

A FINAL REPORT OF THE
REVIEW AND EVALUATION OF THE
PERFORMANCE METRICS AND RELATED REMEDIES OF

VERIZON PENNSYLVANIA, INC.

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FEBRUARY 17, 2004

**VERIZON PENNSYLVANIA INC.
REVIEW OF PERFORMANCE METRICS AND RELATED REMEDIES**

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I – INTRODUCTION

I – INTRODUCTION

On February 14, 2003, the Pennsylvania Public Utility Commission (PA PUC) issued a Request for Proposal (RFP) for a review and evaluation of Verizon Pennsylvania Inc.'s (Verizon PA) calculation and reporting of performance metrics and related remedies for a three-month period (April, May and June of 2003). Doherty & Company, Inc. (DCI) submitted a proposal for this work on March 10, 2003, in a competitive bidding process. DCI's proposal was approved by the PA PUC on May 14, 2003.

The introductory meeting between DCI, PA PUC Staff, and Verizon PA was held on May 21, 2003. Verizon PA held six workshops in May and June to provide DCI an overview of its measurement reporting processes. Following the workshops DCI initiated in-depth fact finding and analysis, in accordance with the four step approach described later in this chapter. We examined existing data collection, documentation, processing and reporting systems. In addition, DCI replicated the principal aspects of the performance metrics calculations for development of performance metric and PA PAP results. These tasks continued through mid-September, which included delays which are described later in this report. DCI continued to receive and review responses to Data Requests and CMA changes, through mid-October. In mid-August DCI began preparation of a draft report, which was submitted to the PA PUC Staff chapter by chapter in November and December, 2003.

Following Commission review, the Draft Report was forwarded to the Company for its review and comment. Information provided to DCI in Commission or Company comments was incorporated in the Report as appropriate.

This Introductory Chapter reviews the structure of the review, in order to inform the reader of the original review objectives and scope, and the approach and methodology followed by DCI. It also describes the review team and review standards applied.

A. – REVIEW OBJECTIVES AND SCOPE

OBJECTIVES

The primary objectives of this review and evaluation were to determine Verizon PA's accuracy in calculating and reporting performance metrics calculations and remedies for three monthly reporting periods, April, May, and June of 2003. This review was intended to be conducted pursuant to the Commission's Performance Measure Order at M-00011468 (PMO II), which was adopted on November 21, 2002 and issued December 10, 2002. The Utility's compliance Carrier to Carrier (C2C) Guidelines and the Pennsylvania Performance Assurance Plan (PA PAP) were filed on January 10, 2003, and became effective April 1, 2003. Within this, the objectives of this Review include a detailed analysis of the performance metrics and remedies processes and data to determine whether:

- The Utility's underlying information and Operations Support Systems (OSS) are providing reliable data for use in calculating the performance metrics and remedies,

particularly those that are new or substantially changed from the predecessor Pennsylvania metrics and remedies;

- The Utility’s established procedures and business rules governing the calculation and reporting of the metrics and remedies conform to the April 2003 Pennsylvania C2C Guidelines or PA PAP as appropriate;
- The results of the various metrics calculations and remedies calculations are mathematically accurate, and reflect application of the established procedures; and
- The metrics and remedies results are properly reported and/or billed.

As further stated in DCI’s March 7, 2003 proposal: The Review must be sufficient to allow the Commission, its Staff, and the Competitive Local Exchange Carriers (CLECs) reviewing the Consultant’s report to determine if Verizon PA’s processes for calculating and reporting performance metrics and remedies produce accurate and reliable results, and if Verizon PA is providing nondiscriminatory access and interconnection to its network and OSS.

SCOPE

The scope of the review included the following:

1. Whether supporting documentation exists for performance metrics and the related remedies, including calculations, formulae, exclusions, performance standards, and aggregation/disaggregation functions; and whether such documentation conforms to Commission Order(s), C2C Guidelines and PA PAP, and meets reasonable standards for clarity and completeness.
2. Whether data collection is comprehensive and the appropriate data ultimately are input to the performance metrics calculations and remedies calculations and whether any data excluded from any calculation are captured, reported, and stored with a designation of the reason for exclusion.
3. Whether actual data calculations and formulae used comply with the C2C Guidelines and PA PAP, including any provisions for exempting particular data from calculations; and whether adequate classification parameters (e.g. for aggregation/disaggregation of results) are reflected.
4. Whether: (a), sufficient documentation exists describing the data and information storage, back-up, retrieval, user access and proprietary information protection procedures for both detailed data and the results produced for performance metrics and remedies reporting, and; (b), the operational procedures conform to documentation.

5. Whether (a) detailed procedural documentation exists for extracting performance data or other information from relevant data or other information stores by the various users, (b) those operational procedures adhere to the documentation, and (c) change control procedures are reasonable and fully implemented.
6. Whether stored and reported performance metrics and remedies results are an accurate reflection of the documented methodologies.
7. Whether procedures exist for documenting and maintaining changes to the performance metrics and remedies documentation and whether such procedures conform to reasonable levels of quality control as well as the C2C Guidelines and the PA PAP.
8. What procedures, if any, have been instituted to address the diagnostic metrics that do not have related remedy payments and do not meet parity or benchmark standards.
9. Whether billings to CLECs clearly provide detail of credits resulting from PA PAP remedies and that Utility personnel are adequately trained and that data and procedures are in place to timely respond to credit inquiries from CLECs.

B – REVIEW APPROACH AND METHODOLOGY

REVIEW STRUCTURE

To implement the approach and satisfy the specific requirements of the Verizon PA review, DCI followed a four-step process in a manner designed to:

- Provide an overall evaluation of the calculations and reporting accuracy of performance measures and related remedies.
- Identify any existing deficiencies or potential problems within the scope of the review.
- Develop recommendations for the resolution of any problems identified.
- Quantify improvements associated with specific recommendations (as appropriate).

DCI's four-step approach was utilized in order to provide an efficient, effective process for the review, placing an initial comprehensive data collection step as the First Step of the review. In addition, in Step One DCI examined Verizon PA's existing systems, documentation and data warehouse, in order to develop its own systems for independent testing of performance metrics and related remedies calculations. Step Two included development of a detailed work plan. Step Three included in-depth fact finding and replication analysis. This step also included development of a Draft Report. Step Four focused on development of the Final Report.

DCI's four-step approach is illustrated on Exhibit I-1.

DCI REPLICATION PROCESS FOR METRIC CALCULATIONS

This section describes the DCI analytical activities that were performed in replicating the performance metric calculations of Verizon PA for the months of April, May, and June of 2003. As required by the RFP, DCI replicated the principal aspects of the performance metric calculations that are performed in the development of performance metric and PA PAP results. To facilitate the replication process, DCI divided the process into five Segments, A through E. By breaking the overall process into its individual components, DCI was able to verify whether or not the systems captured and reported data correctly.

The DCI division of the process is shown in Table I –1, on page I-6.

Exhibit I-1

**VERIZON PENNSYLVANIA, INC.
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DCI's Approach and Methodology

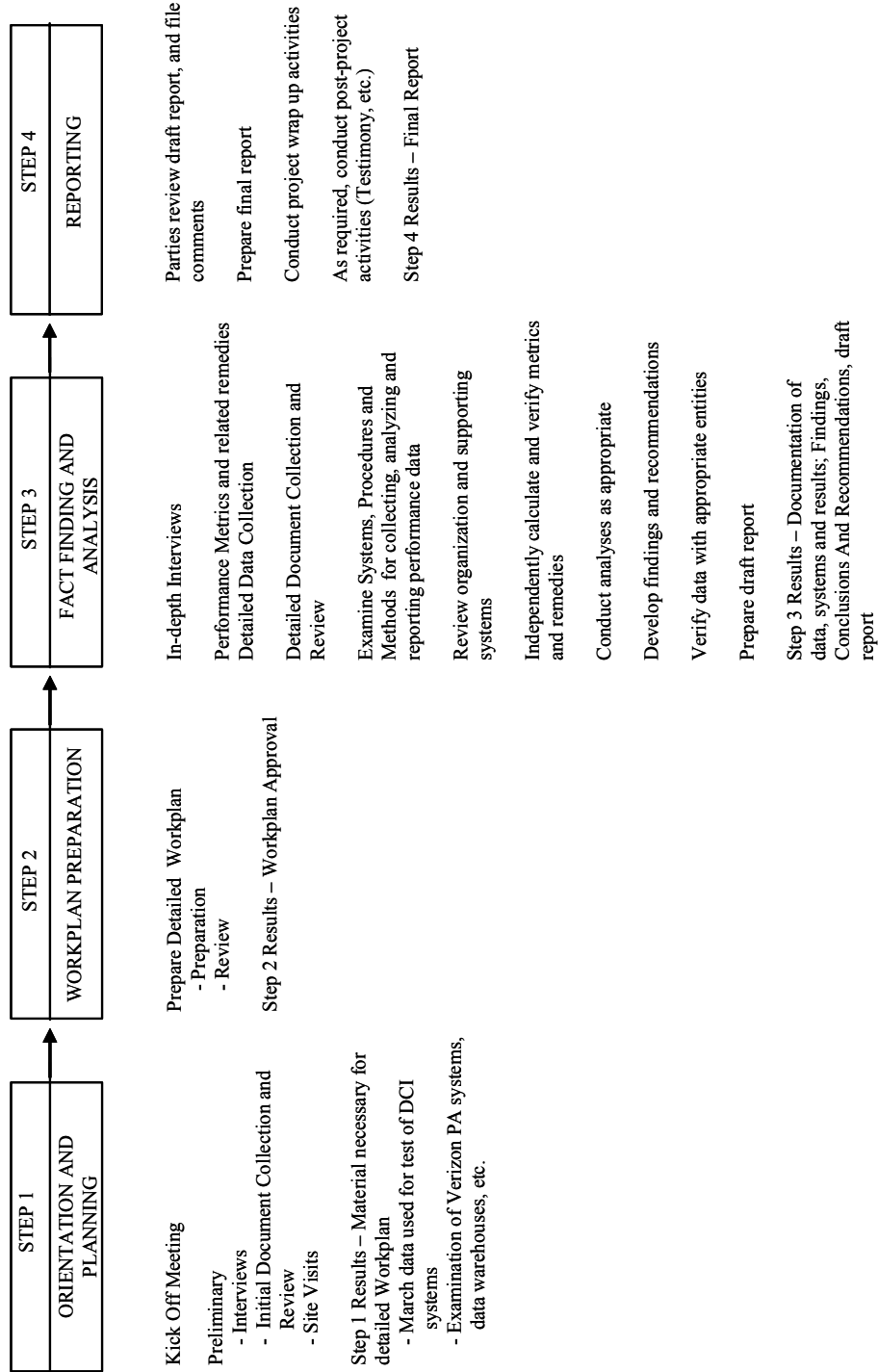
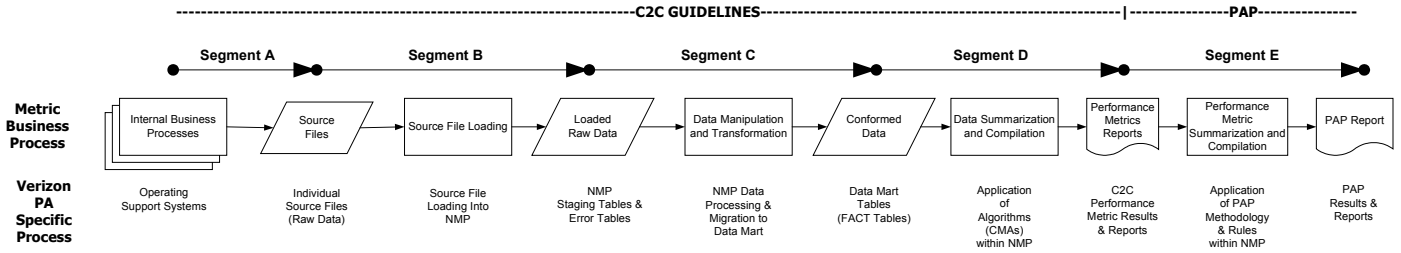
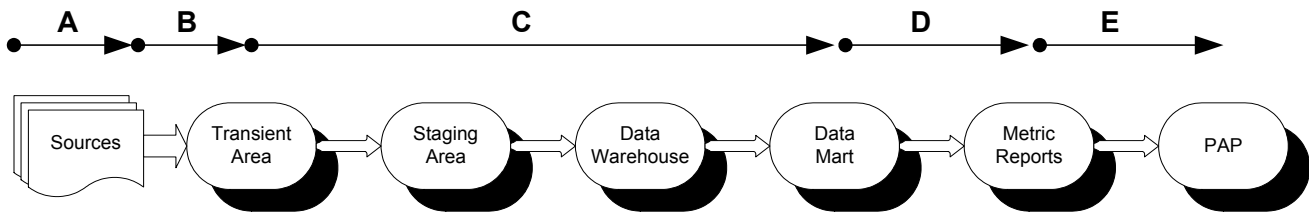


Table I-1
Verizon PA Metric Business Process Information and Data



The Verizon PA terminology for describing Network Metric Platform (NMP) processing, as shown in Table I-2, provides a high-level image of the data flow sequence from the source system inputs to the data mart, the final database from which the metric reports are generated.

Table I-2
Verizon PA Metric Process Overview



Based on the above division of the Verizon PA metric business process, DCI developed a methodology for reviewing it by focusing on the data movement through each segment or, perhaps more descriptively, by performing a node-to-node analysis of the data flow. The individual processing that occurs within each segment can be reviewed and assessed to provide an overall evaluation of the “validity” or “correctness” of the data flowing to the next node. As described, DCI’s approach to analyzing Verizon PA performance metric calculations was based on using the segment-by-segment, node-by-node approach discussed above.

For process Segments A & B, the source files were essentially loaded into database tables. DCI reviewed these processes with the individuals responsible for creating or testing the code that is used in populating these tables and, in particular, sampled selected error tables (that were created in the months under investigation) for review purposes.

Segment C involved migrating and transforming the information from the staging tables into the final data sets (the Data Mart in Verizon PA terminology) from which performance metric calculations can be developed. Segment D involved the application of the metric algorithms to Data Mart information, which is the actual calculation of performance results. The metric derivations contained in the C2C Guidelines were translated into appropriate (depending on the underlying data warehouse) Structured Query Language (SQL) programming code, which is executed against the Data Mart information to produce the performance metric results. The documentation necessary to provide the transparency to this part of the metric business process includes the FACT Table descriptions and the metric algorithms, specifically

identified in PMO II. Verizon PA represented to DCI that the C2C Metric Algorithms (CMA) is its presentation of the metric algorithms.

DCI used both the FACT Table descriptions and the CMA as guides for performing the replication of process Segments C & D. To evaluate this part of the process, DCI wrote its own code to compute performance metric results, and compared the results to those that had been reported by Verizon PA. In writing its code, DCI developed a series of SAS^{®1} macros to calculate metric results based on a clear specification of the metrics definitions². DCI developed SAS programs, which repeatedly called (invoked, ran, executed) these macros³ to obtain DCI's calculated metric numerators, denominators, results, and statistical scores. They also automatically extracted Verizon PA's calculated numerators, denominators, results and statistical scores from Verizon PA's C2C Guidelines reported results. DCI's recalculation program then generated an Excel model spreadsheet which compared DCI's results and Verizon PA's C2C Guideline reported results.

DCI REPLICATION PROCESS FOR PA PAP AND PENALTY PAYMENTS

To calculate the PA PAP results (Segment E), DCI focused on June 2003 for its review. For this period, DCI conducted various analyses as part of its PA PAP examination:

1. Input of formulae into aggregate PA PAP model sections linking worksheets/cells to C2C Guidelines reports, for comparison with final PA PAP reports.
2. Sampling of individual PA PAP model metrics involving calculations using individual CLEC C2C reports, for comparison with final PA PAP reports.
3. Sampling of individual PA PAP model metrics involving calculations using individual CLEC C2C Guidelines data mart data directly from the Network Metric Platform (NMP), for comparison with final PA PAP reports.

In addition to the above replication process, DCI also reviewed the following related areas:

- Verizon PA documentation of the metric process and the remedy calculations including the C2C Guidelines, the FACT Table, the CMA, and the PA PAP.
- Verizon PA's internal review and monitoring of the technician inputs to the OSS for metric quality assurance.

¹ In SAS (not an acronym), a macro serves the same purpose as a sub-routine in other languages.

² Four such macros were developed, one for each of the domains: Ordering, Provisioning, and Maintenance & Repair, and one to handle those metrics whose numerators are computed from a different data mart table than their denominators.

³ The SAS macros were called once for each metric as contributed to from each data mart table. For example, one call would calculate the contribution towards PR-1 from orders submitted via Local Service Requests (LSRs), and a different call would calculate the contribution towards PR-1 from orders submitted via Automatic Service Requests (ASRs). Each call would constitute a clear specification of the metric's definitions, exclusions, submetrics, and product disaggregations as contributed to by one data mart table. For details, see Appendices B, C, and D.

- Verizon PA’s bills to CLECs to ensure that they provide clear detail of credits resulting from PA PAP remedies.
- Verizon PA’s Change Management processes and procedures conformance to reasonable levels of quality and change control management.
- Verizon PA’s data storage, backup, retrieval and security processes.
- Verizon PA’s Data Mart replicates and contains CLEC provided data.

C – REVIEW STAFFING AND STANDARDS

The review and evaluation of Verizon PA’s calculation and reporting of new performance metrics and related remedies was performed by sixteen DCI consultants, including subcontractors. The work was organized into four Task Areas as described below. A lead consultant was assigned to each Task Area; support consultants were provided as necessary. Each lead consultant reported to DCI’s Project Manager, who, in turn, reported to DCI’s Engagement Director.⁴ A chart of the Review Team Structure is provided as Exhibit I-2.

Task Group A – Measurement Processes, was responsible for the following functions:

- Determining whether related procedures for documenting and maintaining changes to the performance metric and related remedies documentation existed and whether such procedures conformed to reasonable levels of quality and quality control as well as the C2C Guidelines and the PA PAP.
- Determining whether supporting documentation existed for performance metrics and the related remedies, including calculations, formulae, exclusions, performance standards and aggregations/disaggregation and whether such documentation faithfully reflects Commission order(s), C2C Guidelines and the PA PAP, and meets reasonable standards for clarity and completeness.
- Determining whether detailed documentation exists for procedures to extract data from relevant data warehouses for Verizon PA or CLECs, whether operational procedures adhered to the documentation, and whether change control procedures are reasonable and fully implemented.
- Determining whether sufficient documentation exists, describing the data storage, back-up, retrieval, CLEC access and proprietary information protection procedures for both detailed data and the results produced for performance measurement reporting, and whether operational procedures conform to such documentation.
- Determining whether billings to CLECs clearly provide detail of credits resulting from PA PAP remedies, that Utility personnel are adequately trained and that data and procedures are in place to respond in a timely manner to credit inquiries from CLECs.

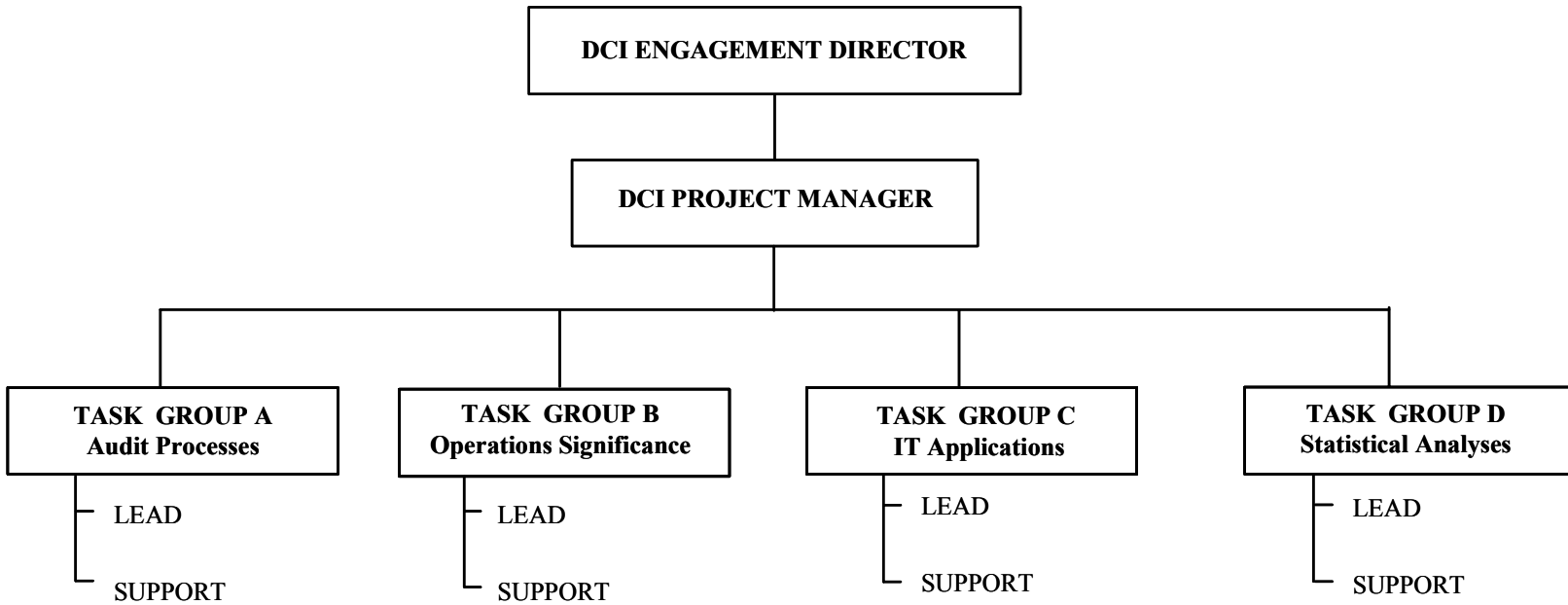
Task Group B – Operations Processes, was responsible for the following functions:

- Reviewing the following measurement categories: Pre-Ordering, Network Performance, Billing, and Operator Services and Databases. This included whether data calculations comply with the documentation, and whether stored and reported performance measurement results are an accurate reflection of the documented methodologies.

⁴ DCI’s Project Manager was responsible for day to day conduct of the engagement, for successful completion of the work and for adherence to budget. DCI’s Engagement Director was responsible for overall quality of the work and its end product, and for major policy matter decisions.

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Project Organization



- Reviewing processes that affect the accuracy of input data e.g., trouble report disposition codes, service order miss codes, etc.
- Determining extent of CLEC participation in providing data inputs for independent calculations, and coordinating CLEC and Verizon PA identified problem resolution through issuing data requests and analysis of responses to data requests.
- Determining what procedures, if any, have been instituted to address the diagnostic metrics that do not have related remedy payments and do not meet parity or benchmark standards.

Task Group C – Information Technology (IT) Support, Was Responsible For Providing Support Of The Other Groups’ IT Needs.

- Supporting data processing needs, inputting data, and assisting in the processing and reporting of performance measurement data calculations.
- Actively participating in end-to-end transaction testing, as well as IT oriented methods procedures and document analysis.
- Replicating the PA PAP results and penalty calculations.
- Providing IT support to Task Groups A, B and D as necessary.

Task Group D – Statistics and Data Analysis, was responsible for:

- Reviewing the performance metrics that are based on high-volume transaction processes (service orders and trouble reports), from CLEC inputs. These measurements included those involving Ordering, Provisioning, and Maintenance and Repair.
- Processing service order and trouble report inputs and independently calculating the measurements based on these inputs.
- Performing analyses that provided the means to recreate designated performance measurement results for the participating CLECs.
- Evaluating Verizon PA’s statistical methods and determining DCI statistical sampling approaches.

DCI subscribes to the review standards set forth by the Comptroller General of the U.S. in the document titled, *Standards for Audits of Governmental Organization Programs, Activities and Functions*—1988 Revision (commonly referred to as the “Yellow Book”). All of the management audits and reviews we have conducted, including this review of Verizon PA’s

performance metrics and related remedies, have been conducted in accordance with the review standards set forth therein.

In addition, in the conduct of this review, DCI adhered to generally accepted accounting practices and to the *National Association of Regulatory Utility Commissioners (NARUC) Consultant Standards and Ethics for Performance of Management Analysis*.

Every DCI project team member also subscribes to the high professional and ethical standards of the Institute of Management Consultants (IMC). Many of our team members have been elected Certified Management Consultants (CMCs), meeting the strict certification requirements of the IMC, and are pledged to comply with the Institute's Code of Professional Responsibility.

Two of our project team members are Certified Public Accountants (CPAs) and, therefore, have met the strict certification of the American Institute of Certified Public Accountants (AICPA), and are bound by its code of professional and ethical behavior.

DCI conducted the review and evaluation of Verizon PA's calculation and reporting of new performance metrics and related remedies in accordance with the standards defined in the preceding paragraphs and conducted a professionally performed, objective review in order to achieve the overall goals described in our proposal.

