource Payphone, Inc. | 12,396 | Electronic | N/A | N/A |
| X-Change Communication & Coin Phone Management (combined) | 14,065 | Paper | 855 | Paper |
| TOTAL BILLS UTILIZED | 95,463 | | 16,322 | |

The bill data was provided in both electronic and paper format with the latter requiring over 400 man-hours by QSI personnel and independent contractors to input into Microsoft® Excel workbooks for analysis purposes. Additionally, Complainants who provided a large amount billing records, such as 4M Communications, Inc. and PhoneTel Technologies, Inc., dedicated full-time staff and independent contractors to the task of entering paper bill data into electronic databases and exporting internal accounting records into Microsoft® Excel workbooks to facilitate analysis by QSI.

Electronic bill data also required a significant amount of analysis time to (1) export it into Microsoft® Excel workbooks, (2) filter out information not relevant to the analysis, (3) isolate the charges by rate element for comparison to cost based rates and (4) develop per-phone averages by month of the relevant rate elements and usage charges. On average, QSI examined bill data for over 1,515² payphones per month for lines purchased from Ameritech and 259³ payphones per month for lines purchased from Verizon during the refund period.

² Calculated by dividing 95,463 total Ameritech bills by 63 months (April 1997 – June 2002).

³ Calculated by dividing 16,322 total Verizon bills by 63 months (April 1997 – June 2002).

Data received from the aforementioned payphone service providers allowed QSI to calculate per-phone averages for each month of the refund period using actual bill data.

I.C. Veracity of Billing Data

The billing data analyzed by QSI was provided in response to requests for information issued by Complainant witness Gary Pace to the Complainants. QSI did not undertake an independent analysis to verify the authenticity of the data. However, QSI noted that bills received in paper form all contained the payphone provider's name and the Ameritech or Verizon name and logo. Two of the payphone providers, 4M Communications, Inc. and Resource Payphone, Inc., submitted electronic bill data for Ameritech by either exporting the required information directly from the billing software, Ameritech Details[®], or providing the actual Ameritech Details[®] CD-ROMs to QSI.

QSI was able to confirm that the payphone lines included in the bill records were indeed Michigan phone lines through examination of call usage detail noting originating and terminating cities for measured local service and through a process of matching the monthly rates charged with tariff information provided by Ameritech and Verizon. QSI did find a small number of lines that were based in Illinois and Ohio either through explicit identification in the billing records or by noting charges that did not match Michigan tariff rates. Where such out-of-state information was found, it was excluded from the analysis.

II. ANALYSES PRODUCED

The primary analyses produced by QSI for this proceeding are as follows:

- Attachment __.2.A:** *Summary of Refunds owed by SBC Ameritech Michigan and Verizon North, Inc. depicted as table in the Executive Summary to this report and included as a separate attachment at the end of this document;*
- Attachment __.2.B:** *Analysis of Refunds owed by SBC Ameritech Michigan*
(Confidential)
- Attachment __.2.C:** *Analysis of Refunds owed by Verizon North Inc.*
(Confidential)

Intermediate analyses, which summarize the results of averaging detailed billing records were also created to provide the inputs required for the per-phone averages in a centralized format since billing data from a number of different payphone providers were utilized. These summaries are:

- Attachment __.2.D:** *Summary of SBC Ameritech Michigan Bill Data*
(Confidential)
- Attachment __.2.E:** *Summary of Verizon North, Inc. Bill Data* **(Confidential)**

The underlying analyses of detailed billing records examined by QSI are not included with this report because of the voluminous scope of the data. However, this information is available in electronic format upon request.

III. REFUND PER ANI

QSI calculated the refund owed to the Complainants on a per-phone or per-ANI basis. The term ANI is defined as Automatic Number Identification, which represents a series of digits or an account number identifying a payphone for billing purposes. Since all payphone billing records identify individual payphones by their ANIs, all of the analyses performed for this report reference the number of ANIs examined in a month or calculations done on a per-ANI basis.