In the course of the review, DCI expended over 5,000 consultant hours, conducted 54 interviews, submitted 59 exception reports and submitted 356 document requests.

The findings, conclusions and recommendations contained in this report are the findings, conclusions and recommendations of Doherty & Company, Inc. only, and are not necessarily agreed to by Verizon Pennsylvania, Inc. or the Pennsylvania Public Utility Commission.

II – EXECUTIVE SUMMARY

II – EXECUTIVE SUMMARY

This chapter provides an Executive Summary of the objectives and scope, analytical process, and results of the Review and Evaluation of the Performance Metrics and Related Remedies of Verizon Pennsylvania, Inc. (Verizon PA). Following a brief introduction, it presents a summary of the project that is intended to provide the context in which this review should be viewed, and to remind the reader of the project’s objectives, scope, and approach. The chapter then summarizes the most important findings that resulted from the review, and concludes with a listing of all of the resultant recommendations.

A – INTRODUCTION

On February 14, 2003, the Pennsylvania Public Utility Commission (PA PUC) Bureau of Audits issued a Request for Proposal (RFP) for a Review and Evaluation of the Performance Metrics and Related Remedies of Verizon PA. The overall objective of the project was to perform a review and evaluation of the calculation and reporting of new performance metrics and related remedies for a three-month period (April, May, and June of 2003). This Review was to be conducted pursuant to the PA PUC’s Second Performance Measurement Order (PMO II¹) at M-00011468, adopted November 21, 2002 and entered December 10, 2002. Doherty & Company, Inc. (DCI) submitted a proposal to perform this work on March 10, 2003, as part of a competitive bidding process. DCI was awarded a contract to perform the subject project by the PA PUC on May 14, 2003, to be completed by early November 2003.

An introductory meeting with DCI consultants, PA PUC Staff, with Verizon PA management in attendance was held on May 21, 2003. Subsequently, Verizon PA held a series of six workshops in May and June, to provide DCI with an overview of its measurement reporting processes, including a discussion of the Carrier-to-Carrier (C2C) Guidelines, the FACT² Table, and the Pennsylvania Performance Assurance Plan (PA PAP).

DCI found that the documentation provided in the workshops was insufficient for metric calculation and requested, under the terms of PMO II, that Verizon PA’s Structured Query Language (SQL) code for metric performance calculation be provided. In mid June DCI was provided with the New York Carrier Metric Algorithms (NY CMA) as a guideline. However, when DCI began to identify numerous problems (including inconsistencies, missing information, etc.), it was told to wait for the Verizon PA Carrier Metric Algorithm (CMA³).

¹ PMO II required that Verizon PA “show [its] work” relative to the metrics and remedies calculations and reports. The processes are to be “transparent” such that the market participants, PA PUC, and statutory advocates may move beyond arguing about the data calculations and reports and, instead, focus on what the results say about marketplace openness and competition.

² Not an acronym.

³ Verizon PA claims copyright protection for the Pennsylvania Carrier-to-Carrier Metric Algorithms© (PA CMA) and for all references to the Verizon PA CMA *in passim* throughout the report and appendices, whether specifically designated and marked or not. “Copyright 2003. All rights reserved. No compilation, modification, translation, storage in a retrieval system or reproduction (by photocopying or other means) of the data in the PA CMA or of other parts of the PA CMA is permitted without the separate, express written permission of Verizon PA. Title to the data in the PA CMA and all intellectual property rights therein shall remain with Verizon PA.” While Verizon PA and DCI have endeavored to designate and mark all the PA CMA code for which Verizon PA claims copyright protection, it is possible that some lines of PA CMA code have not been so designated and marked in this report and the appendices.

The PA CMA was produced for the months of April and May 2003 and made available to DCI on August 1, 2003. However, when DCI again began to identify numerous problems (including inconsistencies, missing information, etc.) with the Verizon PA CMA, DCI was told to wait for the next Verizon PA CMA. This second Verizon PA CMA, which would reflect necessary corrections and the intent of the PA PUC Order, was produced for the month of June 2003 and made available to DCI on September 29, 2003. These delays in obtaining accurate information from Verizon PA, with which to perform metric replication, were the primary reasons for extending project completion.

As replication of metrics progressed, 59 Exception Reports (ERs) concerning replication problems, as well as two working paper documents, were sent to Verizon PA for resolution. Weekly meetings were held to discuss ER responses and obtain clarifications thereof. Two full-day working sessions, plus numerous ad-hoc meetings, and weekly plus non-scheduled telephone calls, were held to discuss the problems identified in the working papers, a majority of which were the direct result of the CMA documentation problems or lack of documentation.

Individual Chapters of the Draft Report were submitted to the PA PUC during the months of November and December, 2003. Following their review, DCI incorporated PA PUC comments, as appropriate. Subsequently, a complete draft report was issued to Verizon PA for its review and comments.

B – OBJECTIVES, SCOPE AND APPROACH

This section includes a listing of the objectives and scope of the project and a summary of DCI's approach to performing the project.

OBJECTIVES

The overall objective of the review was to assess the accuracy achieved by Verizon PA in evaluating and reporting performance metrics and related remedies calculations. The specific objectives of the project were stated in the RFP and DCI's proposal, as follows:

“The objectives of this Review include a detailed analysis of the performance metrics and remedies processes and data to determine whether:

- The Utility's underlying information and operations support systems (OSS) are providing reliable data for use in calculating the performance metrics and remedies, particularly those that are new or substantially changed from the predecessor Pennsylvania metrics and remedies;
- The Utility's established procedures and business rules governing the calculation and reporting of the metrics and remedies conform to the April 2003 Pennsylvania Carrier to Carrier (C2C) Guidelines or Performance Assurance Plan (PAP) as appropriate;
- The results of the various metrics calculations and remedies calculations are mathematically accurate, and reflect application of the established procedures; and
- The metrics and remedies results are properly reported and/or billed.”

SCOPE

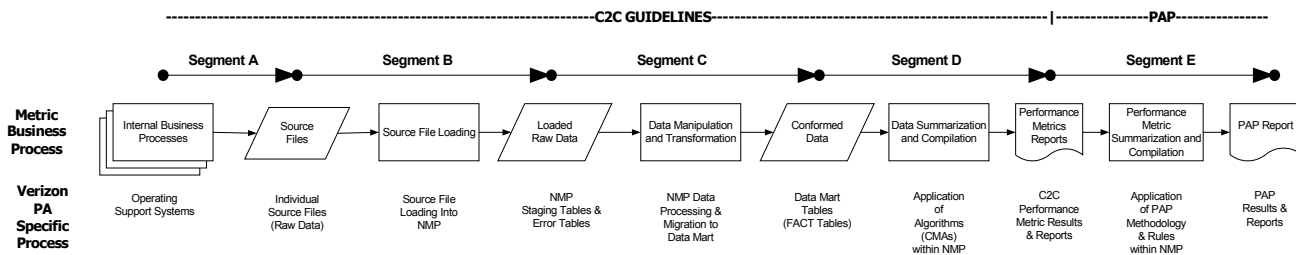
The scope of work encompassed an examination of supporting documents for performance metrics and related remedies for content, conformance with Commission Order(s), C2C Guidelines and the PA PAP, meeting standards of clarity (transparency) and completeness. The scope encompassed reviews of data collection, data inclusion and exclusion, data calculation and formulae conformance with C2C Guidelines and the PA PAP, sufficiency of documentation, metric and remedy reflection of documented methodologies, change processes, procedures for diagnostic metrics and billing credits.

APPROACH

The overall project approach is discussed in detail in Chapter I. This section summarizes and highlights DCI’s approach to reviewing and replicating the performance metric calculations of Verizon PA for the months of April, May, and June of 2003. The results of DCI’s replication process represent the foundation of the bulk of the findings presented in this report. As required by the RFP, DCI replicated the principal aspects of the performance metric calculations used by Verizon PA in the development of performance metric and PA PAP penalty payment results. To facilitate the replication process, DCI divided the process into five Segments, A through E. By breaking the overall process into its individual components, DCI was able to verify whether or not the systems captured and reported data correctly.

The DCI division of the process is shown in Table II –1, which is presented below.

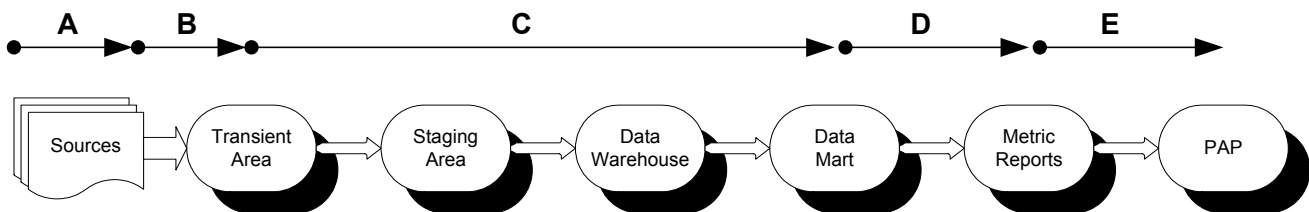
**Table II-1
Verizon PA Metric Business Process Information and Data**



Several software packages and technologies are used in the process of moving data into the data mart and extracting information from it. The Network Metrics Platform (NMP) database is Oracle 8i. The software tool used for extraction, translation, and loading (ETL) of data from one area to another is Informatica. MicroStrategy, a web-based software tool, is the Online Analytical Processing (OLAP) tool used for reporting. In short, Verizon PA has implemented a fairly complete set of technologies for collecting, processing, and reporting on performance metrics and PA PAP results.

The Verizon PA terminology for describing NMP processing, as shown in Table II-2, provides a high-level image of the data flow sequence from the source system inputs to the data mart, the final database from which the metric reports are generated.

**Table II-2
Verizon PA Metric Process Overview**



Based on the above division of the Verizon PA metric business process, DCI developed a methodology for reviewing it, by focusing on the data movement through each segment or, perhaps more descriptively, by performing a node-to-node analysis of the data flow. The individual processing that occurs within each segment can be reviewed and assessed to provide an overall evaluation of the “validity” or “correctness” of the data flowing to the next node.

For process Segments A & B, the source files are essentially loaded into database tables. DCI reviewed these processes with the individuals responsible for creating or testing the code that is used in populating these tables and, in particular, sampled selected error tables (that were created in the months under investigation) for review purposes.

DCI used the FACT Table descriptions, the C2C Guidelines and the PA CMA as guides for performing the replication of process Segments C & D. To evaluate this part of the process, DCI wrote its own code to compute performance metric results, and compared the results to those that had been reported by Verizon PA. In writing its code, DCI developed a series of SAS^{®4} macros⁵ to calculate metric results based on a clear specification of the metrics definitions⁶. DCI developed SAS programs, which repeatedly called (invoked, ran, executed) these macros⁷ to obtain DCI’s calculated metric numerators, denominators, results, and statistical scores. DCI also automatically extracted Verizon PA’s calculated numerators, denominators, results and statistical scores from Verizon PA’s C2C Guideline reported results spreadsheets. DCI’s recalculation program then generated an Excel spreadsheet which compared DCI’s results and Verizon PA’s C2C Guideline reported results.

To calculate the PA PAP results (process Segment E), DCI focused on June 2003 data for its investigation. For this period, DCI conducted various analyses as part of its PA PAP examination, as follows:

1. Input of formulas into aggregate PA PAP model sections linking worksheets/cells to C2C Guideline reports, for comparison with final PA PAP reports.
2. Sampling of individual PA PAP model metrics involving calculations using CLEC specific reports, for comparison with final PA PAP reports.
3. Sampling of individual PA PAP model metrics involving calculations using CLEC specific data mart data directly from the NMP, for comparison with final PA PAP reports.

⁴ SAS has evolved from an acronym to a noun which currently has no meaning.

⁵ In SAS, a macro serves the same purpose as a subroutine in other languages.

⁶ Four such macros were developed, one for each of the domains Ordering, Provisioning, Maintenance & Repair, and one to handle those metrics whose numerators are computed from a different data mart table than their denominators.

⁷ The SAS macros were called once for each metric as contributed from each data mart table. For example, one call would calculate the contribution towards PR-1 from orders submitted via LSRs, and a different call would calculate the contribution towards PR-1 from orders submitted via ASRs. Each call would constitute a clear specification of the metric’s definitions, exclusions, submetrics, and product disaggregations as contributed by one data mart table. For details, see Appendices B, C, and D.

In addition to the above replication process, DCI also reviewed the following related areas:

- Verizon PA documentation of the metric process and the remedy calculations including the C2C Guidelines, the FACT Table, the PA CMA, and the PA PAP for completeness and transparency.
- Verizon PA’s internal review and monitoring of the technician inputs to the Operating Support Systems.
- Verizon PA’s bills to CLECs to ensure that they provide clear detail of credits resulting from PAP remedies.
- Verizon PA’s Change Management processes and procedures conformance to reasonable levels of quality and change control management.
- Verizon PA’s data storage, backup, retrieval and security processes.
- Verizon PA’s data mart to ensure that it replicates and contains CLEC provided data.

In many cases, DCI calculations yielded the same results as those reported by Verizon PA during the April, May, and June timeframe. However, in some cases, DCI calculations differed from Verizon PA reported results. These differences were reviewed by further investigations into the Verizon PA calculation methodology, using the C2C Guidelines, FACT Table descriptions, and CMA documentation as further augmented by data requests, follow-up interviews, and exception report discussions. DCI developed findings, both positive and negative and recommendations, as appropriate, addressing each of the areas where calculation differences occurred. Positive findings are not generally accompanied by recommendations for change. Other findings, which are accompanied by such recommendations, are described in greater depth, and in many instances subdivided into several findings. Thus, no inference concerning overall performance should be drawn from the number of findings and/or recommendations of either type.

C – FINDINGS SUMMARY

This Section summarizes DCI's overall findings relative to the review. The first Sub-section describes DCI's findings regarding Verizon PA's Documentation. It is presented in three parts, as follows:

- Principal Findings
- C2C Guidelines
- C2C Metric Algorithms

The next Sub-section speaks to Metric Replication. It is presented in seven parts, as follows:

- Segments A&B (of the replication process)
- Segments C&D
- Segment E
- Metric Replication Findings
- Metric Calculation Results
- Evaluation of June 2003 CMA
- PA PAP Penalty Payment Replication

The last Sub-section of Section B – Other Review Areas, addresses the remaining five areas of PUC interest, which include:

- Metric Input Quality Assurance
- Billing Credits for CLEC Penalty Payments
- Change Management
- Data Storage, Back-up, Retrieval and Security
- CLEC Data Reconciliation

VERIZON PA'S DOCUMENTATION

This sub-section begins with a brief discussion of Principal Findings, followed by high level discussions of C2C Guidelines findings and C2C metric algorithm findings.

Principal Findings

DCI developed both positive and negative findings in its Review and Evaluation of Verizon PA's Performance Metrics and Related Remedies. First and foremost is the Company's responsiveness to DCI recommendations. During the course of the review, DCI submitted numerous Exception Reports, which questioned Verizon PA concerning a broad range of issues. As these were worked through, approaches to their resolution were recommended (which are reiterated in this report); and, in many cases were implemented prior to issuance of this report.

Training, support and reviews of field technicians handling of CLEC work activities are appropriate. Further, the emphasis placed on PA PAP performance measures by local

managers is appropriate. Also, the Wholesale Dispatch Resource Center (WDRC) process for follow-up on disposition codes is excellent, and should be used by other Verizon PA organizations.

Verizon PA's bills to CLECs clearly provide details of credits resulting from PAP remedies; in general, most Verizon PA activities related to bill credits are done well. Finally, Verizon PA's change management processes for Performance metrics and remedies conform to reasonable levels of quality control, as well as to the C2C Guidelines and to the PA PAP.

The principal negative finding of this Review and Evaluation relates to Verizon PA's documentation. Simply stated, Verizon PA's documentation, to the extent that it exists, is not in compliance with PMO II. It is neither complete nor is it "transparent" as required by PMO II. Webster's Third International Dictionary provides the following insight into the word transparent: free from pretense or deceit, easily detected or seen through, obvious, readily understood, clear.

It is important that Verizon PA calculate the measures and remedies accurately. However, it is equally important that the CLECs and the PUC staff have confidence that the calculations are accurate. This can only be accomplished with adequate transparent documentation that the CLECs and PUC staff can utilize to easily replicate results. The source of the extreme difficulty that DCI had with replicating results in this study was inadequate (i.e. non-transparent and/or non-existent) documentation.

Most CLECs do not have the resources to develop their own performance data in a fashion which would enable them to compare results with those of Verizon PA. Therefore, it is important that Verizon PA results be clear, complete, transparent and reliable. Any CLEC that attempted to recalculate all, or most of its metric results, based on information provided by Verizon PA, would face a tedious, time consuming, complex, non-economical, daunting task.

Verizon PA has no additional business rule documentation used to implement the C2C Guidelines, other than the FACT Table and the CMA. There is no supporting documentation that explains, in English, the assumptions made by Verizon PA, or any interpretations made in its exclusion of data, or calculation of results.

- As described in Chapter IV, documentation and reports concerning the data acquisition process, Segment B in particular, is either inadequate or lacking.
- DCI requested all NMP supporting documentation, but was informed that Verizon PA has not yet developed this documentation.
- The (performance measurement and reporting) process, as currently documented by Verizon PA, does not meet the PA PUC's requirements for transparency.

In summary, Verizon PA does not meet its obligation to make CLEC-specific data, metrics and remedies reports available to the PA PUC as required by PMO II.

While the CMA document does meet the minimum requirement of furnishing the underlying algorithms for calculating the measurements, as an 1,100 page document, it is too

cumbersome to maintain and use properly, and does not provide a transparent process for the CLECs and for the PA PUC Staff.

As detailed in 45 DCI findings, 26 metrics or sub-metrics contained errors of one type or another. There are a total of 130 metrics and sub-metrics, which can be further divided into product disaggregations resulting in a possible 546 possible combinations, representing as many calculations. Since activity by product type varies widely, various calculations carry differing weights, so comparisons of calculations for one set of metrics (disaggregations) with another, does not provide a useful comparative representation. Therefore DCI does not provide such quantitative comparison.

DCI could not replicate penalty payments with the documentation and performance data provided. The Excel model spreadsheet could be a useful tool for monitoring results, but cannot now be used to accurately replicate Verizon PA results. Use of the Excel model spreadsheet template does not fully allow the PA PUC to calculate bill credits, because manual adjustments to the model are required each month, if certain criteria in the plan are met.

Carrier-to-Carrier Guidelines

Verizon PA makes many interpretations in its implementation of the C2C Guidelines that could result in the metrics not reflecting what other parties may have intended. The lack of supporting documentation detailing Verizon PA's entire process in calculating metric results for PO-5 and NP-1, makes it extremely difficult to identify this type of instance.

- Verizon PA's interpretation of the PO-5 metric totally changes the meaning of the metric. PO-5 measures Verizon PA's average notification of an interface outage. However, as tracked by Verizon PA, timing of the outage does not start until Verizon PA determines that there is an outage following receipt of a CLEC report. The time at which the CLEC experienced and reported the outage is not utilized as the beginning of the outage. Therefore, the time it takes for Verizon PA to respond to a CLEC report is not included. DCI did not include this as a replication Finding, but finds Verizon PA to be out of compliance with the intent of the metric, and so reports in Chapter III.
- For the NP-1 metric, which measures the percent final trunk group blockage, the C2C Guidelines allow Verizon PA to exclude certain blocked trunks upon notifying the CLEC of the condition of the blockage, and that a particular trunk group will be excluded. However, Verizon PA has no documented practice and does not notify CLECs in the case of a trunk blockage prior to excluding the trunk group as provided for in the C2C Guidelines. DCI did not include this as a replication finding, but finds the exclusion process is not in compliance with the C2C Guidelines, and so reports in Chapter III.

Carrier-to-Carrier Metric Algorithms

The documentation provided by Verizon PA in terms of the CMA was significantly more difficult to understand than that on previous similar studies performed by DCI relative to

other ILECs. As stated earlier, DCI worked with three versions of the PA CMA. Initially, Verizon PA provided the New York CMA in mid June as a guideline. However, when DCI began to identify numerous problems (including inconsistencies, missing information, etc.), DCI was told to wait for the first Verizon PA CMA, which was produced for the month of May 2003 and made available to DCI on August 1, 2003. This document was filed with the PA PUC as the algorithms to satisfy PMO II. However, when DCI again began to identify numerous problems (including inconsistencies, missing information, etc.) with this CMA, DCI was told to wait for the next Verizon PA CMA, which was produced for the month of June 2003 time period and made available to DCI on September 29, 2003.

DCI identified numerous inconsistencies and difficulties with the original April/May 2003 PA CMA documentation, that are specifically identified in Chapter V.

Verizon PA's various revisions to the CMA have improved many of the issues that had been previously identified; although, as shown later on Table II-7, approximately 50% remain unresolved. However, even with the latest submission, inconsistencies and missing information still exist. DCI questions Verizon PA's ability to adequately maintain a document that consists of over 1,100 pages of intricate, interrelated detail.

METRIC REPLICATION

As described earlier, DCI divided the replication process into five Segments. This sub-section describes DCI Findings in Segments A&B, which is followed by a discussion of Segments C&D. Segment E, which is the penalty calculation process, is covered under PAP payment replication in a later sub-section of this chapter.

Segments A&B

In the transient area, the source files are essentially loaded into database tables. There are two sets of tables: the base load tables and the error tables. DCI reviewed these processes with the individuals responsible for creating or testing the code that is used in populating these tables and, in particular, sampled selected error tables (that were created in the months under investigation) for review purposes.

In addition to its production environment, Verizon PA should also be maintaining a development and testing environment (Test Deck) for Network Metric Platform (NMP). That is not being done. Test decks represent a method to validate the operation of a computer system/application by loading information into the beginning of a segment, for which the expected result is known. Verizon PA personnel indicated that they have to separately build a test environment for any testing that is required. The lack of a Test Deck makes maintaining the integrity and accuracy of the NMP system more difficult. It also makes the review of Verizon PA performance results more difficult for third party reviewers.

The various Operational Support Systems (OSS) used by Verizon PA provide transaction log files that contain the original information that is migrated into the NMP database. The data are formatted and validated during the load process. The records that do not make it through the validation processes are posted to error tables.

DCI reviewed the contents of various error tables for high volume domains, specifically the Pre-Ordering, Maintenance and Repair (M&R), and Ordering domains, to identify errors generated during the April through June timeframe. In discussions of the results, Verizon PA provided answers to DCI questions concerning, among other matters, retention time on error files and reporting or tracking of loading results. DCI found that, as detailed in Chapter IV, documentation and reporting on the data acquisition process, Segment B in particular, is either inadequate or lacking.

Segments C&D

The review of Segments C&D consisted of replication of Verizon PA’s measurements from the data stored in the data mart by using programming code based on the C2C Guidelines.

Segment C involved migrating and transforming the information from the staging tables into the final data sets (the Data Mart in Verizon PA terminology) from which performance metric calculations can be developed. Segment D involved the application of the metric algorithms to Data Mart information, which is the actual calculation of performance results. The metric derivations contained in the C2C Guidelines were translated into appropriate (depending on the underlying data warehouse) Structured Query Language (SQL) programming code, which is executed against the Data Mart information to produce the performance metric results.

DCI used both the FACT Table descriptions and the CMA as guides for performing the replication of process Segments C & D. To evaluate this part of the process, DCI wrote its own code to compute performance metric results, and compared the results to those that had been reported by Verizon PA.⁸

Segment E

Segment E is discussed on page II-18.

Metric Replication Findings

DCI’s metric replication Findings are summarized in the following paragraphs. DCI has categorized its findings on individual performance metrics as follows:

- **Calculation Findings** – specifically, the extent to which DCI was able to replicate the Verizon PA reported performance “numbers” for the individual metric. DCI divided these findings into the following four designations: MR-Matched Results, MD-Minor Discrepancy, SD – Significant Deviation, N/A – Not Applicable.
- **C2C Guideline Issues** – specifically, issues with the interpretation of the Carrier-to-Carrier Guidelines documentation. DCI divided these findings into the following four designations: NI-No C2C Guideline Issues, NC-C2C Guidelines Need Clarification, VD- Verizon PA Deviation from C2C Guidelines.
- **Programming Issues** – specifically, DCI has identified issues with the programmed calculation of the performance metrics. DCI divided these findings into the following

⁸ This is discussed in greater detail in Chapters I and IV of this report.

three designations: NP-No Programming Issues, MP- Minor Programming Issues, SP-Specific Programming Issues.

There were a total of 45 Findings from DCI’s replication of Verizon PA’s metrics. Of these, 21 Findings are categorized as a significant deviation.⁹ The 45 Findings are summarized in Tables II-3 through II-6 below.

Ten of the 45 Findings were those where the C2C Guidelines were not followed. The Calculation Findings which resulted from not following the C2C Guidelines are categorized by significance in Table II-3:

Table II-3
C2C Guidelines Calculation Findings

Calculation Findings	Matched Results (MR)	Minor Discrepancy (MD)	Significant Deviation (SD)	Not Applicable (N/A)
10	1	2	7	-

The 10 Calculation Findings categorized by C2C Guideline Issues are summarized in Table II-4:

Table II-4
C2C Calculation Findings Categorized by Guideline Issues

Calculation Findings	No C2C Guideline Issues (NI)	C2C Guidelines Need Clarification (NC)	Verizon Guidelines Deviation (VD)	Not Applicable (N/A)
10	-	4	6	-

There were 35 Calculation Findings, of the 45 total, where there were programming errors or data errors which resulted in errors in metric calculation. These errors are categorized in Table II-5:

Table II-5
Programming Calculation Findings

Calculation Findings	Matched Results (MR)	Minor Discrepancy (MD)	Significant Deviation (SD)	Not Applicable (N/A)
35	2	16	14	3

⁹ SD – Significant Deviation – DCI results were significantly different from Verizon PA reported results to the extent that they might have an impact on determinations of whether the metric standard is met or PA PAP penalty calculations are affected. Although parity might not have been affected in the review time period, DCI considered the magnitude of some discrepancies large enough that they might have significant bearing on whether the standard would be met in some future month, depending on volume or other changes.

The categorization of the Programming Calculation Findings by severity is summarized in Table II-6:

Table II-6
Calculation Findings Categorized by Programming Issues

Calculation Findings	No Programming Issues (NP)	Minor Programming Issues (MP)	Specific Programming Issues (SP)	Not Applicable (N/A)
35	-	3	31	1

Metric Calculation Results

The results of DCI’s review and evaluation of the performance metrics on a metric-by-metric basis are summarized in Exhibit II-1 (This Exhibit is repeated in Chapter V). The details supporting these overall assessments are contained in Chapter V and in the Appendices to this report.

Evaluation Of June 2003 CMA

The initial (April/May 2003) PA CMA was issued and filed with the PA PUC on August 1, 2003. This was the CMA that DCI was planning to use for this review. However, Verizon PA issued the June CMA on September 29, 2003. Verizon PA stated that it had corrected many of DCI’s algorithm findings pointed out in the April/May CMA. As added Scope to this review, Verizon PA requested DCI to review and determine if the new CMA had corrected the algorithm deficiencies DCI had found.

The results of this review are summarized in Table II-7. Further detail is provided in Appendix G.

Table II-7
Incorrect April/May 2003 Algorithms Corrected in the June CMA

Domain	Algorithms With Problems April-May CMA	Number Modified June CMA	Number Resolved¹⁰	Outstanding Issues June CMA
PreOrdering	87	71	71	16
Ordering	14	11	12	2
Provisioning	104	93	62	42
M&R	185	131	67	118
Total	390	306	212	178

¹⁰ Fully or significantly resolved.

**SUMMARY OF METRIC CALCULATION RESULTS ON A
METRIC-BY-METRIC BASIS**

Metric No.	Metric Description	# of sub Metrics	Calculations				C2C Guidelines				Programming Issues			
			MR	MD	SD	N/A	NI	NC	VD	N/A	NP	MP	SP	N/A
PRE-ORDERING		24												
PO-1	Response Time OSS Pre-Ordering Interface	9		•			•						•	
PO-2	OSS Interface Availability	2			•		•						•	
PO-3	Contact Center Availability	2		•				•				•		
PO-4	Change Management Notice	3	•					•			•			
PO-5	Average Notification of Interface Outage	1	•					•			•			
PO-6	Software Validation	1	•					•			•			
PO-7	Software Problem Resolution Timeliness	4				•		•						•
PO-8	Manual Loop Qualification	2				•		•				•		
ORDERING		30												
OR-1	Order Confirmation Timeliness	8		•					•			•		
OR-2	Reject Timeliness	6		•				•				•		
OR-3-01	Percent Rejects	1		•					•		•			
OR-3-02	% VZ-requested resubmissions rejected as duplicative	1				•				•				•
OR-4	Timeliness of Completion Notification	4		•				•				•		
OR-5-01	% Flow-Through – Total	1	•				•				•			
OR-5-03	% Flow Through – Achieved	1				•				•				•
OR-6-01	% Service Order Accuracy	2				•	•					•		
OR-6-03	% Accuracy – LSRC (Long Term)	1				•	•					•		
OR-7	Percent Order Confirmation/Rejects Sent Within 3 days	1	•				•				•			
OR-8	Acknowledgement Timeliness	1	•				•				•			
OR-9	Order Acknowledgement Completeness	1	•				•				•			

**SUMMARY OF METRIC CALCULATION RESULTS ON A
METRIC-BY-METRIC BASIS**

Metric No.	Metric Description	# of sub Metrics	Calculations				C2C Guidelines				Programming Issues				
			MR	MD	SD	N/A	NI	NC	VD	N/A	NP	MP	SP	N/A	
OR-10	PON Notifier Exception Resolution Timeliness	2				•	•						•		
PROVISIONING		37													
PR-1	Average Interval Offered	10			•				•				•		
PR-3	Completed within Specified Number of Days (1-5 Lines)	7			•		•						•		
PR-4	Missed Appointments	9		•			•						•		
PR-5	Facility Missed Orders	4		•			•						•		
PR-6	Installation Quality	3			•		•						•		
PR-8	Open Orders in a Hold Status	2	•						•				•		
PR-9	Hot Cut Performance	2	•				•					•			
MAINTENANCE & REPAIR		23													
MR-1	Response Time OSS Maintenance Interface	6		•						•			•		
MR-2	Trouble Report Rate	3		•			•						•		
MR-2-04	Subsequent Troubles	1			•					•			•		
MR-2-05	TOK/FOK/CPE Rate	1			•					•			•		
MR-3	Missed Repair Appointments	3			•		•						•		
MR-4	Trouble Duration Intervals	8			•		•						•		
MR-5	Repeat Trouble Reports	1	•				•						•		
NETWORK PERFORMANCE		2													
NP-1	Percent Final Trunk Group Blockage	1	•							•			•		
NP-2	Collocation Performance	1	•							•			•		

**SUMMARY OF METRIC CALCULATION RESULTS ON A
METRIC-BY-METRIC BASIS**

Metric No.	Metric Description	# of sub Metrics	Calculations				C2C Guidelines				Programming Issues			
			MR	MD	SD	N/A	NI	NC	VD	N/A	NP	MP	SP	N/A
BILLING		13												
BI-1	Timeliness of Daily Usage Feed	1	•				•				•			
BI-2	Timeliness of Carrier Bill	1	•					•			•			
BI-3	Billing Accuracy and Claims Processing	5	•					•			•			
BI-6	Completeness of Usage Charges	2	•					•			•			
BI-7	Completeness of Fractional Recurring Charges	2	•				•				•			
BI-8	Non-Recurring Charge Completeness	2	•				•				•			
OPERATOR SERVICES		1												
OD-1	Operator Services – Speed of Answer/Directory Assistance	1	•					•			•			
GENERAL STANDARDS		7												
GE-1	Directory Listing Verification Reports	5				•				•				•
GE-3	Timely and Accurate Provisioning of White Page Directory Listings LSRs and DSRs	2				•				•				•
TOTAL		137 ¹¹	19	10	8	9	21	12	9	4	20	19	2	5

¹¹ The total is 130, exclusive of General Standards, which were not included in DCI's analysis.

PAP Penalty Payment Replication

This sub-section covers Segment E of the process, which is the calculation of the PA PAP penalty payments. It is covered in more depth in Chapters VII and VIII.

DCI could not replicate penalty payments with the documentation and the performance data provided. There was no internal documentation supporting the implementation of the PA PAP. According to Verizon PA, everything that is needed to calculate penalty payments based on monthly performance results is contained within the PA PAP document itself. However, DCI found that an “Excel model spreadsheet” developed by NY PSC staff, is necessary to fully understand many of the provisions of the PA PAP.

DCI found that it would be impossible to implement the PA PAP without the assistance of the Excel model spreadsheet. However, the PA PAP contains no reference to this spreadsheet. Verizon PA explained that the NY Excel model spreadsheet is provided to Pennsylvania and others, on the New York PSC website.

Verizon PA informed DCI that the majority of the formulae necessary to calculate PA PAP remedies are contained within the Excel model spreadsheet, with the exception of certain manual processes that are either too cumbersome, such as statistical tests on small sample sizes, or those that are rarely triggered. Verizon PA stated that all these calculations are performed within its NMP. DCI requested all NMP supporting documentation, but was informed that Verizon PA has not yet developed this documentation.

In addition to the lack of supporting technical documentation, DCI identified several areas where the information contained within the PA PAP is unclear and should be clarified, or cases of inconsistencies or discrepancies within the PA PAP itself that should be corrected.

The documentation provided by Verizon PA does not satisfy the PA PUC’s requirements regarding the level of detail required, nor does it fulfill Verizon PA’s obligation to interested parties to make the penalty assessment process easy to work with, by showing the calculations used to arrive at final results. The process, as currently documented by Verizon PA, does not meet the PA PUC’s requirement for transparency.

DCI attempted to replicate the PA PAP calculations involving aggregate and individual CLEC results. The primary methodology for auditing the PA PAP was for DCI to use the Excel model spreadsheet to replicate Verizon PA results, which is an approach similar to that which the PA PUC, or other outside auditors, would follow. The Excel model spreadsheet could be a useful tool for monitoring results, but cannot now be used to accurately replicate Verizon PA results. Use of the Excel model spreadsheet template does not fully allow the PA PUC to calculate bill credits, because manual adjustments to the model are required each month, if certain criteria in the plan are met. These adjustments generally relate to items that span multiple months, use specialized statistical software external to the Excel model spreadsheet, or relate to items that the New York Commission elected not to develop.

Verizon PA does not produce C2C Guideline reports for all CLEC codes making it impossible for DCI to replicate individual CLEC penalties. When DCI requested a copy of

all C2C Guideline reports from Verizon PA, it provided only those reports that Verizon PA generates, which is comprised of only those reports that have been requested by CLECs. Reports for those CLECs that had not specifically requested results were not produced by Verizon PA. Although Verizon PA is only required to furnish reports to CLECs upon request, the PMO II requires Verizon PA to furnish all individual and aggregate reports to the PA PUC. As a result, Verizon PA does not meet its obligation to make CLEC-specific data, metrics and remedies reports available to the PA PUC, as required by PMO II.

OTHER REVIEW AREAS

In addition to the preceding subject areas, DCI addressed the following topics in its review of Verizon PA performance metrics and remedies:

- Metric Input Quality Assurance
- Billing Credits for CLEC Penalty Payments
- Change Management
- Data Storage, Back-up, Retrieval and Security
- CLEC Data Reconciliation

These subjects are discussed in the following paragraphs.

Metric Input Quality Assurance

The training, technical documentation, methods and procedures, and wholesale operations supervisory reviews provided by Verizon PA to its Service Technicians in the field are sufficient to support them in properly fulfilling their roles in achieving the targeted performance statistics. Further, local managers perform work evaluations which include evaluating work performed for CLECs.

Verizon PA does not perform Internal Audits or Staff Reviews of customer trouble report disposition coding by Service Technicians, nor was there any data provided for comparative analysis of retail and wholesale disposition coding of trouble reports.

However, as part of the review of the Maintenance and Repair Metrics, DCI developed a comparison of disposition codes for the April, May and June 2003, time frame. While all codes were reviewed, of particular interest is the comparison of the percent of total troubles coded as 09's and 12's for the retail versus the UNE product. For the period noted, 13.6 percent of the retail troubles were closed with disposition Code 09XX (Found OK by dispatched technician), while 2.9 percent of the wholesale (CLEC) UNE product troubles were closed as Code 09XX. Conversely, for the same period, 22.4 percent of the retail troubles were closed to disposition Code 12XX (Customer equipment or inside premise), while 41.9 percent of the wholesale UNE product troubles were closed as Code 12XX. This indicates that Verizon PA may be incorrectly closing a higher percentage of CLEC troubles to Code 12 than they are closing Verizon PA retail troubles. This not only has the potential to affect the accuracy of the parity metrics, but also could be a CLEC billing issue as well.

Billing Credits For CLEC Penalty Payments

DCI reviewed the April credits that were posted to the August bills and determined that these bills provide a clear detail of credits resulting from PAP remedies in a format that can be easily identified and verified by the customer.

Change Management

Verizon PA's Metric Tracking & Change Tool (MTACT), its Change Control system, is adequate to meet Verizon PA requirements for tracking and controlling system changes, and related work activities. It ensures that changes required from all sources, including those required by regulators or by the industry, via the C2C Guidelines and the PA PAP, are well-planned, properly authorized, managed, and controlled.

There is no formal policy or procedure in place requiring the periodic review and update of Verizon PA's documentation (CMA and FACT Table) concerning metric calculations. Documentation control is shared among Domains; i.e. each Domain Manager is responsible for updating the documentation associated with individual Domain areas.

Data Storage, Back-up, Retrieval And Security

Verizon PA's data back-up and retention policies are based on ensuring compliance with Condition V of the FCC's BA-GTE Merger Condition Consent Decree. Verizon PA's retention period exceeds requirements mandated by this decree. Data Security is assured through the use of Unix System Services (USS). Dual systems are used for ongoing testing and disaster recovery. User access is limited and controlled. CLECs have access to report information they are authorized to view via a password, but not to the raw data files.

CLEC Data Reconciliation

It is extremely difficult for CLECs to accurately reconcile their M&R data with that reported by Verizon PA. The difficulty in reconciling M&R data is due to a number of factors, involving the manner in which orders are identified and tracked in separate systems. For example, there is no unique trouble identifier in Verizon PA performance data that allows an exact match of a trouble ticket with a CLEC trouble report.

DCI understands that Verizon PA attempts to contact a CLEC before closing a trouble report. Verizon PA also indicated that if it were unable to contact the CLEC, it would leave a message notifying the CLEC that it intended to close the trouble report. However, of the Trouble Reports for both CLEC and Verizon PA data, 84.1% disagree on the trouble closed date. This is an extremely high rate of disagreement, given the steps which Verizon PA states that it takes to ensure that parties agree to the closure of trouble tickets.

In a few instances, DCI discovered Provisioning "completion notifications" that were transmitted to the CLECs prior to the work completion date, as indicated by the Ordering Data Mart.

D. – RECOMMENDATION SUMMARY

A comprehensive listing of 39 major recommendations and 34 supporting recommendations developed during the review of Verizon PA performance metrics and remedies is provided on Exhibit II-2, Recommendations Summary. This summary contains three columns as follows:

- **Recommendation Number** – A sequential listing, by chapter, of the recommendations contained in this report. For Chapter V there are three listings, as follows: summary recommendations located in the report text, detailed recommendations located in Exhibit V-2, and detailed recommendations listed in Exhibit V-3.
- **Recommendation** – The basic recommendation statements. Amplification and backup information for each recommendation are provided in the various chapters in which the recommendations are presented.
- **Priority** – A high, medium, or low priority has been assigned to each recommendation as follows:

H. High Priority – Implementation would result in *significant* improvements in documentation completion and clarity/transparency, relative to calculation, or other improvements. These recommendations should be implemented as soon as possible.

M. Medium Priority – Implementation would result in *meaningful* improvements in each of the above subject areas. Implementation should take place within 6 months of approval of the Company’s implementation plan.

L. Low Priority – Implementation would *enhance* each of the above subject areas. Benefits are modest or difficult to measure. Since many of these recommendations require little effort to implement, implementation should take place as soon as possible, but not more than 12 months after approval of the Company’s Action Plans.

RECOMMENDATION SUMMARY

<u>Number</u>	<u>Recommendation</u>	<u>Priority</u>
<u>III – Supporting Documentation</u>		
1	Develop An English Language Version Document Describing Verizon PA’s Business Rules Which Are Used To Implement The Provisions Of The C2C Guidelines. (Refer to Findings Nos. 1, 4, 8, 9, 11, 13, 14, 16, 17)	H
2	Reduce The Content Of The C2C Guidelines To Contain Only The Rules For Each Metric And Provide Proper Supporting Documentation. (Refer to Findings Nos. 4, 5, 6, 8, 9, and 10)	M
3	Reformat The C2C Guidelines For Consistency And Clarity. (Refer to Findings Nos. 5 and 9)	H
4	Eliminate Any Restrictions Placed On A Third-Party’s Use Of The CMA Or Supporting Documentation. (Refer to Finding No. 12)	H
5	Conform Verizon PA Practices To Comply With The C2C Guidelines For The PO-5 and NP-1 Metrics. (Refer to Finding No. 2)	H
6	Review Metrics Identified In This Report And Revise Them, As Appropriate. (Refer to Findings Nos. 3 and 10)	H
7	Ensure Consistency Among C2C Guidelines, Performance Standards And Reports, And PA PAP Reports. (Refer to Findings Nos. 6, 7 and 8)	M
8	Establish Consistency In The FACT Table Procedures For Defining How The Same Data Element Used For Multiple Metrics Or Different Domains Is Derived. (Refer to Finding No. 15)	H
<u>IV – Measurement Calculations</u>		
1.	Create A Test Environment For The NMP. (Refer to Finding 1)	H
2.	Incorporate Documentation On The Handling And Reporting Of All Error Table Results Within The NMP. (Refer to Finding 2)	H
<u>V – Measurement Calculation Results</u>		
<u>Major Calculation Results Recommendations</u>		
1.	Develop FACT Table And Metric Algorithms That Fulfill The Requirements Of PMO II. (Refer to Finding 1, 2 and 3 Section B)	H
2.	Verizon PA Must Follow C2C Guidelines In Making Metric Calculations (See Finding No. 1, Section D of this chapter)	H

RECOMMENDATION SUMMARY

<u>Number</u>	<u>Recommendation</u>	<u>Priority</u>
3.	Verizon PA Should Request Clarification Of C2C Guidelines Instead Of Making Assumptions. (See Finding No. 2, Section D)	H
4.	Verizon PA Should Investigate Metrics Which DCI Could Not Replicate To Determine Root Causes. (See Finding No. 1, Section E)	M
5.	Verizon PA Should Ensure That OSS Systems Are Properly Identifying Input Data. (See Finding No. 2, Section E)	M
6.	Verizon PA Should Improve Testing Of Metric Calculations In Order To Ensure Accurate Metric Calculations. (See Finding No. 3, Section E)	M

Supporting Calculation Results Recommendations; D Numbers Refer to Exhibit V-2

D-1.	The Carrier Working Group should clarify its intent with respect to the calculation of entitlement time in the MR-1, and update the C2C Guidelines.	H
D-2.	The C2C guidelines should clearly state that EDI orders with outbound notifications not sent via EDI are excluded if that is the intent of the Carrier Working Group.	H
D-3.	The Carrier Working Group should clarify its intent with respect to Special Services disconnect orders not requiring a facility check and update the C2C guidelines.	M
D-4.	This issue should be revisited by the CWG to either change Verizon PA's calculation process or the C2C Guidelines Definition.	M
D-5.	The disaggregations required by the C2C Guidelines for this metric are possible by using the ORDER_TYPE field rather than the SVC_ORDER_CLASS_ID. Verizon PA should use the ORDER_TYPE field, which prevents the exclusion of orders whose SVC_ORDER_CLASS_ID field are null, but are otherwise eligible for inclusion in the metric.	M
D-6.	The Guidelines should be updated to reflect Verizon PA's approach, or Verizon PA should change its approach; to define the denominators in terms of the number of EDI LSRs whose SOP notification date is within the reporting month.	H
D-7.	Verizon PA should exclude subsequent Trouble Reports from the MR-2-04 denominator per the C2C Guidelines.	H

RECOMMENDATION SUMMARY

<u>Number</u>	<u>Recommendation</u>	<u>Priority</u>
D-8.	Verizon PA should include only the Trouble Reports with trouble codes identified in the C2C Guidelines.	H
<u>Supporting Calculation Results Recommendations; E Numbers Refer to Exhibit V-3</u>		
E-1.	Verizon PA should review the algorithms for the areas where PO-1 and PO-2 differences were identified to ensure that the algorithms are being properly applied.	M
E-2.	Verizon PA should review its programming methodologies for the comments identified above to ensure that the algorithms are being properly applied.	M
E-3.	Verizon PA should provide all required data for metric replication.	M
E-4.	Verizon PA should coordinate the field identifiers for RequestNet and include them in the source data for the NMP. These data fields combined with the sent/received data/time stamps taken from the gateway by Wisdom will allow future CLECs or reviewers sufficient information to complete their reviews in a timely fashion. Verizon PA should develop and document detailed methods and procedures for the calculation and reporting of all the PO-8 sub-metrics.	M
E-5.	Verizon PA should implement a fix to correct orders with incorrect service order class IDs, so that they may be included in the correct metric disaggregations.	M
E-6.	Verizon PA should exclude records that have neither a valid SOP_COMPL_DATE nor a valid WORK_COMPL_DATE from the OR-4 metrics, and report the number of such records excluded in the C2C reports.	M
E-7.	<u>Clarify the practice described in Finding E-9, in the C2C Guidelines.</u>	L
E-8.	The ACE process and flowthru eligibility determinations should be thoroughly reviewed. DCI did not do this during the review, because of the late date (October 23, 2003) that the ACE data was supplied.	M
E-9.	Verizon PA should review and provide accurate data for replication of metrics.	M

RECOMMENDATION SUMMARY

<u>Number</u>	<u>Recommendation</u>	<u>Priority</u>
E-10.	DCI accepts that metric results were not affected, but recommends that systems be improved to ensure that Provider is always identified on each record, in all provisioning data mart tables, so that Verizon PA will be in a position to react promptly when C2C Guidelines change.	L
E-11.	Verizon PA should issue a process improvement Change Control to correct the product designation on these types of orders, as indicated in its response to ER D-003.	M
E-12.	DCI verified that Verizon PA sent out a Change Control, and implemented corrected code beginning with the August data month, and has no further recommendation regarding it.	M
E-13.	DCI verified that Verizon PA sent out a Change Control and implemented corrected code beginning with the September data month, and has no further recommendation regarding it.	M
E-14.	Verizon PA should correct its code to not exclude S-coded orders in all the provisioning performance measurement calculations.	M
E-15.	Verizon PA should revise its procedures, as follows. Those cancelled orders for which it is definitely determinable that WFA did not set the dispatch indicator to either 'Y' or 'N' should be flagged for exclusion from these metrics.	M
E-16.	DCI verified that Verizon PA scheduled a change control to correct this issue, and has no further recommendation regarding it.	M
E-17.	DCI verified that Verizon PA issued a change control to correct this issue, and has no further recommendation regarding it.	M
E-18.	DCI verified that Verizon PA issued a change control indicating it had corrected this issue, and has no further recommendations regarding it.	M
E-19.	DCI verified that Verizon PA issued a change control indicating it had corrected this issue, and has no further recommendations regarding it.	M
E-20.	Eliminate the exclusion of all trunks whose customer desired due interval is greater than 18 days.	M

RECOMMENDATION SUMMARY

<u>Number</u>	<u>Recommendation</u>	<u>Priority</u>
E-21.	DCI verified that Verizon PA scheduled a Change Control to revise the report mapping for PR-6-03 UNE POTS Loops Denominator, with implementation scheduled for the November data month. If Verizon PA completes this, DCI has no further recommendations regarding the issue.	M
E-22.	DCI has not found any Change Control notification indicating that this issue is scheduled to be resolved or has been resolved. Verizon PA should correct this error.	M
E-23.	DCI recommends that Verizon PA restrict the exclusion to operate only when a ticket had been dispatched IN once (change DISPATCH_IN_CNT <= 1 to DISPATCH_IN_CNT = 1). Such tickets are “possible redirects”. Those which had DISPATCH_IN_CNT = 0 are not even candidates for redirects and certainly should not be excluded. Among the “possible redirects” the trouble may or may not have been found on the second dispatch, so not necessarily all “possible redirects” are definitely redirects, and not necessarily all “possible redirects” should be excluded.	M
E-24.	Verizon PA’s system design is such that each standard deviation has a separate algorithm. If Verizon PA intends to maintain this design, safeguards should be built into it, to ensure that a standard deviation is being calculated on the same variable and on the same set of records as the mean and record count to which it is intended to relate.	M
E-25	Verizon PA should implement a statistical methodology which is more robust at results close to 0% and 100%.	M

VI – Metric Input Quality Assurance

1. Continue Providing Support To Field Technicians Through Training And Supervisory Reviews. (Refer to Finding No. 1) H
2. Encourage Local Managers To Continue To Emphasize PA PAP Metrics With Field Technicians. (Refer to Finding No. 2) H
3. Expand The Approach Of Programmatic Checking Used In The WDRC To Include The POTS Installation And Maintenance Organizations. (Refer to Finding No. 3) M

RECOMMENDATION SUMMARY

<u>Number</u>	<u>Recommendation</u>	<u>Priority</u>
4.	Perform Internal Audits Of Field Technician Disposition Coding. (Refer to Finding No. 4)	H

VII – Performance Assurance Plan Supporting Documentation

1.	Develop An English Version Document Describing Verizon PA’s Business Rules Used To Implement The Provisions Of The PA PAP. (Refer to Findings Nos. 1, 2, 4 and 6)	H
2.	Eliminate Discrepancies Between C2C Guidelines, C2C Performance Standards And Reports, And The PA PAP. (Refer to Findings Nos. 5 and 7)	H
3.	Require Verizon PA To Furnish All CLEC Reports Automatically To The PA PUC Staff and Third Part Reviewers, As Appropriate, Without The Requirement That The CLEC Request Such Information. (Refer to Findings No. 3)	H
4.	Revise The PA PAP And Update It To Clarify The Issues Identified In This Report. (Refer to Findings Nos. 4 and 6)	H

VIII – Calculation of Performance Assurance Plan Penalty Payments

1.	Develop Documentation For NMP And PA PAP Excel Model Spreadsheet Calculation And Reporting. (Refer to Findings Nos. 1 and 2)	H
2.	Correct The PA PAP And The PA PAP Excel Model Spreadsheet And Develop A PA PAP Report To Assist Outside Auditors In Replicating PA PAP Results. (Refer to Finding No. 2)	M
3.	Re-audit PA PAP Results Periodically At Least Until A Favorable Audit Report Is Attained. (Refer to Findings Nos. 1 and 2)	M
4.	Use The Same Method To Determine Both Wholesale And Retail Results For PA PAP Purposes. (Refer to Finding No. 3)	M

IX – Billing Credits For CLEC Penalty Payments

1.	Send CLEC Notification Letters Detailing The Credit That Is Due To All CLECs Or, Update Verizon PA’s Documentation (Refer to Finding Nos. 1 and 2)	M
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RECOMMENDATION SUMMARY

<u>Number</u>	<u>Recommendation</u>	<u>Priority</u>
2.	Develop The Same Type Of Documentation For CLEC Claims Or Inquiries From PA PAP Bill Credits, As Verizon PA Uses To Support Blocking Claims. (Refer to Finding No. 3)	L
3.	Update All Verizon PA Documentation To Refer To The Proper Organizations Or Systems. (Refer to Finding No. 3)	L
4.	Update Verizon PA's Wholesale Website. (Refer to Finding No. 5)	M

X. – Change Management Process And Data Storage

1.	Continue Using Existing Metric Change Process Procedures And Documentation. (Refer to Findings Nos. 1 and 2)	L
2.	Take Active Steps To Maintain A Current Change Control Notification Contact List. (Refer to Finding No. 3)	H
3.	Implement A Periodic Review Process For Metric Calculations Documentation. (Refer to Finding No. 4)	M

XI. – CLEC Data Reconciliation

1.	Use A Unique Trouble Identifier Which Remains With The Trouble Ticket For Trouble Report Identification. (Refer to Finding 1)	M
2.	Adjust The Trouble Closing Process, To Prevent Discrepancies In The Trouble Ticket Closing Time. (Refer To Finding 2)	L
3.	Conduct Additional Training And/Or Install Controls To Prevent The Manual Generation Of A PCN Prior To Work Being Complete. (Refer To Finding 3)	L

III – SUPPORTING DOCUMENTATION REVIEW

III – SUPPORTING DOCUMENTATION REVIEW

A – BACKGROUND

This Section is presented in two parts, as follows:

- Carrier-to-Carrier (C2C) Guidelines
- Carrier-to-Carrier Metrics Algorithms (including the FACT Table)

For a discussion of the Pennsylvania Performance Assurance Plan (PA PAP) and its supporting documentation, please refer to Chapter VII of this report.