The refund analyses depicted in Attachments __.2.A and confidential Attachments __.2.B and C were constructed to provide the MPSC a clear picture of what Ameritech and Verizon have charged payphone service providers by month since April 1997 versus the cost-based rates that should have been charged. The summary of refunds owed in Attachment __.2.A is simply one-page summary of the results obtained with confidential Attachments __.2.B and C.

QSI developed a Microsoft® Excel workbook which was structured to calculate refunds based upon a simple algorithm:

$$\begin{array}{r}
 \text{Per ANI Revenue}^4 \\
 \text{Less: } \quad \underline{\text{Per ANI Costs}^5} \\
 \text{Equals: } \quad \underline{\text{Per ANI Refund}}
 \end{array}$$

Confidential Attachments __.B and C reflect this algorithm in virtually identical Microsoft® Excel workbooks for Ameritech and Verizon, respectively. Each workbook contains a schedule summarizing the refund calculation for all Complainants combined and separate schedules for each individual complainant. This structure results in a summary schedule and over 60 individual complainant refund schedules for Ameritech and Verizon separately.

The only difference between the workbooks are the rate elements subscribed to by the Complainants, the rates charged by Ameritech and Verizon, and the cost-based rates that

⁴ Charges Actually Paid to Ameritech or Verizon on a Per-ANI basis.

⁵ TSLRIC + Shared and Common Costs for required network elements.

should have been charged by Ameritech and Verizon for the rate elements subscribed to. The charges paid to Ameritech and Verizon during the refund period are noted as Per ANI Revenue to the two LECs in this analysis to easily distinguish between what they received from the Complainants as revenue and the cost-based amounts that they should have received instead.

III.A. Per ANI Revenue - Ameritech

QSI used actual charges recorded on over **95,000** Ameritech bills during the refund period to determine per-ANI revenue per month for phone lines purchased from Ameritech. On a per-month basis, the number of bills utilized in the per-ANI revenue calculation ranged from a low of 60 in May 1997 to a high of 3,083 in May 2000. The total bills examined for the following payphone service providers are summarized below. A more detailed record of bills examined by payphone service provider by month is available in the summary schedules that comprise confidential Attachment __.2.D.

| PAYPHONE SERVICE PROVIDER | TOTAL BILLS UTILIZED (04/97 – 06/02) | PAPER OR ELECTRONIC |
|-----------------------------------------------------------|---------------------------------------------|----------------------------|
| 4M Communications, Inc. | 21,010 | Electronic |
| PhoneTel Technologies, Inc. | 47,992 | Electronic |
| Resource Payphone, Inc. | 12,396 | Electronic |
| X-Change Communication & Coin Phone Management (combined) | 14,065 | Paper |
| TOTAL BILLS UTILIZED | 95,463 | |

All of the Ameritech bills provided by 4M Communications, Inc. and Resource Payphone, Inc. were extracted from an electronic billing software program sold by Ameritech called Ameritech Details[®]. Billing records obtained from this software were far more detailed and comprehensive than paper bills. In fact, the Ameritech Details[®] electronic bills were the only source of per-minute-of-use call duration statistics.

III.A.1 Charges Included From Ameritech Monthly Bills

QSI found that the typical bill to a payphone service provider includes charges primarily for the following:

1. Monthly service charges for the access line, federal and state end user common line (“EUCL”) or subscriber line (“SLC”), call screening, zone calls, toll restriction and local number portability.
2. Local usage charges based upon the number of calls made per month.

QSI went through the process of breaking down bill data to its individual rate elements as noted in the above example to better match rates charged by element to the network element's forward-looking cost. Also, the example above shows how the total ANIs reported under the access line rate column were assigned to the Access Area, or Rate Group, it belongs to. This was done because the cost side of the equation for the access line contains different TSLRIC amounts for each Rate Group and no corresponding state-wide average.⁶ Since the revenue side of the of the equation is based on an overall average, which is analogous to a statewide average rate, QSI calculated a similar average of the TSLRIC-based line rate using a percentage weighting of the retail rates by Rate Group. See discussion of this issue in Section III.B of this report, Per ANI Cost – Ameritech.

As noted in the example above, the per-ANI averages for the EUCL and screening rate elements for this particular month show virtually no deviation from the effective tariff rate for that time period. This result occurred in most months although differences did occur in months where rate changes were taking place or if a particular ANI was billed for two months of service at one time.

In the foregoing example, the line depicting the number of ANIs used in the average calculation shows variances from the total number of ANIs included on the billing data for that month. This is due to the exclusion of ANIs that reported zero charges yet were included on the billing detail. The more significant variances demonstrated under the Total Local Messages and Total Local Minutes columns occurred with this particular payphone provider's bill data because QSI adjusted the number of ANIs to those reporting local usage statistics. This adjustment was made for two reasons. First, many ANIs reported local usage dollars being charged but had no corresponding message or minute statistics. QSI viewed this as an anomaly in the billing data as local call charges are derived from the number of messages or calls made. Secondly, averaging the call statistics over the entire range of ANIs reported in a given month would lower the average resulting in understated usage costs on the cost side of the equation. The call data extracted from the monthly bills has no impact on the revenue side of the equation, as local usage dollars are the only amount included. However, the cost side of the equation relies upon the number of minutes per message to calculate usage costs since the TSLRIC for usage is expressed as a per-minute rate.⁷ This is another example of where QSI chose the most conservative approach in calculating the refunds owed to the Complainants.

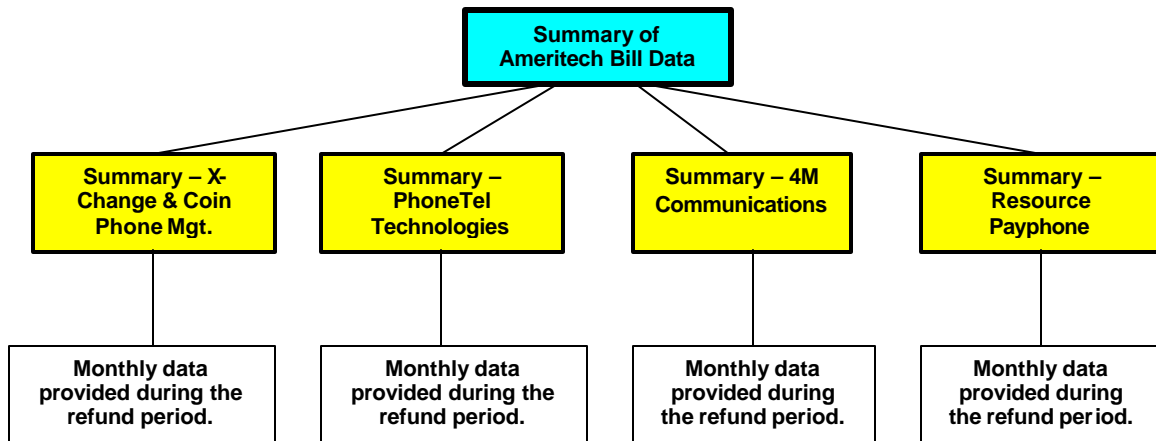
III.A.3. Summary of Ameritech Bill Data

A per-ANI average calculation was performed on the bill data provided by each of the payphone providers listed in Section III.A. of this report. A summary schedule was prepared for each payphone service provider to accumulate the total dollars and per-ANI averages by month for each rate element on one schedule. Ultimately, the total dollars recorded for each

⁶ See Attachment 2 to direct testimony of Michael Starkey.

⁷ Id.

company were combined into a single summary called *Summary of Ameritech Bill Data*. The chart below illustrates the hierarchy of the data reported in confidential Attachment __.2.D.



The *Summary of Ameritech Bill Data* schedule contains the per-ANI averages that are incorporated into the refund analysis in confidential Attachment __.2.B. The monthly data described in the third row of the above chart is contained in separate Microsoft® Excel workbooks that were not included with this report. Such information is highly voluminous as it contains thousands of billing records. This proprietary information is available electronically upon request.

III.B. Per ANI Cost - Ameritech

The per-ANI cost for Ameritech was derived from the TSLRIC-based rates previously approved by the MPSC. These cost-based rates are provided in Attachment 2 to the direct testimony of Michael Starkey. The TSLRIC-based rates used in this analysis are contained in confidential Attachment __.2.B to this report.