CARRIER-TO-CARRIER GUIDELINES

As part of an Incumbent Local Exchange Carrier's (ILEC) quest to enter the InterLata long distance market, the ILEC must provide evidence that its local markets are open to competition. Specifically, the Telecommunications Act of 1996 (TA-96) listed fourteen items that the incumbent must provide, on a non-discriminatory basis, to its wholesale competitors. Among these items are interconnection, switching, transport, local loop and local number portability. The ILEC has the burden to prove to its state Commission, the Department of Justice (DOJ), and ultimately the Federal Communications Commission (FCC), that it provides all the requirements of the Act to Competitive Local Exchange Carriers (CLECs), in the same time and manner as it provides the service to itself or its affiliates, when there is a retail analog. This has become known as providing parity performance.

For those products and/or services required by the Act where there is no retail analog, the ILEC has the obligation to provide such product or service in a manner which would provide a competitor a meaningful opportunity to compete. Benchmark standards have been developed to gauge the level of performance for these obligations. Due to the difficulty involved in establishing the proof necessary to provide a showing to regulatory authorities of non-discriminatory treatment on behalf of the ILECs, many worked with the DOJ, various state Commissions and the CLEC community to develop a comprehensive set of performance measurements, intended to show whether or not the local market was in fact open to competition.

The idea was, that once competition was established, one could simply compare the measured results to either the benchmark or the retail analog, to determine if the ILEC was meeting its obligations under the Act. This set of performance measures in Pennsylvania is documented in the "Pennsylvania Carrier-to-Carrier Guidelines Performance Standards and Reports" (C2C Guidelines), of which the latest version is effective June 1, 2003. This document contains the function of each measure, its

definition, all applicable exclusions, its sub-metrics, the performance standard and the reporting dimensions.¹

According to the Act, an ILEC would be permitted to enter the InterLata long distance market once it could show that its local market was irrevocably open to competition, and it was, in fact, providing service to its wholesale customers in a non-discriminatory manner, in addition to meeting §272 separate affiliate requirements, and showing that its application was in the public interest. During the 1998-1999 time frame, Operational Support Systems (OSS) testing was being conducted in Pennsylvania by KPMG² with Hewlett Packard acting as the Pseudo-CLEC.

A Pennsylvania proceeding to develop metrics began as a cooperative effort with New Jersey and was conducted simultaneously with the OSS test. As Pennsylvania progressed in advance of New Jersey, the joint effort ended and Pennsylvania continued to move ahead. In many other jurisdictions, commercial metrics were developed and audited prior to testing in order to ensure accuracy in measuring test results. However, in Pennsylvania, test metrics were developed prior to the commercial metrics. These test metrics were operational as of February 2000 and finalized on November 14, 2000. The commercial metrics were filed following the test metrics, also in 2000, and the OSS test was amended to pick up the commercial metrics. These commercial metrics included many of the test metrics, in an effort to test as many metrics as possible.

In late 2001 the OSS test was ramping down, so Pennsylvania decided to introduce uniformity in the performance measures implemented across Verizon PA's territory. In August 2001, a decision was made to conform Pennsylvania to New York State metrics.³ Pennsylvania's wholesale measures were developed as part of a Global Proceeding conducted with the Pennsylvania Public Utilities Commission (PA PUC) and other interested parties. The original measures developed were a combination of New York measures and Pennsylvania-specific measures, and were in effect from late 1999 through March 2003, when it was decided to use the New York metrics, effective with the month of April 2003.⁴

Docket No. P-00991643 (Opinion and Order entered December 31, 1999) (PMO I) and the Final Opinion and Order on Performance Measures and Remedies for Wholesale Performance for Verizon Pennsylvania Inc., Docket No. M-00011468 (Opinion and Order entered December 10, 2002) (PMO II) contain important documentation on the development of the metrics that were reviewed during this review. PMO II is the order that changed the direction in Pennsylvania to the New York plan.⁵ April 2003, (with other minor revisions made in June 2003) is the first month that Verizon PA operated under the version of the C2C Guidelines that is the subject of this review.

¹ Information Response PM-001.1 (*PA Carrier-to-Carrier Guidelines Performance Standards and Reports*)

² KPMG was, at one time an acronym; however, it is now the free-standing name of an accounting firm.

³ Telephone interview with PPUC Staff, August 6, 2003

⁴ Telephone interview with Verizon PA Technical Staff, July 22, 2003

⁵ Telephone interview with PPUC Staff, August 6, 2003

As part of the Pennsylvania §271 process, there were 20 to 30 hearings held during February and March, 2001. During the process, KPMG conducted what was considered to be, by Verizon PA, a very thorough review of the Pennsylvania measures in existence from April to June of 2000.⁶ However, as mentioned above, and according to the New York Public Service Commission (NY PSC), the KPMG review was limited to only those ordering measures that were included as part of the OSS §271 test. Most of those measures have changed since that time.⁷

The Pennsylvania Carrier Working Group (CWG) is responsible to advise the PA PUC regarding the C2C Guidelines. The CWG is made up of representatives from Verizon PA, the PA PUC, CLECs and other interested parties. There are several public interest organizations that participate, such as the Office of Small Business Advocate, Office of Consumer Advocate and Office of Trial Staff. This group considers New York proposed changes for the Pennsylvania C2C Guidelines.

- During early negotiations there was a great deal of debate as to whether Pennsylvania specific issues should be considered and, if so, what should be the criteria.
- The Administrative Law Judge (ALJ) wanted to require a showing that the communications network was different in Pennsylvania from that in New York, but the PA PUC decided such a showing should not be required.
- Therefore, this group also evaluates any specific Pennsylvania request made by a party, but most of the activity for proposed changes to the measures comes from the New York CWG.⁸

CARRIER-TO-CARRIER METRICS ALGORITHMS

During the proceeding that led to the PMO II, there was much concern on the part of the PA PUC as to the explanatory documentation and underlying data that Verizon PA should be required to produce in addition to the C2C Guidelines, to accompany the monthly C2C Guideline performance results report. The CLECs argued that this supporting documentation was necessary in order for interested parties to understand and evaluate the accuracy of Verizon PA's data and metric calculations.

The PA PUC became concerned with Verizon PA's lack of documentation in its implementation of the C2C Guidelines in Docket P-00991643. The business rules were never entered into evidence as part of the docket, only various proposals for what the C2C Guidelines should contain. At the time the PA PUC issued the PMO I, it was not aware that there was a necessity for English language business rules of Verizon PA's C2C Guidelines implementation, separate from the C2C Guidelines. By the time of the finalization of the PMO II there was a strong desire for a requirement that Verizon PA

⁶ *Id.*

⁷ Telephone interview with NY PSC Staff, July 29, 2003

⁸ Telephone interview with Verizon PA Technical Staff, July 22, 2003

provide the algorithms and some supporting documentation that would allow a third party, such as a CLEC auditor, or staff to calculate the end results from the raw data. This was a result of problems encountered by the third party OSS tester in reconciling its independently calculated test results to those produced by Verizon PA. These problems were due to a lack of supporting documentation.⁹

The Commission noted in the PMO II that it is imperative for CLECs to have access to the information necessary to provide an opportunity to sufficiently determine what is occurring in the Pennsylvania marketplace. The PA PUC, after considering all parties' comments, decided to adopt the following list of items proposed in the Tentative Order that Verizon PA must provide, as requested by the CLEC.

- Verizon Pennsylvania is to file such reports, additional information, and supporting documentation as was necessary to facilitate a comprehensive review of the data.
- Each CLEC should receive its own CLEC-specific data (e.g., flat files), algorithms, and metric reports, as well as aggregate metrics reports. Verizon PA could honor a CLEC's request for less than the full information packet.
- The Commission would receive CLEC-specific data, algorithms, and metric reports (subject to proprietary designation) as well as aggregate data, algorithms, and metric reports.
- "Algorithms" includes all of the information that would allow the receiving party to use the raw data/flat files to replicate and verify Verizon PA's treatment of such information, whether by use of formula, business rule, or otherwise, and then to generate the final reports in compliance with the C2C Guidelines.¹⁰
- Verizon PA was further directed to work with appropriate Commission staff to provide the reporting in a format usable to the Commission.
- Verizon PA was to develop, with Staff, a format to provide an overview of aggregate results on a rolling-month basis (e.g., similar to the Attachment 403 filed in the 271 proceeding) based upon the metrics (and remedies) adopted in the PMO II by March 10, 2003.
- At a minimum, Verizon PA was to provide the same back up files it provides in New York.¹¹

Verizon PA's implementation of the C2C Guidelines must be transparent and open for inspection by the PA PUC, and others who rely on the integrity of the reports. In response to PMO II, Verizon PA developed the Pennsylvania Carrier-to-Carrier Metric Algorithms (CMA), which are intended to satisfy the Commission's requirement that all parties have the opportunity to look at the performance measurement calculation and reporting process on a granular level. However, Verizon PA did not provide this

⁹ *Id.*

¹⁰ DCI interprets this to include supporting documentation in English, detailing Verizon PA's actions in taking the raw data through to the final result.

¹¹ See *Final Opinion and Order on Performance Measures and Remedies for Wholesale Performance for Verizon Pennsylvania Inc.*, Docket No. M-00011468, pg. 76-83 (Opinion and Order entered December 10, 2002) (PMO II).

documentation until August 1, 2003, two months after it first produced results of April performance. In addition to the CMA, Verizon PA also provides, and maintains FACT Table, that are also used in calculating measurement results. The FACT Table take the raw data from the OSS systems required to calculate measurement results, which will be used by the algorithms, to produce Verizon PA's reported results. Verizon PA provided these FACT Table to DCI.

In addition, several measures require data elements that are not provided by the OSS, such as intervals. The OSS notes the time a Local Service Request (LSR) or trouble ticket is received, and when provisioning or repair is complete, but does not note the elapsed time interval. These key data elements are calculated in the Network Metric Platform (NMP) where processing LOGIC must run in order to produce these derived fields to be included in the FACT Table.

As part of its review, DCI was charged with assessing the completeness of Verizon PA's documentation that supports the performance measure calculation and reporting process.

This section of the report deals only with the adequacy of the documentation supporting the performance metrics and the calculation of results, and not with the accuracy of the monthly performance results themselves. The reader should refer to Chapters IV and V of this report for a discussion of the accuracy of Verizon PA's reported performance results and its conformance to the C2C Guidelines. Chapter VII deals with the sufficiency of the supporting PA PAP documentation, and Chapter VIII relates to the accuracy of PA PAP remedy payments and conformance to the PA PAP.

B – FINDINGS

This Section is presented in two parts, as follows:

- Carrier-to-Carrier Guidelines
- Carrier-to-Carrier Metrics Algorithms (including the FACT Table)

CARRIER-TO-CARRIER GUIDELINES

1. Documentation Supporting Verizon PA’s Implementation Of The C2C Guidelines Is Insufficient.

DCI learned early in the review that Verizon PA has no additional business rule documentation used to implement the C2C Guidelines, other than the FACT Table and the CMA. There is no supporting documentation that explains, in English, the steps taken by Verizon PA, or any interpretations made in its exclusion of data, or calculation of results. This meant that, for DCI to determine whether or not Verizon PA complies with the requirements of the C2C Guidelines, DCI would have to replicate individual performance results, in order to identify the root causes of any discrepancies between its results and those reported by Verizon PA.

Verizon PA provides an English version of its Metric Business Rules (on a website) in the State of New Jersey, but stated that this is specific to New Jersey, since it is a requirement of that state Commission. Verizon PA does not provide such documentation for implementing the Pennsylvania C2C Guidelines.¹² Due to the lack of documentation supporting the calculation of performance metrics, Verizon PA held individual workshops on each of the separate domains (i.e. Work areas subject to measurement; which are: Pre-Ordering, Ordering, Provisioning, Maintenance and Repair, and Billing) to walk DCI through its processes and interpretations in implementing the C2C Guidelines.

Verizon PA informed DCI that the New York CWG was working on metric documentation, but claimed that the code is intellectual property, and is not necessarily documented in plain English. DCI later learned that Verizon PA’s reference was to the CMA mentioned earlier. Verizon PA did provide DCI the New York CMA initially and later provided the Pennsylvania CMA.¹³

As part of its review of the ordering metrics, DCI prepared its own algorithms along with the supporting technical documentation DCI would expect to see from Verizon PA, in its attempt to replicate Verizon PA’s reported results. When DCI did not obtain the same results as Verizon PA, DCI had to request an interview or file Exception Requests (ERs)

¹² Telephone interview with Verizon PA Technical Staff, July 22, 2003

¹³ The PMO II Order at pages 55, 74, 75 and 77-82, specifically requires that Verizon PA provide algorithms, and that its process be transparent. Algorithms initially provided were not complete and/or accurate. As discussed herein, the process was not, in DCI’s opinion, transparent.

or Data Requests (DRs) to try to determine the cause of the discrepancies. This caused an extremely inefficient method for conducting the review.

DCI explained to Verizon PA and to the PA PUC, during the course of the review that the type of supporting documentation which DCI prepared to support its algorithms is what Verizon PA should produce, not only to enable review efforts and to allow CLECs the opportunity to understand the many interpretations made by Verizon PA in its implementation of the C2C Guidelines, but also for its own internal quality controls. Verizon PA stated that it had no plans to develop such documentation, but would conduct an all day interview to help DCI understand Verizon PA's code.¹⁴ Although this helped DCI in understanding the code and reconciling certain differences, this is not helpful in satisfying the documentation issue required to provide a more sound performance measurement reporting system and allow the CLEC community the opportunity to understand the process, in order to calculate their own metric results for auditing and reconciliation purposes.

DCI had the opportunity to review other ILECs' performance measurement reporting processes and supporting documentation. All such documentation was much more understandable than that which Verizon PA provides to support its operation in Pennsylvania. The documentation provided by Verizon PA did not provide the opportunity for DCI or other parties to look at the process on either a comprehensive high level, or at a granular level, in an efficient manner, in order to conduct the type of review necessary to make a finding that metric results reflect an irrevocably open market in Pennsylvania.

The lack of appropriate supporting documentation interferes with the ability to adequately review measurement results and makes it extremely difficult for CLECs to perform any type of data reconciliation, which is the most efficient and effective means to track Verizon PA's compliance with Commission Orders and/or the C2C Guidelines. It is also a concern for regulatory authorities. According to the PA PUC Staff, Staff was not directly involved in writing the C2C Guidelines implemented in Pennsylvania pursuant to the PMO II. If, after the fact, there were a difference between the parties' interpretation of an exclusion or a measure definition, Staff would later get involved in resolving the dispute. Staff's ability to perform this function is severely hampered, since many of Verizon PA's interpretations are undocumented.¹⁵

2. Verizon PA's Implementation Of Provisions For Two Of The Metrics Is Not In Compliance With The C2C Guidelines.

DCI determined that Verizon PA's interpretation of the PO-5 metric actually renders the metric useless. PO-5 measures Verizon PA's average notification of an interface outage. However, timing of how quickly Verizon PA responds does not start until Verizon PA has determined that there is, in fact, an outage. A CLEC may call at 2:00PM notifying Verizon PA of an outage, but Verizon PA does not record the actual start time of the

¹⁴ *Id.*

¹⁵ Telephone interview with PPUC Staff, August 6, 2003

outage until Verizon PA completes its analysis to determine definitely that an outage does in fact exist. This might not occur until 4:00PM or whatever time Verizon PA chooses to reflect identifying that the outage actually exists, which may have more to do with when Verizon PA resolves the outage as opposed to when the outage is identified.

The NP-1 metric, which measures the percent final trunk group blockage, allows Verizon PA to exclude certain blocked trunks upon notifying the CLEC of the condition of the blockage, and that a particular trunk group will be excluded. If the CLEC does not respond with documentation that the information on the condition is incorrect, then the group will be excluded. This exclusion is appropriate, since Verizon PA has notified the CLEC of the blockage situation, and the CLEC has failed to take corrective action by providing additional trunks.

This exclusion is also appropriate if the blockage is determined to be due to CLEC action or network failure. However, Verizon PA has no documented practice and does not notify CLECs in the case of a trunk blockage prior to excluding the trunk group.¹⁶ The exclusion is not in compliance with the C2C Guidelines, without proper notification.

3. The C2C Guidelines Do Not Provide A Basis For A Proper Comparison Between Wholesale And Retail.

The retail comparisons for wholesale services should be similar type services. However, DCI noted four examples where the retail analog is not similar to wholesale, therefore, they do not provide an apples to apples comparison.

According to the C2C Guidelines, the retail analog for the provisioning metrics for Resale 2-Wire Digital Services and Unbundled Network Element (UNE) 2-Wire Digital Loop is Retail Integrated Services Digital Network (ISDN) (2-wire digital). Retail ISDN (2-wire digital) is also the retail analog for Resale 2-Wire Digital Services for the maintenance metrics; however, the maintenance retail analog for UNE 2-Wire Digital Loop is Retail Plain Old Telephone Service (POTS – Total). DCI issued a data request to Verizon PA to determine the rationale for using retail ISDN as the comparative for provisioning of both UNE and resale 2-Wire Digital and maintenance of resale 2-Wire Digital, but not maintenance of UNE 2-Wire Digital.

Verizon PA responded to DCI's Data Request, explaining that the Provisioning and Maintenance retail comparatives are compiled based on consensus in the CWG, which had decided to change the retail compare for MR2-5 2-Wire Digital and 2-Wire Multiple Application Digital Service Line (xDSL) Loop to POTs Total. The rationale behind the change was that POTs-Total troubles are more similar (than Verizon PA Advanced Data, Incorporated (VADI) line sharing troubles) to 2-Wire Digital and 2-Wire xDSL Loop troubles. Upon receiving Verizon PA's explanation, DCI questioned that if POTs-Total troubles are more similar to 2-Wire Digital than retail ISDN, why is POTs-Total not the retail analog for Resale 2-Wire Digital instead of retail ISDN?

¹⁶ Verizon PA Response to Information Request B-058 and B-091

Verizon PA responded to DCI's follow-up question, stating that "UNE 2-Wire Digital is usually used for services other than ISDN, and that these loops are usually purchased when a qualified xDSL loop is not available." Verizon PA further explained that "*UNE 2-wire Digital is not ISDN*" [emphasis added]. Because they are operationally not the same as ISDN, POTs-Total was selected by the CWG as the best alternative. According to Verizon PA, "Retail and Resale are both ISDN services and are therefore comparable". Verizon PA's explanation means that POTs-Total should also be the retail analog for provisioning of UNE 2-Wire Digital, rather than Retail ISDN since UNE 2-Wire Digital is not ISDN.

DCI also found a problem with the use of Retail 2-wire Digital Services as the provisioning retail comparative for UNE 2-wire Digital Services in calculating PR-1-01-3341, PR-1-02-3341, and PR-3-10-3341. In these metrics, orders where the customer requested a longer than standard due date interval are excluded. However, the method of excluding such orders differs substantially between UNE, where orders with requested intervals longer than a uniform standard six days are excluded, and Resale and Retail, where orders with an X-appointment code are excluded. As Resale and Retail use the same method, Retail 2-wire Digital Services is an appropriate comparative for Resale 2-wire Digital Services. However, DCI found that the orders which get excluded from Retail via the X-appointment code had an average offered interval of 1.11 days, (much shorter than the average offered interval of 2.30 days of the non-excluded retail orders).

On the other hand, orders excluded from the UNE 2-wire Digital Services result via excluding longer than 6-day desired intervals had offered intervals averaging 11.33 days (much longer than the average offered interval of 6.00 days of the non-excluded CLEC orders). Excluding very short intervals from the retail comparative, while excluding very long intervals from the UNE result, makes the retail comparative biased in the direction of indicating parity, even under potential disparity situations. This makes the Retail 2-wire Digital Services result an inappropriate comparative for UNE 2-wire Digital Services. This issue could be resolved by following the same exclusion procedure for the Retail orders as for the UNE orders (excluding customer- requested intervals longer than 6 days) when they are being used as a comparative for the UNE orders, which is discussed further in Appendix C.¹⁷

A similar problem occurs with regard to Change-order Disconnects. Verizon PA excludes these from the PR-1-12 Resale and UNE results if their offered interval is greater than two business days. However, such orders are not excluded from the corresponding retail results. This causes the retail result to be higher than appropriate for a retail comparative of the CLEC results, leading to a biased comparison in which potential disparities might be masked and reported as parity.¹⁸

¹⁷ See Appendix C, Findings 12 and 20; Exception Report D-012

¹⁸ See Appendix C, Finding 51

For the PR-4 and PR-5 metrics, Retail ISDN (2-wire Digital) is used as the retail comparative for UNE 2-wire Digital Services. However the Retail ISDN (2-wire Digital) calculation includes non-POTS orders. This makes them inappropriate for UNE 2-wire Digital Services, which exclude non-POTS orders. This issue could be resolved by adding the exclusion to Retail ISDN (2-wire Digital) when it is used as a retail comparative for UNE 2-wire Digital Services.¹⁹

Another situation in which DCI determined the C2C Guidelines do not provide for a proper retail comparison involves Verizon PA’s inclusion of payphones in its calculation of Maintenance and Repair results for the retail analog. Although there is no explicit exclusion of Coin (pay) phones in the C2C Guidelines, such an exclusion should be inferred from the fact that when metrics are disaggregated into Business and Residence categories; there is no disaggregation for payphones.

In response to DCI’s inquiry into the payphone issue, Verizon PA responded, “Per the “Product Identification Description” section in the guideline: POTS- Total for Maintenance includes Class of Service 08/09/19 which is Coin. The inclusion of Coin is per the C2C Guidelines.”²⁰ DCI’s opinion is that pay phones should not be included in the retail analog, as they bias the comparison between what CLECs order (Business and Residence) and what retail customers order (Business, Residence and Payphones) by inflating the retail comparative, potentially allowing parity conclusions in potential disparate situations.²¹

The MR-4 retail comparatives for UNE Loop, UNE 2-wire Digital Loop, and UNE 2-wire xDSL products (Loop, Linesharing and Linesplitting) are also inappropriate, as their calculation is based on using run-clock time intervals for all trouble tickets, whether dispatched out or not, whereas the CLEC results for these products are based on using limited stop-clock time intervals for dispatched-out trouble tickets. This leads to potential disparity situations being masked and reported as parity results. This could be easily corrected by using the limited stop-clock trouble durations for dispatched out tickets used in the retail comparatives, rather than the run-clock trouble durations.²²

4. The C2C Guidelines Documentation For Each Metric Is Not Consistent With The Organization Of The Document, And Can Be Misleading.

The PO-4 “Definition” section is deficient in that it does not properly define the PO-4-02 and PO-4-03 sub-metrics. The “Definition” section of the C2C Guidelines for PO-4 states “These sub-metrics measure the percent of Change Management Notices (CMN) and associated documentation sent before implementation according to prescribed timeliness standards within prescribed timeframes.”²³ This statement only describes the PO-4-01 metric, which measures the percent of all notifications provided during the

¹⁹ See Appendix C, Finding 44

²⁰ Verizon PA Response to Exception Report D-017

²¹ See Appendix D, Findings 2, 8, 12, and 19.

²² See Appendix D, Finding 16.

²³ See PA C2C Guidelines, PO-4 Timeliness of Change Management Notice

reporting period that were provided on time. However, the other two sub-metrics, PO-4-02 and PO-4-03 measure the total number of delay days for those notices that do not meet the required timeframe. The definition section does not describe this aspect of the PO-4 metric.

The OR-1 “Definition” section often contains specific treatment of orders for individual sub-metrics. DCI believes that this section should be reserved for the definition of the metric and any notes that may apply universally to each sub-metric. The inclusion of sub-metric specific notes within the definition section without expressly identifying them as such implies that the special treatment applies to all the sub-metrics, thus confusing the reader.

- For example; the second paragraph of the Definition Section states that:

“Partial migrations for less than six (6) lines – with accounts that include six (6) or more lines, that must be rearranged, will be treated as six (6) lines or greater.”

This statement only pertains to those sub-metrics with facility check for Digital Service 0 (DS0) specials. The current placement of this statement implies a greater impact on all the OR-1 sub-metrics. This note should be included in the “Performance Standard” as a footnote to the affected sub-metric.

- Similarly, under Trunks it states:

“Orders for inbound trunks that are for a new trunk group, are in excess of 192 trunks or that require T-3 construction, performance will be captured in the >192 category.”

This statement only has relevance to the Performance Standard for Inbound Augment Trunks, and would have been more appropriately placed as a footnote where it is explained that whether the standard is 10 days, seven days or on a negotiated basis, depends on whether there are greater than 192 trunks or less than or equal to 192 trunks.

- In considering the six notes listed under the “Definition Section,” for OR-1, DCI believes that the following two would be more appropriately placed in the “Exclusions” section, as they detail specific requests that are not to be included in the calculation of the metric:

“Rejected Orders (orders that fail basic front-end edits) submitted via LSR are not placed in the PON Master File; therefore they are not included in the calculation.” (Note 1)

“ASR requests that have the RTR field populated with a code that indicates the CLEC requested that no confirmation/response be sent are not counted in the OR-1 confirmation timeliness metrics.” (Note 6)²⁴

The NP-2 metric is another example of exclusions listed in a metric’s section other than the Exclusion Section. This metric claims to have no exclusions; yet in the Formula Section it is noted that time is excluded for CLEC milestone misses. In addition, the Definition Section states that the metric includes collocation arrangements ordered via both state and federal tariffs. DCI identified several arrangements documented in the tariffs for which Verizon PA does not report results; such as, Competitive Alternate Transport Terminals, Collocation Remote Terminal Equipment Enclosures, Feeder Distribution Interconnection Interfaces, Line Sharing, Shared//Sub-leased Cages, Transfer of Ownership Applications, Notice of Terminations, Records Only, and Reductions. Verizon PA’s response was that these are exclusions, yet as stated earlier, NP-2 shows no exclusions.

In its evaluation of NP-2, DCI also noted a minor issue, in that product disaggregations of new and augment arrangements were identified for the NP-2-01, NP-2-02, NP-2-04, and NP-2-05 sub-metrics, and new applications for NP-2-03; however, there was no documentation concerning product disaggregation for NP-2-06, NP-2-07, and NP-2-08 sub-metrics. Verizon PA agreed with the issues identified, explaining that the PA C2C Guidelines are administered under Commission order; therefore, Verizon PA has no authority to modify them without an order to do so.²⁵

The NP-1, Percent Final Trunk Group Blockage documentation concerning the exclusions to be applied is misleading and needs clarification. The C2C Guidelines state that “InterExchange Carrier (IXC) Dedicated Trunks” and “Common Trunks carrying only IXC traffic” are excluded; however, DCI found there are other types of final trunk groups that Verizon PA is excluding. Verizon PA responded that NP-1 measures blockages on dedicated final trunk groups to a CLEC, i.e., trunks that carry Verizon PA originated traffic to a CLEC. These trunks are also known as reciprocal trunk groups. According to Verizon PA’s interpretation, they are the only trunk groups included in NP-1. As detailed in the exclusion section for NP-1, IXC dedicated trunks, (which are trunk groups that carry 2-way InterLata traffic between a CLEC and Verizon PA) are not included in the metric. The denominator of NP-1 includes all Verizon PA to CLEC reciprocal dedicated final trunk groups for the specific state.²⁶ DCI found that this is incorrect, based on the language contained in the C2C Guidelines.

5. The C2C Guidelines Are Inconsistent In The Application Of Exclusions Between Wholesale And Retail.

During its review of the PR-1 metric, DCI noted that the C2C Guidelines specifically state that “Retail” “suspend for non-payment, and associated restore orders” are not

²⁴ Verizon PA Response to Exception Report A-009

²⁵ Verizon PA Response to Exception Report B-007

²⁶ Verizon PA Response to Exception Report B-004

included in the results. DCI questioned Verizon PA's reasoning for why only these retail orders are excluded and similar wholesale orders are not. Since these records typically have a very short offered interval, this provision serves to bias the measurement results in the direction of parity, when a disparity may in fact exist. DCI also noted that the remaining provisioning metrics provide for the exclusion of "suspend for non-payment and associated restore orders" without limiting the exclusion to retail orders only. Verizon PA acknowledged that the C2C Guidelines reference "Retail" only but added that in Pennsylvania, Verizon PA applies the exclusion for "suspend and restore orders" to both Retail and Wholesale performance measures.²⁷

6. The C2C Guidelines Have Discrepancies Between Them, The Appendices And The C2C Performance Standards And Reports.

DCI noted discrepancies between the measures defined in the C2C Guidelines and those reported in monthly results. One such example concerned the OR-4-09 results for the April and May report. The definition of the sub-metric OR-4-09 contained in the April 2003 C2C Guidelines shows that the metric is intended to measure the percent of those orders completed in the service order processor during the month that received a billing completion notification within three business days. This result is intended to be reported for all orders submitted via Electronic Data Interchange (EDI). However, the C2C Guidelines Performance Standards and Reports show two different disaggregated results for OR-4-09, one for resale (OR-4-09-2000) and one result for UNE (OR-4-09-3000).

The C2C Guidelines do not provide for this level of disaggregation. Verizon PA responded to DCI's inquiry that it disagreed with DCI's finding in that OR-4-09 was added in order to comply with the PMO II, and is disaggregated to comply with the PA PAP. However, to support this position, Verizon PA cites the NY PSC's order dated March 23, 2000 concerning the New York PAP. Verizon PA provided the March 23, 2000 following excerpt from page 4 of the referenced order:

"To address this situation, the PAP will be modified by replacing OR-4-02 with a new metric for billing completion notices, called % Service Order Processor (SOP) to Bill Completion Notice Sent Within 3 Business Days. This new metric is described in Attachment A of the FCC's March 9, 2000 Order. For the PAP, it will apply separately to the Resale and UNE modes of entry, will be measured and reported monthly, and will be subject to a performance standard of 95%."

Verizon PA interprets this to require reporting OR-4-09 separately for resale and for UNE. Verizon PA's reasoning is that the Critical Measures use the Mode of Entry results for both resale and UNE to look at performance on a CLEC specific level, as well as the state aggregate; therefore, OR-4-09 must be reported separately for resale and for UNE. Another reasonable interpretation is that since the C2C Guidelines only reports OR-4-09 for orders submitted via EDI, the same result would be reported for both resale and UNEs and would be subject to the 95% standard for purposes of PA PAP penalty payments.

²⁷ Verizon PA Response to Exception Report A-004

This is exactly how Verizon PA handles three very similar measures, OR-4-11, OR-4-16 and OR-4-17, which are also shown in the C2C Guidelines to be disaggregated by orders submitted via EDI, and are also contained within the PA PAP.²⁸ However, Verizon PA reports the same combined result for these three measures under both resale and UNE. Verizon PA's interpretation results in reporting of OR-4-09 that is not in compliance with the C2C Guidelines.

In addition to the issue of the OR-4 metric, DCI identified another discrepancy between the C2C Guidelines and the reported results concerning the reporting of the OR-1 and OR-2 metrics. The UNE products for these metrics are categorized under the "Sub-Metrics" section into Loop/Pre-Qualified Complex/Long-term Number Portability (LNP), Platform, 2-Wire Digital Services, 2-Wire xDSL Loops, 2-Wire xDSL – Lines Sharing/Line Splitting (combined) and Specials DSO. According to Verizon PA's response to DCI's Data Request D-015, Verizon PA provides UNE Platform as one of the following:

- 2-wire Digital Services
- 2-wire xDSL Loops
- 2-wire xDSL Line Sharing / Line Splitting
- Specials DS0
- Specials DS1
- Specials DS3
- Specials (other than DS0, DS1, or DS3)

Verizon PA stated that currently the CLECs are only ordering UNE-Platform 2-wire Digital Services and UNE-Platform Specials (other than DSO, DS1, or DS3). DCI determined that these UNE-Platforms are being categorized into the 2-Wire Digital Services and Specials category as opposed to the UNE-Platform. This is not made clear from the documentation contained within the C2C Guidelines.²⁹

The NP-2 metric, which measures average physical collocation intervals and percent-on-time for both new and augments, "Definition" section refers the reader to the applicable Verizon PA tariff for specific collocation intervals. Tariffs are posted on web site http://www.bell-atl.com/tariffs_info/intra/index.htm. The C2C Guidelines Performance Standards and Reports, which contains the monthly results, reflects the standards for these metrics as 76 and 45 days, but there is no mention of this in the tariffs contained on the website. Verizon PA agreed, stating that the template unnecessarily displays the standards for the NP-2-03 metric that is not required by the C2C Guidelines. Change Control Request (CCR) 10261 has been issued to correct this discrepancy. This CCR will be effective with the August 2003 data month.³⁰

An example of where the C2C Guidelines have not yet been updated to reflect the reporting of results is with the OD-1 metric that measures Verizon PA's speed of

²⁸ Verizon PA Response to Exception Report D-022

²⁹ Verizon PA Response to Exception Report A-009

³⁰ Verizon PA Response to Exception Report B-009

answering calls to its Operator Services or Directory Assistance Centers. The “Reporting Dimension” for OD-1 states that this metric will be reported for the state of Pennsylvania. However a footnote clarifies that the metric will be combined for Pennsylvania and Delaware for Operator Services, until such time as Verizon PA implements state specific reporting capability for Operator Services in Delaware.³¹ During its review, DCI learned that state specific reporting for Operator Services became available and has been reported as such since September 2002.³² DCI is concerned that this footnote has remained in the C2C Guidelines through both the April 2003 and June 2003 updates.

DCI also noted several discrepancies between the C2C Guideline references to specific appendices, and the appendices that were provided to DCI. It appears that the appendices provided to DCI are associated with a prior version of the C2C Guidelines. In particular, the “Exclusions” section for the OR-1 metric lists “Special Project PONs (if applicable) per the process documented in Appendix S”. The appendices provided to DCI did not contain an Appendix S, and it was not listed in the Appendix Table of Contents that accompanied the C2C Guideline appendices.³³ In addition, Appendix K, provided to DCI, is a list of Verizon PA 2003 holidays; yet the April 2003 C2C Guidelines refer to Appendix K as “Statistical Methodology” which is DCI’s Appendix J. Also, the appendices make several outdated references to Bell Atlantic, as opposed to Verizon PA.³⁴

DCI also noted a discrepancy within the C2C Guidelines in the Performance Section for the PO-4 metric. The Performance Standard section of the C2C Guidelines for the PO-4 metric contains a table listing the different types of changes that may take place and the appropriate deadline for Verizon PA to provide both the notification to the CLEC for each type, and the required documentation for the CLEC necessary to successfully implement the change. The statement concerning the Change Notification interval for the Type 2-Regularly Change is in contradiction with the interval as shown under the Change Confirmation interval (the deadline for Verizon PA to provide the final documentation).

The statement under the Change Notification column states that the interval shall be that which is required by the regulatory order. If there is no requirement contained within the order, then the interval shall be at least 73 calendar days for business rules, and at least 66 days for technical specifications, as stated for Types 3, 4, and 5. However, under the Change Confirmation column, the C2C Guidelines state that if no time period is established by the Order, both the Change Notification and Change Confirmation intervals are negotiated on an individual case basis through the Change Management Process. DCI issued a data request to determine which is correct, concerning the Change Notification Interval. According to Verizon PA’s response, the Change Notification Interval defaults to that as stated for Types 3, 4 and 5; so the C2C Guidelines are

³¹ Verizon PA C2C Guidelines, OD-1 Operator Services/Directory Assistance Speed of Answer

³² Interview Summary B-020 Follow-Up

³³ Verizon PA Response to Exception Report A-009

³⁴ Verizon PA Response to Exception Report A-007

incorrect in including “change notification”, when providing the default for the Change Confirmation Interval.³⁵

7. The C2C Guidelines Performance Standards And Reports Do Not Always Contain Statistical Values For Those Metrics With A Parity Standard.

DCI noted that Verizon PA failed to report on the standard deviation, sampling error and statistical score for the OSS and Billing pre-ordering measures, where the performance standard was parity with retail. DCI did note that none of these measures were included in the PA PAP for April through June of 2003, so it did not affect DCI’s effort to replicate PA PAP penalty payments. Verizon PA has agreed to correct its reporting to include all statistical values, as appropriate, in the future since a decision could be made at any time to move a diagnostic measure into the PA PAP.

8. C2C Guidelines Contain Much Supporting Information Rather Than Just The Negotiated Rules And Guidelines.

The C2C Guidelines are the only documentation available which governs both the rules describing each metric and the how-to of the actual process involved to arrive at the end result. It contains much more detailed information than would be necessary if Verizon PA were to develop associated technical supporting documentation, detailing all the mechanics and interpretations made by Verizon PA in arriving at the end result. The main problem associated with this is that the C2C Guidelines and the PA PAP are formal documents that contain rules and provisions that have been negotiated and agreed to by all parties, and there is a formal process that must be adhered to in order to make revisions.

This is appropriate since Verizon PA should not be able to unilaterally make changes to a metric definition, exclusion, formula, standard, reporting dimension or disaggregation level. Although the process by which Verizon PA actually gathers the information necessary to compute the formulae and make exclusions is important for audit and reconciliation purposes, Verizon PA should be free to change its business processes so long as the end result is still in compliance with the rules and guidelines as clearly stated in the C2C Guidelines and PA PAP. When a change is made, the documentation should be updated in a timely fashion in order to contain accurate information. This is not possible with the documentation Verizon PA provides today.

The C2C Guidelines contain many references to outdated websites that are necessary to access in order to calculate installation intervals, center hours of operations, products and services, orders that require facility verification, etc. Certain measures even attempt to list Verizon’s Pennsylvania recognized holidays, some of which are likely to change each year. Many of the documentation ERs issued by DCI were responded to by Verizon PA, stating that this information will be updated when the NY PSC approves the latest round of Guideline updates. Upon approval in New York, the Guideline updates will be

³⁵ Verizon PA Response to Information Request A-061

considered by the PA CWG per established Commission procedures.³⁶ This delay results in a significant amount of incorrect information contained within both the C2C Guidelines and the PA PAP. In addition, both documents are much more cumbersome than would be necessary if they were limited to only containing rules, formulae, and guidelines.

9. The C2C Guidelines Contain Grammatical Errors That Can Cause Confusion.

DCI noted numerous typographical or grammatical errors during its evaluation of the C2C Guidelines, which may lead to confusion in interpreting and understanding the metrics. For example, the definition section of PR-1, Average Interval Offered, states:

“This metric measures the average interval offered for completed and cancelled orders. For POTS and Specials, the Average Interval Offered is also known as the Average Appointed Interval. The average number of business days between order application date and committed due date (appointment date). The application date is the date that a valid service request is received. Note: Orders received after 5:00PM are counted as received the next business day.”

Although the third sentence is not complete, DCI assumes that the intent is to describe how the average interval offered is derived; for example, the average interval offered is the average number of business days between order application date and committed due date. Verizon PA agreed that this will be corrected in the C2C Guidelines for clarity purposes.³⁷

The OR-1 metric is an example where the definition section contains language that is either superfluous or needs clarification. The statement referring to trunks states; “Measures Service Orders completed between the measured dates.” This statement is incomplete and not necessary. All metrics only provide data for the relevant reporting period.³⁸

NP-1, Percent Final Trunk Group Blockage, is not clear regarding the Performance Standard to be applied to the sub-metrics for individual trunk groups carrying traffic between Verizon PA and CLECs. The C2C Guidelines state that “Verizon PA will provide an explanation (and action plan if necessary) on individual trunks blocking for two months consecutively. An individual trunk should not be blocked for three consecutive months”. The Performance Standard Section also provides an end-user standard that contains the following information:

³⁶ Verizon PA Response to Exception Report A-004

³⁷ Verizon PA Response to Exception Report A-004

³⁸ Verizon PA Response to Exception Report A-009

“602.1(m) Final Trunk Group - The last choice group of common interoffice communications channels for the routing of local, operator and/or toll calls.

603.3(g) Percent Final Trunk Group Blockages. This metric is defined as the monthly percentage of blocked calls on any local, toll, and local operator final trunk groups and has a performance threshold of 3.0% or less for each final trunk group.

603.4(d)(3) For Percent Final Trunk Group Blockages, a Service Inquiry Report shall automatically be filed whenever performance is not at or better than 3.0 percent for three consecutive months.”

The sub-metric, NP-1-01 measures the percent of final trunk groups that exceed the blocking standard excluding those due to CLEC network problems and NP-1-02 contains no exclusions. Sub-metrics NP-1-03 and NP-1-04 provides the number of final trunk groups that exceed the blocking standard for two months and three months respectively. It is not clear from the Performance Standard section for this metric what the applicable standard is for each sub-metric. In addition, the End User Standard section refers to apparent paragraph numbers that are not identified as to the source document. Verizon PA responded to DCI that the C2C Guidelines are administered under Commission order and Verizon PA has no authority to modify them without an order to do so.³⁹ However, Verizon PA always has the opportunity to introduce this in discussion.

10. Unclear C2C Guideline Metric Definitions Give Verizon PA Considerable Latitude In Performing Metric Calculations.

Verizon PA makes many interpretations in its implementation of the C2C Guidelines that could result in the metrics not reflecting that which other parties or the Commission may have intended. The lack of supporting documentation detailing Verizon PA’s entire process in calculating metric results makes it extremely difficult to identify these instances without a comprehensive review that replicates performance results and utilizes independent data collected from a third-party CLEC to compare to Verizon PA’s results.

One such example is the proper calculation of the PR-6, Installation Quality metric. The description of this metric is not totally clear in the C2C Guidelines with regard to the handling of multi-line installations and the troubles that may occur on the lines involved in that installation; however, DCI does not agree that Verizon PA’s current practice complies with the intent of the metric. Although the title of the metric implies it measures whether an installation was free of trouble for thirty days, the first sentence of the definition states that it applies separately to each line, circuit or trunk involved in the installation. Verizon PA could be considered to be in compliance with the C2C Guidelines by including all lines installed during the month in the denominator and all troubles in the numerator, regardless of whether multiple troubles were received on different lines installed on the same service order, as the definition suggests. One could also argue that Verizon PA is in compliance with the C2C Guidelines, if they choose to count a multi-line installation only once in the denominator and also only once in the

³⁹ Verizon PA Response to Exception Report B-004

numerator, in instances in which one or more troubles are received on any line. The total installation is either trouble-free or not as the title of the metric suggests, “Installation Quality”.

During its replication attempt of the PR-6 metric, DCI discovered that Verizon PA mixes the two approaches described above and counts each line installed, even those in a multi-line installation, in the denominator while only allowing the first trouble received on any of the lines installed in a multi-line installation to be included in the numerator. Verizon PA’s approach is the same for both retail and wholesale calculations, which results in reporting a much lower rate of installation related troubles. However, DCI finds this is most likely to bias metric results in concluding parity when in fact a disparity exists since multi-line installations are a much higher percent of CLEC installations than retail.⁴⁰

Another example identified by DCI concerns the PO-7 metric, which measures the percent software problem resolution timeliness. DCI found that Verizon PA applies an exclusion for emergency and non-emergency minor software releases even though such exclusions are not mentioned in the C2C Guidelines. Verizon PA’s opinion is that these types of releases are not exclusions, but are outside the scope of PO-7.

In addition, Verizon PA responded that PO-7-03 provides for a workaround within 48 hours, along with providing the permanent fix within 10 days, but this is not clearly stated in the C2C Guidelines. Verizon PA believes that this is implied in the definition; otherwise, PO-7-02 applies.⁴¹

The PO-4-02 and PO-4-03 titles contradict the respective formulae. For example, according to the title, PO-4-02 is defined as how many CMNs are delayed one to seven days; yet the formula shows it to be how many total delay days there were for those notices delayed one to seven days from the appropriate deadline. PO-4-03, according to its title, is defined as how many notifications sent during the reporting period were sent eight or more days later than what is required. Yet, the C2C Guidelines show that the calculation for PO-4-03 is the total number of delay days accumulated for those notifications sent eight or more days later than required.

Reported results could reflect how many notifications fall within the number of days they are considered late, as per the title of the sub-metric; or the total number of delay days falling within the 1 to 7 day category for PO-4-02, and greater than 8 day category for PO-4-03. Each method would produce very different results but would be compliant with the C2C Guidelines. Verizon PA did confirm that both sub-metrics measure cumulative delay days as per the formula description, not per the title of the sub-metric.

The OR-1, OR-2 and OR-4 metric results could not be replicated by DCI originally, until it discovered that Verizon PA was excluding EDI orders from both numerator and denominator if the outbound notification was not transmitted via EDI. DCI did not find

⁴⁰ See Appendix C, Finding 28 for further details.

⁴¹ Interview C-011

support for this practice in the C2C Guidelines. However, according to Verizon PA, its interpretation of the following statement contained in the definition section of these ordering metrics supports the exclusion of these EDI orders.⁴²

“For EDI/NetLink orders, the notifier is considered sent when it is time-stamped after EDI translation and encryption, immediately prior to transmission to the CLEC.”⁴³

If the intent of the C2C Guidelines is to exclude such orders, it should be stated clearly as an exclusion. The C2C Guidelines should not be left open to Verizon PA’s interpretation. Examples of other undocumented exclusions made by Verizon PA due to its interpretation of the C2C Guidelines can be found in Appendix B, Findings 4, 10, 18 and 29.

CARRIER-TO-CARRIER METRICS ALGORITHMS

11. The FACT Table, C2C Guidelines, And CMA Are Too Cumbersome To Enable A Third-Party To Successfully Replicate Verizon PA’s Reported Results.

The FACT Table, C2C Guidelines and CMA, are extremely cumbersome to work with, even for an individual experienced with telecommunication performance metrics. The CMA contains a significant amount of superfluous code that tends to obscure the actual essence of the performance metric algorithm. DCI used the PO-1 metric to illustrate the clarity that would be possible by condensing information contained within the CMA into a more useful document. In Chapter V, DCI describes how it condensed PO-1 to the important information necessary for a CLEC or an outside auditor to use in performing its own replication. This resulted in a five-page document compared to the original 76 pages contained in the CMA for that metric.