The unbundled network elements that comprise the cost of the access line purchased by the payphone service providers are the loop, port, administration, intercept, telephone number and billing. The TSLRIC for these network elements was calculated by Rate Group A, B or C. The MPSC-approved Shared and Common Cost percentage was then applied to the TSLRIC of these network elements to calculate the cost-based rates used in this analysis. As noted in Section III.A.2 of this report, the cost-based rate for the access lines used by payphone service providers is derived by calculating a weighted average of the Rate Group A, B and C TSLRIC costs. This weighting is done within the confidential Attachment __.2.B in the *Weighting by Access Area* worksheet. See the confidential excerpt below from this worksheet.

****Beginning of Confidential Information****

[CONFIDENTIAL INFORMATION HAS BEEN REDACTED]

****End of Confidential Information****

The TSLRIC-base rate for local usage is comprised of call set-up and average cost-per-minute rates obtained from Attachment 2 of Michael Starkey's direct testimony. These rates are applied to the call duration statistics extracted from the bill data. In the Per-ANI Cost section of the refund analysis, the rows where these calculations take place are labeled 1 through 6. The TSLRIC for call screening is also included to complete the per-ANI cost calculation.

No cost is calculated for either the federal or state EUCL charge since they represent a portion of loop costs recovered through the traditional jurisdictional separations process. As noted in Mr. Starkey's testimony, the cost of unbundled network elements is calculated on an unseparated basis. Therefore, the unbundled loop rate is considered to be a fully compensatory rate that requires no additional cost recovery. Consequently, the federal and state EUCL represent an additional revenue stream to Ameritech with no cost basis.

The difference between the per-ANI revenue described in Section III.A. and the per-ANI cost described in Section III.B. is the base refund per ANI for each month during the refund period. This base refund must be adjusted for accrued interest charges. See a detailed discussion of the interest methodology employed in this analysis in Section V. of this report.

III.C. Per ANI Revenue - Verizon

QSI performed a virtually identical analysis on the Verizon bill data provided by the same payphone providers listed in Section III.A. of this report except for Resource Payphone which did not provide any bill data for Verizon. Overall the magnitude of the Verizon bills examined was significantly less than the Ameritech bills as the number of payphone lines provided by Verizon to the Complainants is significantly less. QSI used actual charges recorded on over **16,000** Verizon bills during the refund period to determine per-ANI revenue per month for phone lines purchased from Verizon. On a per-month basis, the number of bills utilized in the per-ANI revenue calculation ranged from a low of 42 in July of 2002 to a high of 406 in December 1999.

The total bills examined for the following payphone service providers are summarized below. A more detailed record of bills examined by payphone service provider by month is available in the summary schedules that comprise confidential Attachment __.2.E.

| PAYPHONE SERVICE PROVIDER | TOTAL BILLS UTILIZED (04/97 – 06/02) | PAPER OR ELECTRONIC |
|-----------------------------------------------------------|---------------------------------------------|----------------------------------|
| 4M Communications, Inc. | 14,235 | Paper Keyed into Electronic Form |
| PhoneTel Technologies, Inc. | 1,232 | Electronic |
| X-Change Communication & Coin Phone Management (combined) | 855 | Paper |
| | | |
| TOTAL BILLS UTILIZED | 16,322 | |

III.C.1 Charges Included From Verizon Monthly Bills

QSI found that the typical Verizon bill to a payphone service provider includes charges primarily for the following:

1. Monthly service charges for the access line, federal and state end user common line (“EUCL”) or subscriber line (“SLC”), coin billed number screening, coin selective call screening and touch tone service.
2. Local usage charges based upon the number of calls made per month.
3. Toll charges for long distance calls made per month.

As noted in Section III.A.1., QSI focused its analysis on charges from the first two categories, monthly service charges and local usage, only. Toll charges were excluded.