The CMA could probably be reduced from 1,200 pages to 200 pages by condensing all the metrics in a similar manner to that used for PO-1. For example, the algorithms for OR-1 contain 48 pages of documentation representing 92 separate algorithms. The C2C Guidelines and FACT Table provide approximately another 20 pages of documentation. DCI was able to reproduce OR-1 metric results with only five pages of documentation (See Appendix B), of which only three of the pages are unique to the OR-1 metric. The other 4 pages also apply to the other ordering metrics and need not be reproduced for each. Verizon PA uses another 32 pages, containing 64 algorithms to describe the OR-2 process, for which DCI’s approach would require only two pages⁴⁴. While a CLEC could use the current CMA, FACT Table Layouts and C2C Guidelines to recalculate an individual metric result, this provides very little understanding into Verizon PA’s general metric calculation processes. Any CLEC that attempted to recalculate all, or most, of its

⁴² Verizon PA Response to Exception Report D-024

⁴³ See Verizon PA C2C Guidelines, OR-1 Order Confirmation Timeliness

⁴⁴ See Appendix B, Finding 1. See also Appendix C, Finding 1 for similar results in the Provisioning Domain, and Appendix D, Finding 1 for similar results in the Maintenance Domain.

metric results, would face a tedious, time consuming, complex, non-economical, daunting task.

The CMA, along with the FACT Table, is the only supporting documentation for the C2C Guidelines. The CMA is about 1,200 pages in its entirety, and very difficult to read and interpret. According to the PMO II, Verizon PA has the obligation to provide business rules to support the C2C Guidelines and the CMA, which contain step-by-step instructions on how Verizon PA calculates and reports metric results. This requirement allows the CLECs and others to understand and evaluate the accuracy of Verizon PA's data and metric calculations for Pennsylvania.

The documentation provided by Verizon PA does not satisfy the PA PUC's requirement regarding the level of documentation necessary, or fulfill Verizon PA's obligation to interested parties to make the performance measurement reporting and penalty assessment process clear, complete and transparent, by showing its work in arriving at the end result.

12. Verizon PA Limitations On A Parties' Use Of The CMA Are Overly Restrictive.

The limitations Verizon PA places on the use of the CMA in its cover letter, to which the requesting party must agree prior to receiving a copy of the documentation, are so restrictive that they make the CMA virtually useless in allowing the receiving party to use the raw data/flat files to replicate Verizon PA's metric results. Specifically, DCI is concerned with the following restrictions:

“The CMAs may not be disclosed or disseminated to any third party without the separate, express written permission of Verizon PA. The only permitted use of the CMAs is for the recipient to read and review them solely for the purposes of understanding the business rules in the “New York State Carrier to Carrier Guidelines.” That is, the CMAs are to be used as an additional support tool for understanding the business rules contained in the New York Carrier to Carrier Guidelines. No compilation, modification, translation or reproduction of the CMAs is permitted without the separate, express written permission of Verizon PA. Title to the CMAs and all intellectual property rights therein shall remain with Verizon PA. Verizon PA reserves all rights not specifically granted in these terms.”

These limitations are so restrictive that they make the CMA useless, without the “*separate, express written permission of Verizon*”, [emphasis added] in allowing the receiving party to replicate and determine if Verizon PA's treatment of such information, whether by use of formula, business rule, or otherwise, and then to generate the final reports; is in compliance with the C2C Guidelines as required by the PA PUC order.

The CMA documentation does not reveal implementation of Verizon PA's software application so the proprietary nature of the documentation is debatable. The CMA is not

the actual implementation of Verizon PA's reporting system but a translation into Structured Query Language (SQL)-equivalent code. The Commission has, however, required Verizon PA to make the process transparent in order to demonstrate the reproducibility of the results of their system. Placing such restrictions on the use of the CMA does not make the process transparent. Providing the algorithms accompanied with such restrictions is similar to providing someone with keys to a car and saying you can only use this to understand what a key looks like and how a car works, but you are not allowed to turn on the car or make a copy of the key when the purpose of the Commission requirement for Verizon PA to produce the CMA is to ensure that the key does, in fact, start the car.

Therefore, production of the CMA, without allowing it to be unconditionally used to replicate and verify Verizon PA's process, does not satisfy the Commission's requirement of transparency. The CLECs need much less restrictive use of Verizon PA's supporting documentation in order to provide the transparency to the process required by the PMO II. If Verizon PA believes the content of the CMA is proprietary, making these restrictions necessary, then Verizon PA should be required to provide alternative technical documentation with proprietary information removed.

13. The NY CMA Originally Provided To DCI Was Not Applicable And The First Pennsylvania CMA Provided Was Incomplete And Inaccurate.

DCI was provided the New York CMA in mid June 2003 and was told by Verizon PA to utilize it in order to reproduce metric results for the April, May and June 2003 time period. When several inconsistencies were noted in reproducing the provisioning metrics, Verizon PA responded to DCI's ERs that the discrepancies were due to the fact that the algorithms DCI were using were for New York and not for Pennsylvania. Verizon PA then provided the Pennsylvania CMA documentation on August 1, 2003 and DCI proceeded to recalculate its provisioning results. This issue is further documented in Finding No. 3 of Chapter V; however, this finding describes specific instances where the documentation was incomplete or inaccurate.

DCI proceeded to use the Pennsylvania April/May CMA provided August 1, 2003 and quickly identified several instances where the algorithms were incorrect, and obviously not what were used by Verizon PA to calculate its published performance results for Pennsylvania. One such example, identified early in the process, involved the PR-8 metric, which measures the Percent of Open Orders in a Held Status. The definition section is clear that the numerator of this metric is concerned with pending orders as it defines an Open Order as a valid order that has not been completed or cancelled. The numerator contains any Open Order, at the end of the month, that is in a Held Status, (the original service date has past or Verizon PA has failed to provide a completion date), comparing those to the total number of orders completed during the month, which is the denominator. However, the numerator algorithms provided to DCI, which should count pending orders, were incorrectly counting completed orders, since they restricted STATUS to '55B' (completed) and used REPORT_PERIOD=200305 instead of 200000. The denominator algorithms were incorrectly counting pending orders, since they

restricted STATUS to other than ‘55B’ (completed) or ‘CAN’ (cancelled) and used REPORT_PERIOD=200000 instead of 200305.

Eventually, Verizon PA agreed that even the April/May CMA did not represent the production numerator or denominator algorithms for the retail component of PR-8-01-3342 and PR-8-01-3530, and responded that the metric algorithms in the CMA for PR-8-01-3342 (Retail) and PR-8-01-3530 (Retail) would be updated in the next release of the June Pennsylvania CMA.⁴⁵ Numerous examples of incorrect algorithms were identified in the Pre-Ordering, Ordering, Maintenance & Repair and Provisioning domain documentation, but for the sake of brevity, while still reflecting the overall impact of this issue, DCI has limited its discussion in this chapter to the examples provided below.

The reader should refer to the discussion of the CMA in Chapter V and each metric discussion contained in the Appendices to this report⁴⁶ for each instance in which the April/May CMA was incomplete or inaccurate and whether the issue was corrected in the June CMA that was provided September 29, 2003. The discussion provided in this chapter is fairly comprehensive regarding the billing domain and the PR-8, OR-1 and OR-2 metrics. DCI did not utilize the April/May CMA to attempt to replicate most of the Maintenance and Repair metrics because approximately half of the necessary algorithms were not available until September 29, 2003 when Verizon PA provided the June CMA.

The CLEC algorithms for the denominators for several of the PR-3-09 and PR-5-02 sub-metrics and PR-5-04-3200 provided to DCI were inconsistent with that of their numerators. This inconsistency was also identified for the retail comparative algorithms, but according to Verizon PA, since these algorithms were not what Verizon PA used to perform its calculations, this had no impact on the reported results.⁴⁷

DCI had difficulty matching Verizon PA’s results for the BI-3-03-2030 sub-metric. Upon a request for assistance from Verizon PA, DCI learned that the Pennsylvania CMA incorrectly uses the BI-3-01 algorithms to represent the BI-3-03 metric.⁴⁸

The CMA provided for the billing measures was incomplete in that it did not provide documentation on how to handle multiple numerators and denominators in calculating both UNE and Resale results for BI-3-01-2030, BI-2-04-2030, BI-3-05-2030, and BI-6-01-2030. DCI had to use the formula for BI-2-01-2030 in order to replicate Verizon PA results.

DCI found problems with the algorithms for certain disaggregations of OR-1, OR-2, OR-3, OR-4 and OR-7 of the ordering metrics; however, DCI was able to verify that all issues were corrected in the June CMA that was distributed in late September, for all ordering metrics except OR-3.⁴⁹

⁴⁵ Verizon PA Response to Exception Reports D-017 and D-018

⁴⁶ See Appendix B Findings 2, 8, 16, 29; Appendix C Findings 28, 27, 30, 34- 37, 40, 45, 46; Appendix D Findings 9, 13, 15, and 20.

⁴⁷ Verizon PA Response to Exception Report D-014

⁴⁸ Verizon PA Response to Information Request B-096

⁴⁹ See Appendix B

In addition, the April/May CMA provided to DCI did not include algorithms for many of the MR-4 and MR-5 disaggregation levels. Upon review of this finding, Verizon PA agreed that these algorithms were missing and responded that they would be included in the next version of the CMA.⁵⁰ DCI also noted that the algorithm used to reflect the retail standard deviation for MR-4-01-2216 is incorrect.⁵¹ DCI has confirmed that the CMA received in September did in fact contain correct algorithms for these calculations.

The algorithms provided to calculate many of the disaggregations of the MR-4 metric were incorrect in that they failed to properly document the stop-clock feature in calculating the repair interval. Although Verizon PA corrected many of these issues with its publication of the June CMA⁵² on September 29, 2003, DCI still found problems with MR-4-02-3550, MR-4-03-3341, MR-4-03-3342, MR-4-03-3343 and MR-4-03-3345.

The April/May CMA contained no numerator or denominator algorithms for many of the PR-8 sub-metrics; however, DCI has received the June CMA and determined that most of these deficiencies have been corrected.⁵³ (See Appendix C of this report for additional information)

The UNE 2-wire xDSL Line Sharing metric algorithms for the provisioning domain incorrectly include Line Splitting orders. Verizon PA issued Change Control 10329 to become effective October 15, 2003 to correct this problem.⁵⁴

DCI identified several instances in which the logic in the algorithms failed to properly exclude certain data as required by the C2C Guidelines. When it appeared from DCI's replication of OR-2-06-3200 that Verizon PA underreported UNE Specials, DCI submitted an ER to Verizon PA for an explanation of the discrepancy. Upon review of DCI's code, it was determined that several filters were omitted per the logic set in the CMA causing DCI to include records that should have been excluded per the C2C Guidelines.⁵⁵

DCI identified another issue associated with the OR-1 and OR-2 metrics, in that the algorithms do not exclude VADI ASR orders from the aggregate CLEC results as required by the C2C. Verizon PA disagreed with DCI's assessment, claiming that by grouping a series of variables, the exclusion is effectively implemented.⁵⁶ An exclusion in the CMA should be clearly identified by "and EXCL_IND <> 'Y'", rather than as a part of a list of grouping variables.

Finally, the algorithms for POTS Loop (MR-3-xx-3550) do not contain code to implement the exclusion of redirected troubles as documented in the C2C Guidelines. Therefore, DCI's results did not match those reported by Verizon PA for this sub-metric.

⁵⁰ Verizon PA Response to Exception Report D-030

⁵¹ Verizon PA Response to Exception Report D-033

⁵² Verizon PA Response to Exception Report D-031

⁵³ Verizon PA Response to Exception Report D-015 and D-016

⁵⁴ Verizon PA Response to Exception Report D-013

⁵⁵ Verizon PA Response to Exception Report D-042

⁵⁶ Verizon PA Response to Exception Report D-041

14. The FACT Table And The CMA Are Unclear Concerning How Critical Components Of Metric Calculations Are Derived.

One of the exclusions for calculating the PR-1 “Average Interval Offered” and the PR-3 “Completed within Specific Number of Days” metrics, is any order for which the customer requests a due date that is beyond the standard available appointment interval. These records are intended to be identified by an X designation in the “ORG_APPT_CODE” field excluding them from the calculation. Orders with a W (standard interval requested) or S (shorter than standard interval requested) appointment code are included in the calculation. DCI found no documentation explaining how the “ORG_APPT_CODE” field is populated except for a footnote in the C2C Guidelines. This footnote stated that orders which are received via Local Service Order Guide 4 (LSOG4) are automatically populated with the appointment code; however, if a CLEC is not using LSOG4, it is responsible to perform the X coding. DCI issued a data request to Verizon PA for an explanation as to what determines whether a longer than standard interval is requested, and what CLEC action determines whether the “ORG_APPT_CODE” field is populated with a S, W or X. Documentation is totally lacking for either of these conditions.

Verizon PA disagreed with this finding, claiming that the appointment codes are defined in the C2C Guidelines, Appendix B page 6.⁵⁷ Appendix B to the C2C Guidelines that DCI was provided, contains only five pages, and only explains the meaning of the different appointment type codes. Appropriate documentation should detail how this field is populated and what actions on the part of the CLEC or Verizon PA determines whether the customer requested the standard due date or one earlier or later than standard. If this field is populated by Verizon PA’s systems, the documentation should be specific on what the system considers in making this determination. Specifically, DCI is concerned with how an LSR sent after 5:00PM requesting the next day due date can qualify as an X appointment type code, since according to the C2C Guidelines for PR-1, any order received after 5:00PM is considered as received the next business day.

Therefore, absent the ability to request a negative interval, it would seem logical that the next day would be either requesting the standard interval (W) or an earlier one (S). However, DCI noted 1034 orders fitting this scenario that were excluded due to an “X” in the “ORG_APPT_CODE” field. Verizon PA claims in its response that, since its systems accept these types of orders up to 10:30PM, they were properly excluded because they had an X appointment code. This explanation does not comply with the C2C Guidelines, which specifically state; 5:00PM is the cut off time. Therefore, Verizon PA’s undocumented process for determining the appointment code does not comply with the C2C Guidelines.

Verizon PA explained that the CLECs no longer manually populate the appointment type code. This field is now system generated for flow through orders, or manually populated by a representative in the National Marketing Center (NMC) for manual orders.⁵⁸

⁵⁷ Verizon PA Response to Exception Report A-004

⁵⁸ Verizon PA Response to Information Request A-052

However, the C2C Guidelines documentation, specifically the footnote mentioned above, has not been updated to reflect this.

Another issue identified with Appendix B of the C2C Guidelines is that, besides explaining the meaning of the various values found in the appointment code field, Appendix B also provides explanations for the various values found in the service order code; however, not all service order codes are defined in this documentation. For example, DCI found several other order types (such as A, P, W and X), in the April data that were not described in the documentation.

Another key data element used in the calculation of the OR-7 “Percent Order Confirmation/Rejects Sent Within Three Business Days” measure is the CONF_TYPE field. The documentation provided to DCI in Verizon PA’s Ordering Workshop describing the CONF_TYPE field in the TB_ORDER_FACT Table Layout, only indicates that the value ‘Z’ means a Supplement, and that “Other values are provided by Request Manager”. During its review, DCI found that the CONF_TYPE field was also populated with ‘C’, ‘I’, ‘J’, ‘S’ and ‘N’ values, in addition to ‘Z’. DCI found no documentation relating to the interpretations and relationship of these other values to the exclusions specified by the C2C Guidelines. In response to this issue, Verizon PA stated that these additional values have no impact on the calculation of OR-7, in that only supplemented LSRs are excluded. This could not be determined without an explanation of the meaning of the additional values. Although these other values are defined in Verizon PA’s Ordering Business Rules, which are available publicly on its wholesale website; DCI believes this to be another example of the inefficiencies created from not having complete supporting documentation pertaining to the calculation of performance metrics.⁵⁹ Regardless of when an exclusion is implemented, there should be adequate documentation supporting the mechanics of how it is implemented in the process, in order to verify the results.

In attempting to replicate the OR-4-09 metric DCI was using the SOP_COMPL_DATE field to determine whether the order was eligible to be included in the current month’s reporting, since the C2C Guidelines define the denominator for OR-4-09 as the “number of SOP Completed Orders during the report period”. When DCI’s numbers failed to match those reported by Verizon PA, DCI learned that Verizon PA does not use the SOP_COMPL_DATE, but uses the SOP_NOTIF_DATE to identify the base of SOP completed orders eligible to be included in the current reporting period for the OR 4-09 metric. It appears that the SOP_COMPL_DATE is updated each time a service order associated with an LSR completes, so using that date may include an LSR in the current reporting month, prior to the last service order for that LSR completing, whereas the SOP_NOTIF_DATE only contains the date the last service order associated with the LSR completes. Although Verizon PA’s response is reasonable, its documentation was not clear as to how the SOP completion date is determined for metric reporting purposes.⁶⁰

⁵⁹ Verizon PA Response to Exception Report D-026

⁶⁰ Verizon PA Response to Exception Report D-023

The OR-1, “Order Confirmation Timeliness”, and OR-2, “Reject Timeliness”, ordering metrics require the SVC_ORDER_CLASS_ID field for calculation of the metric results. DCI was unclear about Verizon PA’s logic in deriving the final value of the SVC_ORDER_CLASS_ID field because of the poor documentation. DCI examined the logic contained in the NMP LSR detail design document and finds that it does not completely explain the values that result. DCI was required to submit several requests to Verizon PA to verify what it was able to construe from the NMP document, in order to determine the accuracy of this field.⁶¹

The NP-2 Collocation Performance metric allows Verizon PA to exclude the amount of time Verizon PA is delayed in completing a collocation request that is due to the CLEC. The interval clock stops, and the final due date is adjusted for each day the CLEC delays in providing information to Verizon PA or otherwise fails to meet its obligations.” This adjustment is referenced in the C2C Guidelines for sub-metrics N-2-03 through NP-2-08 for both new and augment applications. DCI found no supporting documentation on the procedures for implementing this process.

15. The FACT Table Are Subject To Errors Because Of The Multiple Methods Verizon PA Uses To Accomplish The Same Objectives.

Verizon PA’s performance metrics exclude Verizon PA’s affiliate, VADI, from CLEC aggregate results. While attempting to replicate Verizon PA’s results, DCI determined that Verizon PA uses different definitions and lists for determining which customer is considered VADI, depending on the domain (Ordering, Provisioning, etc). The reason for lack of consistency is not actual business requirements, but primarily results from NMP being developed separately for each domain. In most domains, the term VADI is used to include both Verizon PA affiliates and retail DSL line sharing providers, but, in the provisioning domain, VADI refers only to retail DSL line sharing providers, and Verizon PA affiliates are referred to only as Verizon PA affiliates. The provisioning documentation and field naming conventions in the algorithms have not caught up with the actual measurement calculation process, which still describes VADI as including affiliates.⁶² Furthermore, DCI had difficulty replicating Verizon PA’s results because all of the codes used to identify VADI records were not contained within the FACT Table that were provided.⁶³

Many of the provisioning measures exclude certain records in which the CLEC or customer requests a due date that is longer than Verizon PA’s standard offered interval. Verizon PA uses a variety of methods to determine whether or not the customer has requested a due date that is beyond the one offered by Verizon PA. The method described in Appendix B of the C2C Guidelines uses the ORG_APPT_CODE to determine when this situation occurs. DCI became aware of other methods used by Verizon PA through responses to data requests and exception reports.⁶⁴ For example,

⁶¹ Verizon PA Response to Exception Report D-015

⁶² Verizon PA Response to Exception Report D-006

⁶³ Verizon PA Response to DCI’s Follow-up Questions on Provisioning ERs

⁶⁴ Verizon PA Response to Exception Report A-008

Verizon PA also uses derived fields such as TWO_WIRE_INTV for metrics with a single, fixed, standard interval.

16. The FACT Table Does Not Provide The Level Of Transparency Required By PMO II.

As data are transferred from the data warehouse to the data mart, certain transformations take place to format the data into a FACT Table, which will be used to convert the data to metric results with the use of Verizon PA’s CMA. The documentation necessary to provide the transparency to this part of the metric business process could be represented by detailed descriptions of the data mart. These detailed descriptions would include not only table field descriptions, but also documentation on all exclusions (such as what fields, how derived, either in pseudo code or actual code snippets), any derived fields, etc. Some of this information is currently included in the FACT Table descriptions, although DCI identified areas where this information was not available from the FACT descriptions alone. As presently constituted, in DCI’s opinion the FACT Table, CMA and C2C Guidelines together do not provide the level of transparency required by the PMO II Order. This issue is discussed in detail in Chapter V, Finding No. 2.

17. The FACT Table Are Incorrect Regarding The Descriptions Of Certain Fields.

DCI found the name and description of the ONTIME_SOP_COMPL field in the FACT Table Layoutsto be confusing and misleading. The description states this field, which is used to calculate the OR-4-11 metric, “Indicates if the SOP completion is On time”, when it actually indicates whether both the Provisioning Completion Notification (PCN) and Billing Completion Notification (BCN) were supplied late, since a Y in the field means it was late and a N indicates on time.⁶⁵

In the provisioning domain, DCI found that the field in the FACT Table incorrectly described the RESALE_MIGR_APPINTV_LTE1, RESALE_MIGR_APPINTV_LTE2, and UNE_MIGR_APPINTV_LTE2 fields as indicating whether the application interval is <1, <2, and <2 respectively for these three fields. These should be <=1, <=2, and <= 2, respectively.⁶⁶ This error was still contained within the LSR Provisioning Fact Table Layout provided to DCI along with the June CMA.

The LSR Provisioning FACT Table Layout provided DCI incorrectly describes the LN_x_CNT fields as Asymmetric Digital Subscriber Line (ADSL)-specific when in fact it measures “inward”, “outward”, and “to” activity on all lines.⁶⁷ This discrepancy remains even in the Fact Table Layout provided with the June CMA.

⁶⁵ Verizon PA Response to Exception Report A-001

⁶⁶ Verizon PA Response to Exception Report D-007

⁶⁷ Verizon PA Response to Exception Report D-010

C – RECOMMENDATIONS

1. Develop An English Language Version Document Describing Verizon PA’s Business Rules Which Are Used To Implement The Provisions Of The C2C Guidelines. (Refer to Findings Nos. 1, 4, 8, 9, 11, 13, 14, 16, 17)

Documentation should be developed by Verizon PA that will allow all parties, including the PA PUC, the opportunity to look at the process comprehensively at both a high level and at a granular level. This is necessary in order to conduct a detailed review, with systems, statistical and telecommunications experts, to determine that all data collected accurately conform to the metrics and business rules, and the results of the metrics calculations are accurate and reflect the openness of the Pennsylvania market. Once this is accomplished the parties will be able to place confidence in the results, and conclude that the results are appropriate indicators of Verizon PA’s actual performance.

The Commission should require Verizon PA to develop and document an English language version of business rules used to implement the C2C Guidelines and either support the CMA and FACT Table or include this information also. Such documentation will facilitate a much more efficient process for future Commission and/or CLEC reviews. Another option would be to have a third party replicate Verizon PA’s entire metric reporting system, ensuring compliance with Commission orders and C2C Guidelines, developing the supporting documentation during the process.

All information pertaining to the calculation of performance metrics, or necessary to replicate metric results should be contained within one comprehensive document. Each field that is necessary to calculate the metric and all its possible values must be clearly defined. The documentation must detail the source of all data elements and how all fields are derived. To access multiple websites or methods and procedures documentation that are intended for other purposes is too cumbersome, without a specific reference of the exact location, for a party only interested in verifying Verizon PA’s performance results.

In an attempt to assist Staff and Verizon PA in developing more concise algorithms to support the performance measurement process, DCI has taken the PO-1 metric to illustrate the clarity that is possible by condensing information contained within the CMA into a more useful document. In Exhibit V-4, Chapter V, DCI describes how it condensed PO-1 to the important information necessary for a CLEC or an outside auditor to use in performing its own replications. This results in a four-page document, compared to the original 76 pages in the CMA for that metric. DCI has also taken the OR-1 metric as an example, and created all the documentation that should be associated with the calculation of this metric. This example is provided in Appendix B of this report. DCI has completed this also for the provisioning and maintenance and repair domains, which can be found in Appendices C and D respectively. Condensing the remaining portions of the CMA would result in less than 200 pages for all metrics, providing a document that would not only be more concise, but also easier to maintain.

2. Reduce The Content Of The C2C Guidelines To Contain Only The Rules For Each Metric And Provide Proper Supporting Documentation. (Refer to Findings Nos. 4, 5, 6, 8, 9, and 10)

Given that the C2C Guidelines are the only documentation available that governs how the performance metrics are to be calculated, it should be reviewed for all clerical, grammatical, composition and substantive errors and be revised as necessary in order to provide total clarity. However, the optimal solution would be for the C2C Guidelines to only provide the basic definitions, formulae, sub-metrics, exclusions, reporting dimensions and standards for each metric. Each of these should be clearly stated and not subject to Verizon PA's interpretation. The definition and performance standards for each metric should be clearly stated and the title of sub-metrics should support, rather than contradict the formula. Supporting documentation should be developed to provide explanations of how the C2C Guidelines are implemented, and how key data fields are derived.