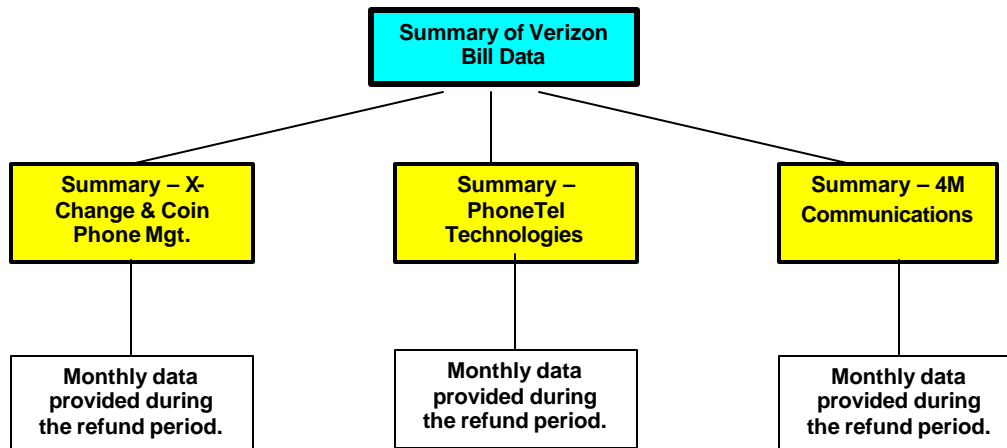
III.C.2. Compilation of Verizon Bill Data

The process used by QSI to compile the Verizon billing data provided by the aforementioned payphone service providers was virtually the same as that used to compile the Ameritech billing data. Individual payphone service rate elements were easier to locate on Verizon paper bills as each component is broken out in detail. Ameritech paper bills typically aggregate the monthly service charges. However, electronic bill data provided by Verizon to certain payphone service providers aggregated monthly service charges in ways similar to Ameritech’s practice on paper bills. Where this situation occurred, QSI again went through extensive effort to back out the component rates that comprise monthly service by subtracting out known fixed rate elements such as EUCL, touch tone service and call screening. This task was further complicated when examining Verizon bills, because the

Verizon service area includes the former GTE North, Inc. and ALLTEL Michigan, Inc. serving areas. ALLTEL-based lines have a monthly line rate that is double the retail rate charged in the GTE North territory. However, the GTE North-based lines have additional local usage charges while the ALLTEL lines do not.

III.C.3. Summary of Verizon Bill Data

Similar to the analysis performed on the Ameritech bill data, a per-ANI average calculation was performed on the Verizon bill data provided by each of the payphone providers listed in Section III.C. of this report. A summary schedule was prepared for each payphone service provider to accumulate the total dollars and per-ANI averages by month for each rate element on one schedule. Ultimately, the total dollars recorded for each payphone service were combined into a single summary called *Summary of Verizon Bill Data*. The chart below illustrates the hierarchy of the data reported in confidential Attachment __.2.E.



The *Summary of Verizon Bill Data* schedule contains the per-ANI averages that are incorporated into the refund analysis in confidential Attachment __.2.C.

III.D. Per ANI Cost - Verizon

The per-ANI cost for Verizon was derived from TSLRIC-based rates previously approved by the MPSC. These cost-based rates are provided in Attachment 2 to the direct testimony of Michael Starkey. The TSLRIC-based rates used in this analysis are contained in confidential Attachment __.2.C to this report.

The TSLRIC for a customer owned pay telephone service line (COPTS) was used as the direct cost of the access line used by payphone service providers for the refund period through June 2000. Verizon’s line rate changed to an unbundled network element format

during June 2000. Subsequent to this date, the line rate consisted of a NAC basic level, a NAC basic level switch interface, touch tone, code restriction and directory usage elements. The MPSC-approved Shared and Common Cost percentage was then applied to the TSLRIC of these network elements to calculate the access line cost used in this refund analysis. No weighting of line costs by Rate Group was required for Verizon lines because statewide average TSLRIC rates were calculated in previous cases.