The C2C Guidelines would be a much more manageable document for parties only interested in high level information and would only need to be revised in order to add, delete or modify a metric. Verizon PA should update the supporting technical documentation as required to assure accuracy and refer to proper websites, explain simple grammatical errors, document changes from manual to mechanized processes, etc. In addition, the technical documentation should be clear on how all key data elements necessary to calculate metric results are derived from the raw data.

3. Reformat The C2C Guidelines For Consistency And Clarity. (Refer to Findings Nos. 5 and 9)

The C2C Guidelines should be reformatted so that the definition section of the document contains all the necessary information to fully define the scope of the metric and nothing else. The definition section should be followed by the sub-metric section, since it is much more meaningful to define the sub-metric prior to stating each sub-metric's performance standard. The exclusion section of the document should list every exclusion, whether one might consider it a data eligibility criterion, rather than an exclusion.

There should be consistency throughout the C2C Guidelines. For example, global exclusions that apply to all metrics are listed in the Introduction Section of the C2C Guidelines. However some, but not all, metrics also list these exclusions in the individual metric Exclusion Section. A separate listing of exclusions at the beginning of the C2C Guidelines for those that affect each performance metric is useful and efficient; but without consistency, it leads to confusion. For example, if the exclusion is listed in the Introduction Section of the C2C Guidelines as a global exclusion, then it should not be included again in the exclusion section for an individual metric.

Each individual measure should list as the first item under the exclusions section, "All global exclusions as listed in the Introduction Section of this document". This should

eliminate confusion and lead to additional efficiency since exclusions applicable to most, but not all metrics could also be listed in the global category. For instance, if disconnect orders were excluded from all metrics but one, disconnects could be listed as a global exclusion and the first exclusion under that individual metric would then state, “All global exclusions as listed in the Introduction Section of this document, except for disconnect orders”. The PA CWG is currently exploring this issue and DCI supports its further evaluation.

Additional information that is necessary to fully understand the performance standard for each particular sub-metric should be included as a footnote to the statement it supports, instead of being placed within the definition section. Information that is prone to becoming outdated, such as lists of holidays or websites, should not be included in the C2C Guidelines, but would be better placed within the supporting documentation for the metric to which it relates.

4. Eliminate Any Restrictions Placed On A Third-Party’s Use Of The CMA Or Supporting Documentation. (Refer to Finding No. 12)

The Commission should require Verizon PA to remove the restrictions it places on the use of the supporting calculation documentation in order for them to be used by Staff, CLECs or outside auditors to provide the level of transparency required to replicate Verizon PA’s results, in order for them to determine Verizon PA’s compliance with the C2C Guidelines. The CMA does not contain the type of information that would provide CLECs a competitive advantage by providing such unrestricted use. In the alternative, Verizon PA should develop the level of documentation that would satisfy this requirement and which would not contain any Verizon PA proprietary information.

5. Conform Verizon PA Practices To Comply With The C2C Guidelines For The PO-5 and NP-1 Metrics. (Refer to Finding No. 2)

The interpretation Verizon PA places on when the clock starts when measuring the interval of an outage for the PO-5 metric renders the result useless. Verizon PA should use the time it was notified of an outage as the starting time of the interval, and not the time when it has verified that the outage actually exists. Verizon PA argues that use of the notification time as the start time is not fair because instances occur where Verizon PA finds no such outage has actually occurred. The C2C Guidelines should be revised to specifically state the start time as the time when Verizon PA is notified, and should provide an exclusion for those instances in which Verizon PA verifies that no outage condition exists. There should be provisions provided to assure the accuracy of this exclusion.

Verizon PA should conform to the C2C Guidelines by providing the proper notification to CLECs prior to excluding blocked trunks from the NP-2 metric. If Verizon PA fails to provide notification, the exclusion should not apply.

6. Review Metrics Identified In This Report And Revise Them, As Appropriate. (Refer to Findings Nos. 3 and 10)

The inclusion of payphones in the metric calculation biases the comparison between that which CLECs order (Business and Residence) and that which retail customers order (Business, Residence and Payphones) by inflating the retail analog. This could result in a parity conclusion when in fact disparate conditions exist. The CWG should discuss the issue to decide whether to revise the C2C Guidelines to specifically exclude payphones from maintenance and repair metrics retail results.

The PA CWG should also review the retail analogs for provisioning and maintenance of UNE and Resale 2-Wire Digital. According to Verizon PA's explanation, the comparative for provisioning of a UNE 2-Wire Digital should be POTs-Total instead of retail ISDN, since UNE 2-Wire Digital is not ISDN. Unless there is an operational difference explaining the reason why provisioning a UNE 2-Wire Digital Loop would be similar to provisioning a Retail ISDN, but not maintaining one, the PA CWG should consider revising these retail analogs for consistency, and to provide a meaningful comparison.

If Retail ISDN remains the comparative for UNE 2-Wire Digital, then the PA CWG should review the appropriateness of using different methodologies for excluding orders with customer-requested due date intervals longer than the standard, as most of the X-appointment coded orders excluded from Retail ISDN have very short offered intervals (even though the customer requested longer than the standard interval), whereas the longer than 6-day requested interval exclusion used for UNE 2-wire Digital excludes orders with very long offered intervals. The PA CWG should review whether it would be more appropriate to require that a consistent approach be used in both the CLEC calculation and whatever is used as its retail comparative.

Similarly, the PA CWG should review the appropriateness of not excluding change-order disconnects with offered intervals greater than two business days from PR-1-12 retail comparatives, when such orders are excluded from the PR-1-12 CLEC Resale and UNE calculations. Here, too, the PA CWG should review whether or not it would be more appropriate to require that a consistent approach be used in both the CLEC calculation and in its retail comparative.

The PA CWG should also review the appropriateness of including non-POTS orders in the PR-4 and PR-5 retail comparative for UNE 2-Wire Digital Services, when such orders are excluded from the CLEC results. Here, too, the PA CWG should review whether it would be more appropriate to require that a consistent approach be used in both the CLEC calculation and whatever is used as its retail comparative.

Using run-clock time intervals for dispatched-out troubles in the MR-4 UNE Loop, UNE 2-wire Digital Loop, and UNE 2-wire xDSL products (Loop, Linesharing and Linesplitting) retail comparatives (Retail POTS – Total), when stop clock intervals are used for these products in the CLEC results, biases the comparison by inflating the retail

analog. This could result in a parity conclusion when in fact disparate conditions exist. The CWG should discuss the issue to decide whether or not to revise the C2C Guidelines to specifically require use of the stop-clock trouble durations for dispatched out Retail POTS troubles, when they are used as retail comparatives for MR-4 UNE Loop products.

When calculating results for the PR-6 metric, Verizon PA should either count all lines installed in a multi-line installation in the denominator and all lines which were affected by any troubles received for any such lines in the numerator, or count a multi-line installation only once in the denominator. If one or more troubles occur on any of the lines within the thirty days of installation, they would collectively contribute one to the numerator, signifying that the installation was not trouble-free. The PA CWG should decide which method was intended when this metric was developed, and Verizon PA should conform its practice to provide metric results in compliance. The C2C Guidelines should be revised to make clear whether the metric is involved with lines or installations.

7. Ensure Consistency Among C2C Guidelines, Performance Standards And Reports, And PA PAP Reports. (Refer to Findings Nos. 6, 7 and 8)

Discrepancies among the C2C Guidelines, Performance Standards and Reports and the PA PAP regardless of the reason or however minor, need to be corrected. If a metric is disaggregated for PA PAP reporting purposes, then C2C Guidelines should also reflect that level of disaggregation. In addition, when updates are made to one, there should be follow-through to insure that the updates are made to all other documentation.

8. Establish Consistency In The FACT Table Procedures For Defining How The Same Data Element Used For Multiple Metrics Or Different Domains Is Derived. (Refer to Finding No. 15)

In order to ensure consistency and eliminate the possibility of future errors in its documentation, Verizon PA should use the same method to derive the fields identified in Finding No. 15 of this Chapter, that are used in the calculation of different metrics within the same or other domains.

IV – MEASUREMENT CALCULATIONS

IV – MEASUREMENT CALCULATIONS

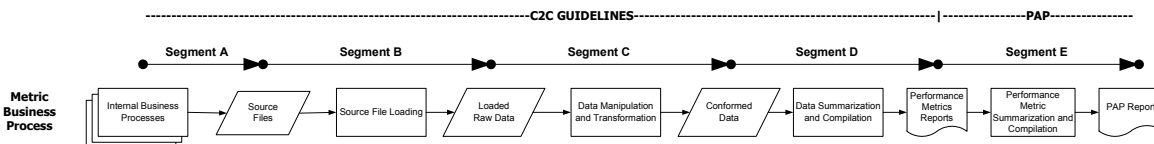
This chapter describes the DCI analysis activities performed in reviewing and replicating the performance metric calculations of Verizon PA for the months of April, May, and June of 2003. To facilitate the description of the Network Metric Platform System (NMP), DCI has divided the process into five segments, A through E, and describes each of these segments in the Background Section that follows this brief introduction. The Findings and Recommendations in this chapter cover the front end of the Verizon PA NMP processing system; specifically Segment A and Segment B of the process. Chapter V describes the results of the metric replication provided by NMP in Segments C and D of the NMP processing systems. Finally the penalty payment calculation process, which is Segment E, is described in Chapter VIII.

A - BACKGROUND

As part of this engagement, DCI replicated the principal aspects of the performance metric calculations that are performed in the development of performance metric and Pennsylvania Performance Assurance Plan (PA PAP) results. There are at least two different ways to approach the replication of performance metric calculations and development of PA PAP results. One would be to take the samples of the “raw” source data and recreate a system to process the “raw” data to the performance reports and PA PAP results. The other would be to evaluate the various individual steps in the process (as shown in Table IV-1) with samples of data, to evaluate the validity of the overall process. The first approach would be prohibitively time consuming and expensive, requiring DCI to essentially replicate Verizon PA systems. Instead, DCI performed an in-depth review and evaluation of the Verizon PA business systems and metric performance systems, combined with a random selection of various “raw” and conformed data, from which to perform our own calculations for comparison to Verizon PA report results. By breaking the overall process into its individual components, DCI was able to verify whether or not the systems captured and reported data correctly.

The DCI approach to performing this replication is described in Table IV-1, below.

Table IV-1
DCI Replication Methodology



The metric business process illustrated in Table IV-1 depicts a generic business process flow that was used for performing our analysis. The line across the top of the business

process flow contains arrows pointing to the right, which identify the individual process steps – that is, the Segment A portion of the process occurs, followed by the Segment B process portion, etc. These arrows flow from one node (the round dots between the arrows) to the next node. The result of each process step is an intermediate collection of data (contained at the node) that can be identified and analyzed. Thus, as shown, each arrow contains a process and each node contains accessible data (in some form). Segments A, B, C, and D of the overall metric business process are designed based on the C2C Guidelines, whereas Segment E is designed based on requirements of the PA PAP.

Starting at the left side of the business flow (Segment A), a variety of internal business systems within Verizon PA create individual data files containing “raw” data. These data files are called source files, as shown in the labeled trapezoid in Table IV-1. Source files are in a “raw” state; that is, they are not in a format that can be easily analyzed and summarized, necessitating that they be loaded into some type of robust system for further analysis and reporting. Due to the volumes of source files and data involved, the robust system is usually a data warehouse application.

In loading raw data into a data warehouse there are issues associated with data formatting and consistency that must be considered. It is important that this loading process be carefully designed and controlled so as not to suffer from the “Garbage In, Garbage Out” issue. This process, which occurs in Segment B, results in a collection of data (again at the node) that can be reviewed and analyzed.

Once the raw data are loaded into the data warehouse, they are ready to be processed. This processing includes transforming the “raw” data fields into a set of data that conforms to various data typing and formatting conventions used within the data warehouse. Furthermore, business rules are applied and calculations performed during this segment, to facilitate the downstream business segment processes. Examples of these business rules and calculations could include various exclusions, time durations calculations, and other key parameters. These “derived” fields are added to the information already being maintained in the data warehouse, to facilitate further downstream activities. This processing, which occurs in Segment C, results in a collection of “conformed” data (again at the node) that can be reviewed and analyzed.

In Segment D, these “conformed” data are further processed using the performance algorithms, to result in a set of performance metric reports – a form of data that is readable and understandable by non-computer personnel – i.e., management personnel.

In Segment E, these performance metrics results are processed using the PA PAP methodology and rules, to create the final collection of data – the PA PAP report.

REPLICATION METHODOLOGY

Based on the above understanding of the metric business process, DCI developed a methodology for reviewing it by focusing on the data movement through each segment or, perhaps more descriptively, by performing a node-to-node analysis of the data flow

within each domain. The volumes of data involved make it difficult to replicate the flow of individual pieces of “raw” data from the beginning to the very end. However, the individual processing that occurs within each segment can be reviewed and assessed to provide an overall evaluation of the “validity” or “correctness” of the data flowing to the next node. In essence, in examining each segment there is an implicit assumption that the data at the beginning of the segment are correct, and that we now only need to assess the correctness of the processes that occur in the current segment.

An important key to performing this type of analysis is the ability to identify and assess exactly what is occurring within each segment. This necessitates good documentation and/or the ability to simulate results using “test decks.” At Verizon PA, the mechanisms and methodologies by which Verizon PA develops their metrics (using the NMP) is very complex and involved. This complexity makes good documentation of the processes a requirement to understanding the steps through which the performance metrics are derived. A discussion and recommendation regarding Verizon PA documentation is included in Chapter V.

Test decks are a method to validate the operation of a computer system/application by loading information into the beginning of a segment, for which it is already known what the expected result should be at the exit node of the segment. Successful execution of an appropriately designed “test deck” is a technique that was not available to DCI, since Verizon PA does not maintain a test environment that can be used for this purpose. A discussion and recommendation regarding this issue are included later in this chapter.

As described, DCI’s approach to analyzing Verizon PA performance metric calculations was based on using the segment-by-segment, node-by-node approach discussed above.

CONTEXT OF REPLICATION METHODOLOGY

The Pennsylvania Public Utility Commission (PA PUC) recognized the need for the process that was being used by Verizon PA to be “well documented and transparent” as identified in *Final Opinion and Order on Performance Measures and Remedies for Wholesale Performance for Verizon Pennsylvania Inc. (PMO II; Docket No. M-0001468, dated December 10, 2002.)*. There is a discussion of issues in the Tentative Order on Pages 77 and 78 (the provisions of which were adopted in *PMO II*) as follows:

“We recognized in the *Tentative Order* that reports submitted by Verizon PA play a vital role in monitoring the competitive marketplace. As a consequence we determined that it is imperative that this Commission have the information necessary to provide us with the opportunity to sufficiently determine what is occurring in the Pennsylvania marketplace. We, therefore, proposed the following system of reporting and requested the Parties to comment upon the provisions of this reporting proposal, as well as on the relative benefits and costs.

- Verizon PA would file such reports, additional information, and supporting documentation as necessary to facilitate a comprehensive review of the data. The reports would include the continuation of the three-month miss reports, affiliated aggregate reports, and CLEC-specific remedy reports, and the continuation of the filing of electronic versions of all the requested reports with product codes.
- Each CLEC should receive its own CLEC-specific data (e.g., flat files), algorithms, and metric and remedies reports, as well as aggregate metrics and remedies reports. Verizon PA may honor a CLEC’s request for less than the full information packet.
- The Commission would receive CLEC-specific data, algorithms, and metric and remedies reports (subject to proprietary designation) as well as aggregate data, algorithms, and metric and remedies reports.
- Verizon PA would provide, at a minimum, the same kind of “back-up” files it provides in New York, upon request of a CLEC or this Commission.
- “Algorithms” includes all of the information that would allow the receiving party to use the raw data/flat files to replicate and proof Verizon PA’s treatment of such information, whether by use of formula, business rule, or otherwise, and then to generate the final reports.
- Verizon PA would be further directed to work with appropriate Commission staff to provide the reporting in a format usable to the Commission.
- Verizon PA would develop, with Staff, a format to provide an overview of aggregate results on a rolling-month basis (e.g., similar to the Attachment 403 filed in the 271 Proceeding) based upon the metrics and remedies adopted herein within ninety days.”

DCI has added underlining to the appropriate passages of PMO II quoted above, where Verizon PA’s requirement to provide this documentation, (CLEC¹-specific data, algorithms, and metric and remedies reports as well as aggregate data, algorithms, and metric and remedies reports) is established. On Page 80, the order states:

“...As for the components to be available, we shall affirm the listing we established in the Tentative Order. We believe it is essential that this process be transparent.”²⁸ All parties and this Commission must be able to understand the process by which the various systems work. There are at

¹ Competitive Local Exchange Carrier

least three levels to this question. The first is whether the data collected accurately conform to the metrics and business rules. The second is whether the results of the various metrics and remedies calculations are accurate. Finally, the third is what do the metrics and remedies results mean in terms of performance rendered, parity of service, and openness of market, which aspects are ultimately the endgame questions...

²⁸/ It is our understanding that staff from the NY PSC has or had access to the Verizon computer systems in New York. Regardless of the accuracy of this understanding, we believe that access to the formulae that Verizon PA uses is essential to the review function we have had in place since PMO I and which we reaffirmed herein.” (Emphasis Added)

DCI has added underlining to the appropriate passages of PMO II quoted above where the transparency requirement is specified. Page 81 of PMO II states:

“...The algorithms are the formulae used to process the collected raw data into final metrics and remedies reports. In our opinion, they are part and parcel of the ‘work’ that must be visible and open for inspection by this Commission and others who rely on the integrity of the reports. In our opinion, it would be less burdensome and faster for all parties for Verizon PA to provide the algorithms for review than for each entity to develop its own algorithms and then argue which set of algorithms is better...”

On page 96 of PMO II, the PA PUC goes on to order:

“...14. That Verizon Pennsylvania Inc. shall continue to provide the current CLEC-aggregate metrics and the current remedies reports to the Commission until all new metrics and new remedies adopted herein have been reported for a three-month cycle. Further, Verizon Pennsylvania Inc. shall retain the data and systems to generate the current CLEC-specific reports for this three-month period until the conclusion of the audit/outside review of the first three months of full operations under the new Pennsylvania Guidelines and the new Pennsylvania Performance Plan.

15. That Verizon Pennsylvania Inc. shall report the metrics consistently with its reporting requirements for the New York Guidelines, using the same processes in Pennsylvania as it does in New York, subject to the modifications adopted in this Opinion and Order. Further, Verizon Pennsylvania Inc. shall report the remedies consistently with its reporting requirements for the New York Performance Assurance Plan and/or the Consensus Performance Assurance Plan, using the same processes in Pennsylvania as it does in New York or Virginia, respectively, subject to the modifications adopted in this Opinion and Order. Further, Verizon

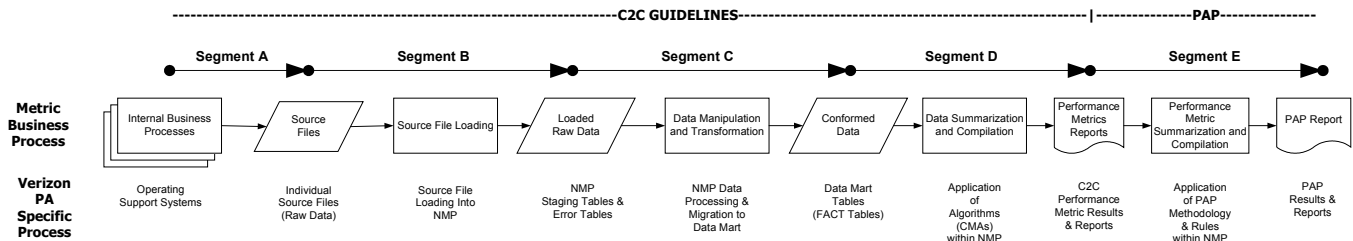
Pennsylvania Inc. shall provide to each CLEC its specific reports in a useable format with the underlying data used to calculate Verizon Pennsylvania Inc.’s performance and remedies for that CLEC at the same time as Verizon Pennsylvania Inc. submits its monthly reports. Verizon Pennsylvania Inc. shall supply CLECs with specific data and reports for metrics and remedies. Verizon Pennsylvania Inc. shall file with the Commission CLEC-specific data and reports for metrics and remedies in addition to aggregate data and reports for metrics and remedies. Such data and reports must also be filed with the Commission’s Bureau of Fixed Utility Services and Office of Special Assistants. CLECs may also request aggregate reports. Upon a request by this Commission and/or its consultants or upon a showing by the CLECs that they will be able to use the algorithms in analyzing the data and/or reports, Verizon Pennsylvania Inc. shall provide the algorithms necessary to process the data into the metrics and remedies reports....”

On the assumption that, at a minimum, the above information would be available, DCI analyzed Verizon PA performance metric calculations using the segment-by-segment, node-by-node approach discussed above. Issues regarding the availability of this information and the completeness thereof are discussed in Chapter V.

VERIZON PA SPECIFIC PROCESSES AND DOCUMENTATION

The listing of business processes, documentation, and data within the performance metric systems at Verizon PA is shown in Table IV-2. These business processes, documentation and data are mapped to the generic metric business process model that was previously discussed; they are shown below in the generic model. Our analysis of Verizon PA performance metrics and related remedies was based on this model and is briefly discussed below.

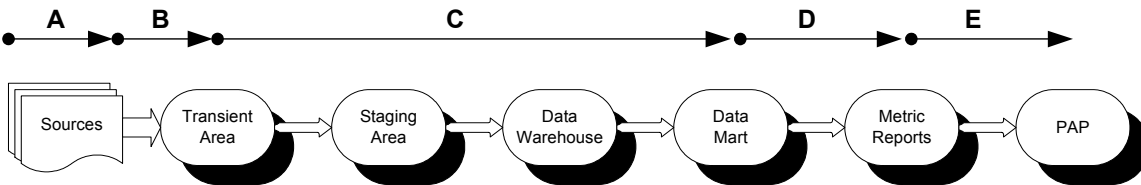
Table IV-2
Verizon PA Metric Business Process Information and Data



To thoroughly understand Verizon PA’s data acquisition process, the DCI project team performed two primary activities. In some cases, we replicated the processes using DCI’s own code; more specifically, in reviewing error tables created during the loading processes, and in other cases, we thoroughly reviewed the existing code to understand and validate the transformations that were taking place.

Verizon PA terminology for describing NMP processing, as shown in Table IV-3, provides a high-level image of the data flow sequence from the source system inputs to the data mart, the final database from which the metric reports are generated.

Table IV-3
Verizon Metric Process Overview



The various elements of the process are briefly described below.

Transient Area – In the transient area, the source files are essentially loaded into database tables – i.e., the flat files are converted to database tables. Transient tables are also called the load tables, into which the source inputs are loaded. There are two sets of tables: the base load tables and the error tables. Valid records go into the valid (base) load tables, and records with missing data or erroneous data go into the error tables. We reviewed these processes with the individuals responsible for creating or testing the code that is used in populating these tables and, in particular, sampled selected error tables (that were created in the months under investigation) for review purposes.

Staging Area – Valid records in the transient tables are loaded into the staging area, which is a database model similar to that of the warehouse. Essentially, the staging area is a pre-image copy of the data warehouse. The staging area is the normalized model, which is loaded through complex transformations and validations from the valid target tables (the transient area). DCI reviewed these processes with the individuals responsible for creating or testing the code that is used in populating the data warehouse in terms of the transformations that occur. These transformations may include those that append the daily, weekly, and monthly data to the complete data tables (data for the month or since the beginning of the database), or those in which duplicate Purchase Order Number (PON) numbers are trapped and handled, etc.

Data Warehouse Area – The data warehouse structure is the same as that of the staging area and is populated from the staging area on a one-to-one basis. Business transformation rules are applied as the information enters the data warehouse and/or data mart area. This is the area where certain interval calculations are made, certain data evaluations are made, and exclusions/non-exclusions are set. The focus here was to understand the associated business rules.

Data Mart Area – The data mart is loaded from the data warehouse. The data mart is the actual database from which the NMP numbers are calculated using Structured Query Language (SQL) statements that run on the various tables. Few lookups or joins of the data are required at that time because, in general, all of the information required has been

populated into each individual table from which a metric calculation is created.² (Some exceptions to this rule were found, however, most notably in the Pre-Ordering domain.) Most of the calculations are of the form “SELECT Count FROM Table WHERE ...”

Verizon PA Technologies – Several software packages and technologies are used in the process of moving data into the data mart and extracting information from it. The software tool used for extraction, translation and loading (ETL) of data from one area to another is Informatica, which is used for the design and execution of data movement processes. Three main steps are involved in Verizon PA’s ETL design, as follows:³

- Creation of a repository
- Design and mapping (assignment of data fields) of data
- Creation and execution of a session

The Informatica suite of tools consists of the following⁴:

- Repository manager, which keeps information about data sources and destinations, connection strings, administrative information such as passwords and permissions, and other information that the rest of the suite accesses.
- Designer, which maps (assignment of database fields) source to destination fields and allows the users to specify how data are transformed.
- Server manager, which allows users to create, schedule, and execute ETL sessions.