For the period of November 1997 through June 2000, TSLRIC rates for end office and tandem switching were used to derive cost-based rates for local usage. After June 2000, the TSLRIC-based rate for local usage was used. QSI noted that the Verizon billing records contained no call duration statistics such as the number of minutes per call made. Since the usage cost portion of the cost-based rate equation requires call duration data to multiply the per-minute rate by, QSI used the *Average Minutes Per Message* data derived from the Ameritech billing records. The Ameritech call duration data is located on the refund worksheets in confidential Attachment __.2.B. The supporting bill data that produced these call duration statistics is summarized in confidential Attachment __.2.D.

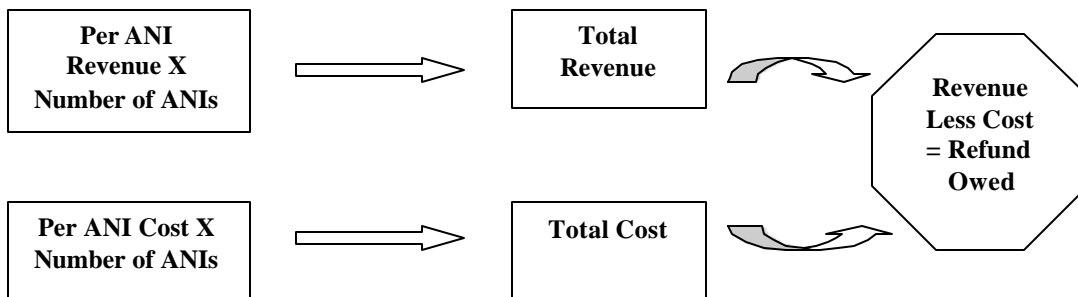
Finally, the TSLRIC for call screening was used to complete the per-ANI cost equation. For the reasons outlined in Section III.B., no cost-based rate for federal and state EUCL charges was calculated.

The difference between the per-ANI revenue described in Section III.C. and the per-ANI cost described in Section III.D. is the base refund per ANI for each month during the refund period. This base refund must be adjusted for accrued interest charges. See a detailed discussion of the interest methodology employed in this analysis in Section V. of this report.

IV. DOLLAR REFUNDS

IV.A. Incorporation of Per-ANI Refund

QSI calculated dollar refunds for each complainant using the per-ANI refund amounts calculated by month as described in Section III of this report. The number of payphone lines purchased from Ameritech and Verizon on a monthly basis was multiplied by the per-ANI refund amount per month to determine the refund before interest, or base refund, owed to each complainant. The per-ANI refund amount is not shown as a separate line item in the refund analysis. Instead, it is included as part of the following algorithm contained in the refund analyses.



This algorithm is exemplified in the following confidential excerpt from one of the refund analyses. ****BEGIN PROPRIETARY INFORMATION****

[CONFIDENTIAL INFORMATION HAS BEEN REDACTED]

**** END OF PROPRIETARY INFORMATION ****

IV.B. Sources of ANI Data Used

QSI relied upon four primary sources of ANI count data to determine the refunds owed to the Complainants in this proceeding. The first two sources listed below were provided by Complainant witness Gary Pace who attests to the reliability of such information in his direct testimony.

1. ANI count data by quarter provided by the American Public Communications Council, Inc. (“APCC”) through its APCC Services division. APCC Services functions as the bill aggregator for payphone service providers seeking dial-around compensation from interexchange carriers (“IXCs”) for 1-8__ and credit card calls made from payphones.
2. MPTA accounting records documenting monthly membership dues paid by member companies based upon the number of payphone lines in service.

The other two sources of data used were:

3. ANI counts calculated from the number of billing records provided by the aforementioned payphone service providers; and
4. ANI counts provided directly by certain payphone providers from internal accounting records.

IV.B.1 APCC Services ANI Data

QSI was asked to rely upon ANI count information provided by APCC Services as the primary source of ANI count data because it is considered a verifiable and reliable source of data. As discussed in more detail by Complainant witness Gary Pace, ANI counts provided by APCC Services are highly reliable as the LEC providing the line to the payphone service provider has to verify that it is a legitimate line for billing purposes before the IXCs will pay dial-around compensation. To facilitate compilation of the ANI data over the refund period, APCC Services provided ANI counts on a quarterly basis. QSI used the amount identified for a given quarter for all three months within that quarter. APCC Services data was used for approximately 57% of the Complainants reporting Ameritech ANIs and 40% reporting Verizon ANIs.

For quarters where APCC Services data was unavailable or for companies who did not use APCC Services during the refund period, QSI used a combination of the other three data sources identified above where information existed. In some cases, APCC Services ANI count data may have been provided for a complainant for most or part of the refund period but was missing for certain quarters. When this occurred and QSI could not find another source of ANI counts, QSI calculated no refund for those months. This approach was taken even if there were ANIs reported before and after the quarters missing data. In circumstances such as this, a case could have been made for using a trending analysis or an average to fill in the gaps. This is another example of the conservative approach taken by QSI in determining the refunds owed to complainants.

IV.B.2 MPTA Membership Accounting Records

For instances where APCC Services ANI information was unavailable for a complainant, QSI was provided a report of MPTA members' dues payments by month for the refund period. This report contained the number of payphone lines by month for 14 of the Complainants. Payphone lines are self-reported by the payphone service providers and serve as the basis for dues assessments to the MPTA. Consequently, this source of data should also be considered conservative, as a payphone service provider would have incentive to under-report its ANIs in service to minimize its payments to the MPTA.

QSI noted that the ANIs reported to the MPTA are not broken out between those purchased from Ameritech and those purchased from Verizon. To make use of this data in the refund analysis, QSI apportioned the ANIs for each of the 14 complainants to Ameritech and Verizon using a percentage weighting derived from the actual mix of Ameritech and Verizon ANIs reported by APCC Services for the other complainants.

IV.B.3. ANI Counts From Billing Records

Some of the Complainants who provided bill data did not have APCC Services-provided ANI count data for QSI to use. Consequently, QSI derived the number of ANIs in service by a physical count of the ANIs reported by month in the bills. Since this information is provided to the payphone service providers by Ameritech and Verizon, it should be considered highly reliable information for this analysis.

IV.B.4. ANI Counts From Payphone Provider Records

PhoneTel Technologies, Inc. provided an internal accounting report of its payphone lines purchased from both Ameritech and Verizon during the refund period in addition to monthly bill data. QSI relied upon this data because PhoneTel Technologies is a large payphone service provider and was able to separately identify the lines it purchased from Ameritech and Verizon.

V. INTEREST RATE CALCULATION ON REFUNDS

QSI used the United States Savings Bond, Series EE rate of interest to calculate accrued interest owed on the monthly refund amounts. QSI chose this interest rate benchmark to be consistent with previous MPSC decisions on interest owed for refunds. QSI was also consistent with previous MPSC decisions by calculating the accrued interest on a simple basis rather than compounding interest over the refund period. The formula for calculating simple interest is as follows:

Interest = Principal * Rate * Time. If \$100 was borrowed for 2 years at a 10% interest rate, the interest would be $\$100 * 10 / 100 * 2 = \20 . The total amount that would be due would be $\$100 + \$20 = \$120$.

Compound interest is calculated determining the interest owed on both the original principal and the interest that was earned during that period. Consequently, interest paid on a simple basis will be significantly lower than compounded interest over a 63-month period.

The United States Savings Bond, Series EE rate of interest changes every six months on May 1st and November 1st. QSI obtained the effective rates of Series EE bonds during the refund period at the website for the United States Department of Treasury, Bureau of the Public Debt (<http://www.publicdebt.treas.gov/sav/savmktrt.htm>). The rates in effect from May 1, 1997 through November 1, 2002 are as follows:

| EFFECTIVE DATE OF RATE | |
|------------------------|-------|
| May 1, 1997 | 5.68% |
| November 1, 1997 | 5.59% |
| May 1, 1998 | 5.06% |
| November 1, 1998 | 4.60% |
| May 1, 1999 | 4.31% |
| November 1, 1999 | 5.19% |
| May 1, 2000 | 5.73% |
| November 1, 2000 | 5.54% |
| May 1, 2001 | 4.50% |
| November 1, 2001 | 4.07% |
| May 1, 2002 | 3.96% |
| November 1, 2002 | 3.25% |

These rates are incorporated into the refund analyses in confidential Attachments __.2.B and C in worksheets labeled *Assumptions*. To calculate simple interest over the refund period, QSI created an algorithm to derive a Simple Interest Factor for each month. This factor is multiplied by the base refund owed in a given month to create an interest adjusted refund. The following excerpt from the refund analysis illustrates how the Simple Interest Factor is used.

| | Apr-97 | May-97 | Jun-97 |
|--------------------------|-----------|-----------|-----------|
| DIFFERENCE (REFUND) | \$ 633.97 | \$ 711.46 | \$ 653.06 |
| SIMPLE INTEREST FACTOR | 1.2921 | 1.2874 | 1.2827 |
| INTEREST-ADJUSTED REFUND | \$ 819.18 | \$ 915.93 | \$ 837.66 |

The base refund on the first row is multiplied by the factor on the second row to determine the Interest-Adjusted Refund.

$$\text{Simple Interest Factor} = 1 + (\text{effective monthly interest rate for refund period} * \text{number of months interest is owed on})$$

The effective monthly interest rate is a blend of all of the Series EE rates noted above. For example, the assumed date of judgment in QSI's refund analysis is May 1, 2003. For a refund owed since May 1, 1997, 72 months of interest must be calculated. Since no single interest rate was in effect during the 72 months, an algorithm which utilizes the Series EE rates was developed as follows:

| | | MONTH REFUND INITIALLY OWED | PAYMENT DATE | # OF MONTHS OWED | | |
|----------------------------------------------------|----------------|-----------------------------|------------------|-----------------------|---------------------------------------------------------------------------------------------------|--|
| | | 5/1/97 | 5/1/03 | 72 | | |
| EFFECTIVE DATES OF RATES | SERIES EE RATE | START DATE OF RATE | END DATE OF RATE | # OF MONTHS IN EFFECT | SIMPLE INTEREST FACTOR FOR EFFECTIVE PERIOD (Annual Interest Rate / 12 Months X Months In Effect) | |
| 5/1/97 | 5.68% | 5/1/97 | 11/1/97 | 6 | 0.0284 | |
| 11/1/97 | 5.59% | 11/1/97 | 5/1/98 | 6 | 0.0280 | |
| 5/1/98 | 5.06% | 5/1/98 | 11/1/98 | 6 | 0.0253 | |
| 11/1/98 | 4.60% | 11/1/98 | 5/1/99 | 6 | 0.0230 | |
| 5/1/99 | 4.31% | 5/1/99 | 11/1/99 | 6 | 0.0216 | |
| 11/1/99 | 5.19% | 11/1/99 | 5/1/00 | 6 | 0.0260 | |
| 5/1/00 | 5.73% | 5/1/00 | 11/1/00 | 6 | 0.0287 | |
| 11/1/00 | 5.54% | 11/1/00 | 5/1/01 | 6 | 0.0277 | |
| 5/1/01 | 4.50% | 5/1/01 | 11/1/01 | 6 | 0.0225 | |
| 11/1/01 | 4.07% | 11/1/01 | 5/1/02 | 6 | 0.0204 | |
| 5/1/02 | 3.96% | 5/1/02 | 11/1/02 | 6 | 0.0198 | |
| 11/1/02 | 3.25% | 11/1/02 | 5/1/03 | 6 | 0.0163 | |
| SUM OF INTEREST FACTORS | | | | 72 | 0.2874 | |
| SIMPLE INTEREST FACTOR (1 + SUM OF FACTORS) | | | | | 1.2874 | |

The refunds calculated for each succeeding month would use a Simple Interest Factor that was decremental from the prior month. As the refund month approaches the payment month, the Simple Interest Factor becomes closer to 1. Please note that the calculation of interest charges should be adjusted to the actual MPSC judgment date.

VI. CONCLUSION

The billing data examined by QSI shows that the rates paid by the Complainants during the refund period was clearly excessive when compared to Ameritech's and Verizon's cost-based rates. The MPSC should order Ameritech and Verizon to pay refunds with interest based upon the analyses prepared by QSI in confidential Attachments __.2.B and C.