The designer is the most relevant tool for the purposes of data analysis and translation, because that is where the actual changes that the data undergo are specified.⁵ Verizon PA specifies these changes in two ways:

- Through scripts created directly in Informatica
- Through stored procedures in the Oracle database that the Informatica scripts call upon to perform tasks, referred to in some cases as spool procedures

In general, Informatica scripts are used for simpler tasks such as formatting (for example, stripping extra white space from the beginning and end of a text string), and Oracle stored procedures are used for more complex, data-analysis tasks such as determining the value of an exclusion flag. However, this is not a hard and fast rule; some of the more analytical functions are performed directly within Informatica scripts.⁶

² July 24, 2003, NMP Source to Data Mart Review

³ NMP ETL Overview Document provided at July 24, 2003, NMP Source to Data Mart Review

⁴ July 24, 2003, NMP Source to Data Mart Review

⁵ July 24, 2003, NMP Source to Data Mart Review

⁶ July 24, 2003, NMP Source to Data Mart Review

The Verizon PA employees stated that there is no automated tool for use in exporting all the code in the scripts used to transform data and that it was therefore impossible for them to comply with earlier data requests for start-to-finish code used to move data into the data mart. Instead, the scripts must be viewed within the Informatica tool itself.⁷

MicroStrategy, a web-based software tool, is the Online Analytical Processing (OLAP) tool used for reporting. It gets data from the data mart for report purposes and also is the tool used to generate the documentation of the SQL statements involved in creating the metrics reports.⁸ The information generated by MicroStrategy is populated into ASC II (Computer Software) files. Excel spreadsheets have been created that read the ASC II files to create the reports that are submitted as required.

Segment A Processes

Segment A Processes involve a variety of Verizon PA's Operational Support System (OSS) applications, which create individual source files in varying data formats (pipe delimited, fixed delimited, etc.) that generate information (transactions) from which performance metric information can be developed. These source files are created on a daily, weekly, or monthly basis depending on the specific OSS application. The accuracy with which these systems create transaction data is an area that was investigated in-depth prior to Verizon PA being permitted to enter the long distance market, as a part of its Section 271 application. Therefore, detailed investigation of the processes used to generate these sources files was unnecessary as a part of DCI's review of performance metrics and related remedies, in that such a review would have only duplicated previous activities already performed and approved in prior proceedings. However, there were two areas of investigation that were required with respect to *Segment A*, specifically:

- **Manual processes** – Not all of the information used in reporting of performance metrics and related remedies is derived from computerized OSS applications. Certain performance metrics, such as PO-5, PO-6, PO-7 and others, are based on manual processes where the “raw” data are manually entered into the NMP system for reporting. These areas were investigated where they existed and are reported on in the appendices of this report.
- **Coding issues** – Some of the information that is contained in the source files is derived from manual coding of information in the OSS by a Verizon PA employee. Specifically, such items as disposition coding of trouble reports, etc. can only be accurately done by the technician in the field when the dispatch occurs. Issues regarding the quality controls on these business processes and the training of personnel to accurately complete this information was an area of investigation for DCI. This information is discussed in Chapter VI – Verizon PA Processes to Ensure Accuracy of Performance Measures of this report.

⁷ July 24, 2003, NMP Source to Data Mart Review

⁸ July 24, 2003, NMP Source to Data Mart Review

The documentation required to provide the necessary transparency to this part of the metric business process should include descriptions of all manual processes, quality assurance procedures, and training procedures, as well as the source file descriptions, source file definitions, etc.

The DCI project team reviewed and audited the creation of OSS source files (transaction logs) through interviews with individuals who were knowledgeable of these systems and processes. DCI also interviewed Verizon PA software development personnel and observed these processes using actual production data in some cases. DCI also reviewed the source file management procedures.

Segment B Processes

Segment B involves the loading of these source files into what is referred to as the staging area of the NMP – i.e., Verizon PA’s data warehouse application. DCI investigated this segment of the process. DCI reviewed the contents of the staging and error tables that are created during this segment. DCI also reviewed the source file controls and discussed the disposition of records that enter error tables. DCI monitored the loading of several source files into the NMP. A discussion of findings and conclusions regarding this segment is contained in this chapter and in Chapter X – Change Management Process and Data Storage Review.

The documentation required to provide the necessary transparency to this part of the metric business process should include the source file control loading procedures, the staging table descriptions and data, the error table descriptions and data, and historical results on this loading process – i.e., number of records moved into staging tables and error tables during this segment.

Segment C Processes

Segment C involves migrating and transforming the information from the staging tables into the final data sets (the data mart in Verizon PA terminology) from which performance metric calculations can be calculated. This migration includes some transformations in the staging table data that are important from a technical (computer) standpoint – such as trimming excess blank spaces in certain fields or changing all date fields to a common format, i.e., month/day/year instead of day/month/year etc. – to make the analysis possible. However, these transformations are not as important regarding any impact on reported performance metric results as are the calculations and additional information (table fields) that are added to the data mart information based on the application of certain business rules, exclusions, date and time calculations, etc. that occur during this process. The application of these business rules and processes does have a direct impact on the reported metric performance results.

The documentation required to provide the necessary transparency to this part of the metric business process would be detailed descriptions of the data mart. These detailed descriptions would include not only table field descriptions, but also documentation on all exclusions (such as what fields, how derived, either in pseudo code or actual code snippets), any derived fields, etc. Some of this information is currently included in the

FACT Table descriptions although DCI identified areas where this information was not available from the FACT descriptions alone.

A discussion of DCI findings and conclusions regarding this segment is contained in Chapter V – Metric Replication Results and in the appendices.

Segment D Processes

Segment D involves the application of the metric algorithms to the data mart information. The metric derivations contained in the C2C Guidelines are translated into appropriate (depends on the underlying data warehouse) SQL programming code that is executed against the data mart information to produce the performance metric results. The various fields in the data mart are selected, sorted, summed, averaged, divided, etc. based on the specific performance metric being calculated. It is therefore important to have an understanding of what each field in the data mart represents so that the fields can be appropriately incorporated into the SQL statements to calculate the final results.

The documentation required to provide the necessary transparency to this part of the metric business process should include the FACT Table descriptions and the metric algorithms, specifically identified in the PMO II order. Verizon PA has represented to DCI that the Carrier Metric Algorithms (CMA) are their presentation of the metric algorithms. DCI used both the FACT Table descriptions and the CMA as guides for performing our replication of this segment. DCI wrote its own code to compute performance metric results and compared these results to those having been reported by Verizon PA.

A discussion of findings and conclusions regarding this segment is contained in Chapter V – Metric Replication Results and in the appendices.

Segment E Processes

Segment E takes the actual reported performance results for Verizon PA and individual CLECs and applies the PA PAP methodology and rules to compute the PA PAP results and remedies. The end result of this process is the PA PAP report.

The documentation required to provide the necessary transparency to this part of the metric business process should include the PA PAP documentation, the PA Excel spreadsheet model, and other supporting documentation on however the requirements of the PA PAP have been implemented in NMP. DCI attempted to apply the Excel spreadsheet model using the performance metrics results for the month of June 2003 and compared those results to those that were reported by Verizon PA.

A discussion of findings and conclusions regarding this segment is contained in Chapter VIII – Calculation of the Performance Assurance Plan Penalty Payments.

B - FINDINGS

1. Verizon PA Does Not Maintain A Test Environment Nor Use Test Decks For Testing The NMP.

A normal systems development practice for a system of the size and complexity of the NMP would be that Verizon PA would, in addition to its production environment, also be maintaining a development and testing environment for NMP. That is not the case, in particular with respect to a testing environment. Test decks are a method to validate the operation of a computer system/application by loading information into the beginning of a segment, for which it is already known what the expected result should be at the exit node of the segment. Successful execution of an appropriately designed test deck is a technique that was not available to DCI, since Verizon PA does not maintain a test environment that can be used for this purpose.

Although Verizon PA maintains testing environments for other software applications where test decks can be used – in particular for the Pre-Ordering and Maintenance & Repair Web/Graphical User Interface (GUI) – Verizon PA does not maintain one for the NMP. Verizon PA personnel indicated that they have to separately build a test environment for any testing that is required. The lack of a test environment makes the review of Verizon PA performance extremely difficult, time consuming and subject to inaccuracy for third party reviewers.

The NMP is a large complex system that has been designed to calculate performance metrics for more than just Verizon PA. It is envisioned that it will be used in all of the Verizon states. It has been designed to support an ongoing, changing process – i.e., through interactions with the Carrier Working Group (CWG), changes in the calculations of performance metrics, changes in what specific performance metrics will be incorporated into the calculation of the remedies within the PA PAP, etc. Thus, the actual programming and algorithms within the NMP will be subject to changes based on decisions made within the CWG.

A significant amount of money is “at risk” based on the performance metrics that are calculated within this system. Payments to CLECs for poor performance are determined within the data calculations and algorithms contained within the NMP. All of these factors necessitate a more structured approach (test environment) to managing and maintaining the NMP.

2. Handling Of Error Table Results Is Either Not Reported Or Not Well Documented.

The various OSS used by Verizon PA provide transaction log files that contain the original information that is migrated into the NMP database. These source inputs are transmitted via File Transfer Protocol (FTP) to a location from which these files are loaded into the NMP through the data flow sequence shown previously in Table IV-3. These source inputs are managed by a source file management process that receives,

validates, archives, and processes each input file. The source feeds are processed using Informatica scripting and loaded into the transient/load tables. The data is formatted and validated during the load process. The records that do not make it through the validation processes are posted to error tables.

According to Verizon PA personnel, records that enter error tables are fed back to the business owners so that they can make the appropriate changes to their OSS to eliminate the errors on a going forward basis. However, error records are not necessarily corrected and “re-entered” into the NMP feeds. Consequently, if there are a “significant” number of errors, it is possible that a “significant” amount of data could be lost in the data loading process. DCI attempted to address this concern, as discussed below, but was unable to develop an assessment, based on information provided by Verizon. Thus, DCI was unable to evaluate whether the number of errors that were recorded in the April thru June timeframe was within an acceptable range, i.e. the error was not “material” to the calculation of the performance metrics during that timeframe.⁹

DCI reviewed the contents of various error tables for several of the domains, specifically the Pre-Ordering, Maintenance and Repair, and Ordering domains. DCI obtained the error tables for each of these domains and filtered the tables to identify errors generated during the April through June timeframe.

PRE-ORDERING DOMAIN

Verizon PA provided the Pre-Ordering Error tables that included the following spreadsheets:

TB_DLY_PO_IN_ERROR.xls
TB_DLY_PO_OUT_ERROR.xls
TB_DLY_PREORDER_ENVIEW_ERROR.xls
TB_PO8_DLY_INBOUND_ERR.xls
TB_PO8_DLY_OUTBOUND_ERR.xls
TB_PO8_DLY_REQ_NET_INBOUND_ERR.xls

Each spreadsheet corresponds to a single transient error table with the same name. For example, the transient error table for TB_DLY_PO_IN_ERROR.xls is TB_DLY_PO_IN_ERROR. The number of records submitted by Verizon PA in each transient error table is listed as follows:

⁹ As stated above, original records that drop into the error tables are fed back to users to enable them to take corrective action. However, DCI was advised by Verizon PA that individual records that drop into the error table are not processed in the NMP.

Table IV-4
Pre-Ordering Domain Error Table Analysis

Transient Error Table	Records in April – June 2003 PA Period	Note
TB_DLY_PO_IN_ERROR	0	573 records from other periods
TB_DLY_PO_OUT_ERROR	0	2,743 records from other periods
TB_DLY_PREORDER_ENVIEW_ERROR	0	
TB_PO8_DLY_INBOUND_ERR	0	130 records from other periods
TB_PO8_DLY_OUTBOUND_ERR	0	
TB_PO8_DLY_REQ_NET_INBOUND_ERR	0	

Although error records were provided by Verizon PA for the transient tables, no records were submitted for the request time period, April to June 2003, for Pennsylvania, although there were errors reported both before and after the April to June 2003 timeframe. Verizon PA was unable to provide an explanation of why, for our particular period of review, there were no errors contained within the error files, when there were errors both before and after our time period. Extensive further investigation would be required to ensure that the data validation processes were working correctly.

MAINTENANCE AND REPAIR DOMAIN

Verizon PA provided Error Tables for the Maintenance and Repair domain that included various spreadsheets that corresponded to a single transient error table with the same name. For example, the transient error table address for TB_MNR_TR_CAD_PLOG_MTH_ERR.xls is TB_MNR_TR_CAD_PLOG_MTH_ERR. The number of records submitted by Verizon PA in each transient error table is listed as follows:

Table IV-5
Maintenance and Repair Error Table Analysis

Transient Error Table	Records in April – June 2003 PA period	Note
TB_MNR_TR_CAD_PLOG_MTH_ERR	0	13,956 records from other periods
TB_MNR_TR_CFRMT_BAS_MTH_ERR	0	6 records from other periods
TB_MNR_TR_EBOND_GLOG_MTH_ERR	0	
TB_MNR_TR_LMOS_ATOZ_DLY_ERR	0	
TB_MNR_TR_LMOS_LNCNT_MTH_ERR	0	
TB_MNR_TR_LMOS_TRBHIST_DLY_ERR	0	216 records from other periods
TB_MNR_TR_NSDB_EXT1_DLY_ERR	0	
TB_MNR_TR_NSDB_EXT2_DLY_ERR	0	
TB_MNR_TR_NSDB_EXT3_DLY_ERR	0	
TB_MNR_TR_NSDB_EXT4_DLY_ERR	0	
TB_MNR_TR_NSDB_UNE_SO_MTH_ERR	159	7,303 records from other periods
TB_MNR_TR_NSDB_XDSL_MTH_ERR	0	6 records from other periods
TB_MNR_TR_RETAS_TRB_DLY_ERR	0	65,515 records from other periods
TB_MNR_TR_WFAC_SPL_SO_MTH_ERR	0	6,597 records from other periods
TB_MNR_TR_WFAC_TRUNKLN_MTH_ERR	0	15 records from other periods

Although error records were provided by Verizon PA for the transient tables, the majority of the records provided fall outside of the request time period, April – June 2003, for Pennsylvania. Only one error table had records in this timeframe. Verizon PA was unable to provide an explanation of why, for the particular period of review, there were no errors contained within the error files, when there were errors both before and after DCI's time period. Extensive further investigation would be required to ensure that the data validation processes were working correctly.

ORDERING DOMAIN

DCI took a slightly different approach to reviewing the Ordering domain. DCI took the Ordering domain documentation and reviewed the actual source files (versus error tables) to see if conditions specified in the documentation were being followed.¹⁰

¹⁰ Pages 17-28 of Document 11 of the PA Ordering Overview are details of the rules to be applied to the source files data.

The purpose of this analysis was to replicate the creation of the source file error tables provided by Verizon PA. At this stage of the process the source files are checked for errors. The following source files were analyzed for this purpose:

- Submission - south_order_sub_0325_05312003 – TB_DLY_OR_SUBMISSION_ERR
- Confirmation - south_order_conf_0325_05312003 – TB_DLY_OR_CONFIRM_ERROR
- Rejection - south_order_rej_0325_05312003 – TB_DLY_OR_REJECTION_ERROR
- SOP Completion – south_order_sop_comp_0325_05312003 – TB_DLY_SOP_COMPLETION_ERROR
- CRIS Completion – south_order_cris_comp_0325_05312003 – TB_DLY_CRIS_COMPLETION_ERROR
- SOP Notification - south_order_noti_0325_05312003 – TB_DLY_SOP_NOTIFICATION_ERROR
- CRIS Notification - south_order_cris_noti_0325_05312003 – TB_DLY_CRIS_NOTIFICATION_ERROR
- EDI records - pontronics0325_05312003 – No error table available

Each of the error tables above has two records. When DCI applied the rules specified in Verizon PA documentation, DCI calculated very different results. In discussions with Verizon PA personnel, it became apparent that the documentation was unclear as to the actual business rules that were being applied during the loading process. Furthermore, following an onsite review of the Ordering domain loading process, DCI determined that the error tables will always have at least two errors, because they are being truncated with each loading, and the only errors that are generated come from the header and trailer rows in the sources files.

In interviews, DCI was provided various answers to retention time on error files and reporting or tracking of loading results. However, in practice, DCI found that some of the error tables are truncated (cleared out) prior to loading the next day's, week's, and month's data. If error tables are being truncated with each loading, DCI has no way of knowing if there are records that are not flowing into the NMP. In short, documentation and reporting on the data acquisition process, for Segment B in particular, are either inadequate or missing.

C - RECOMMENDATIONS

1. Create A Test Environment For The NMP. (Refer to Finding 1)

Verizon PA should create a test environment that can be used to run test decks for verification of change control accuracy and facilitate the overall audit of the NMP systems. This would be an identical environment to the production environment but on a smaller scale, in that it would not be necessary to maintain the volumes of data that are currently in the NMP. However, all the software code and Business Transformation Rules (BTR) tables should be maintained as identical to the production environment, so that changes to NMP programming could be tested prior to being rolled out to the production environment. Such an environment would also be useful to outside parties, who may want to run test decks for purposes of validating the NMP.

2. Incorporate Documentation On The Handling And Reporting Of All Error Table Results Within The NMP. (Refer to Finding 2)

Verizon PA has extensive source file control procedures that are discussed in Chapter IX Change Management Process and Data Storage Review. However, these procedures should be augmented to incorporate information regarding the number of records that are going to the error tables versus the load tables. During our review of the loading process, DCI observed error tables being populated; however, the level of monitoring and feedback to the business process owners (individuals within Verizon who are responsible for the particular business process that generates the performance metrics being reported) that is actually taking place is unclear. There should be documentation specifying certain thresholds regarding acceptable errors allowed (or expected) and specific actions specified if the threshold is exceeded such as specific management actions required, etc. Documentation (reporting) regarding errors should be recorded on a daily, weekly and monthly basis.

It is our understanding that records that enter error tables are never reentered into the NMP; i.e. the information is lost. However, the significance of this problem is difficult to determine, in that Verizon PA does not maintain records on the number of records going to error tables. Each domain appears to operate differently, with some domains truncating the error tables prior to loading and others maintaining the error tables for a period of time.

According to the source files procedures discussed in Chapter X – Change Management Process and Data Storage Review, Verizon PA creates a record on the source files and a status log file is generated. The log file contains the data, the domain ID, the source file name, and the total number of records found. Verizon PA should also record the total number of records successfully loaded into the load table and the number loaded into the error tables, in order to provide a complete picture of Segment B results. This information could be trended to show the number of errors decreasing as the appropriate changes are made to OSS systems.

V – MEASUREMENT CALCULATION RESULTS

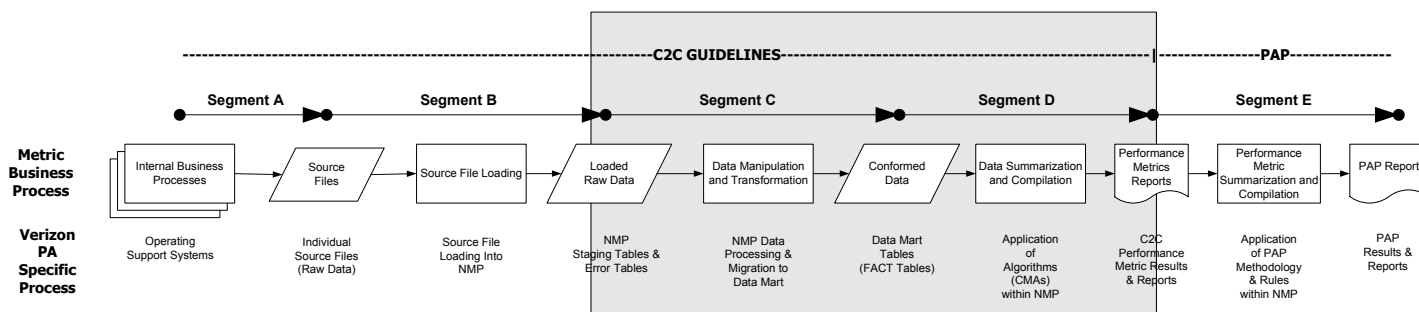
V – MEASUREMENT CALCULATION RESULTS

This chapter continues the description of DCI analysis activities conducted in reviewing and replicating the performance metric calculations of Verizon PA, for the months of April, May, and June of 2003. This chapter addresses Segment C and Segment D of the Verizon PA Metric Business Process. Segments A and B are addressed in Chapter IV Measurement Calculations and in Chapter VI Verizon PA Processes to Ensure the Accuracy of Performance Measures. Segment E is addressed in Chapter VII Review of Performance Assurance Plan Supporting Documentation and Chapter VIII Calculation of Performance Assurance Plan Penalty Payments.

A – BACKGROUND

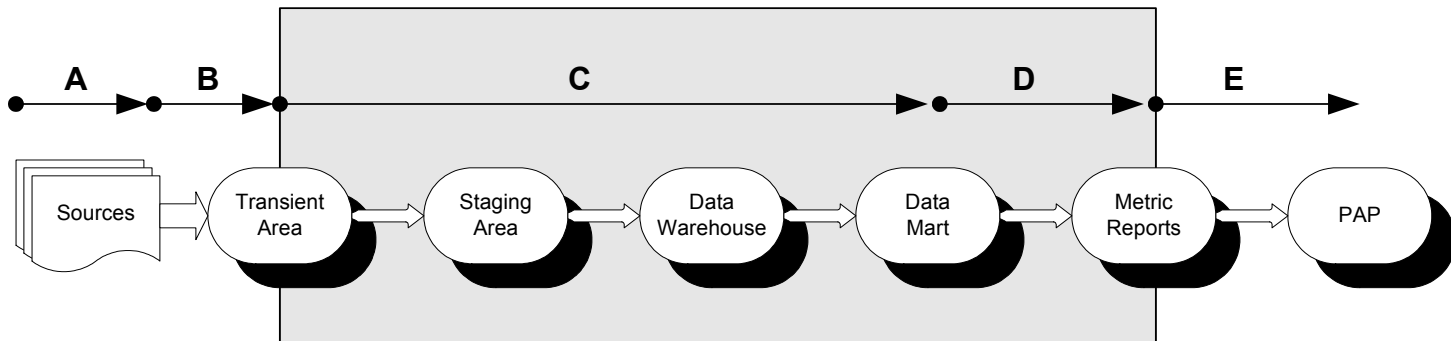
DCI processes for replicating the Verizon PA performance metrics are described in Chapter IV. This part of our analysis addressed Segments C and D of the Verizon PA Metric Business Process, as shown in Table V-1. Our analysis of Verizon PA performance metrics and related remedies was based on this model, and is briefly discussed below.

Table V-1
Verizon PA Metric Business Process Information and Data



Verizon PA terminology for describing Network Metric Platform (NMP) processing, as shown in Table V-2, provides a high-level image of the data flow sequence from the source system inputs to the data mart, the final database from which the metric reports are generated. Segments C and D encompass the Staging, Data Warehouse, Data Mart, and Metric Reports steps in Verizon PA processes.

Table V-2
Verizon Metric Process Overview



Segment C involves migrating and transforming the information from the staging tables into the final data sets (the data mart in Verizon PA terminology) from which performance metric results can be calculated. This migration includes calculations and additional information (table fields) that are added to the data mart information based on the application of certain business rules, exclusions, date and time calculations, etc. that occur during this process. The application of these business rules and processes do have a direct impact on the reported metric performance results.

The documentation necessary to provide the transparency to this part of the metric business process is comprised of detailed descriptions of the data mart. These detailed descriptions would include not only table field descriptions, but also documentation on all exclusions (such as what fields, how derived either in pseudo code or actual code snippets), any derived fields, etc. The FACT Table descriptions should provide this information.

Segment D involves the application of the metric algorithms to the data mart information. The metric derivations contained in the Carrier-to-Carrier (C2C) Guidelines are translated into appropriate (depends on the underlying data warehouse) Structured Query Language (SQL) programming code, which is executed against the data mart information to produce the performance metric results. The various fields in the data mart are selected, sorted, summed, averaged, divided, etc., based on the specific performance metric being calculated. It is therefore important to have an understanding of what each field in the data mart represents so the fields can be appropriately incorporated into the SQL statements to calculate results.

The documentation necessary to provide the transparency to this part of the Metric Business Process includes the FACT Table descriptions (of data structure) and the metric algorithms, specifically identified in the Second Performance Metric Order (PMO II). Verizon PA has represented to DCI that the Carrier Metric Algorithms (CMA) are their presentation of the metric algorithms. As such, DCI used both the FACT Table descriptions and the CMA as guides for performing our replication of this segment. DCI

wrote its own code to compute performance metric results, and compared DCI results with those having been reported by Verizon PA.

PMO II DOCUMENTATION REQUIREMENTS

PMO II at page 80 specifically provided that:

“...it is essential that this process be transparent²⁸ All parties and this Commission must be able to understand the process by which the various systems work. There are at least three levels to this question. The first is whether the data collected accurately conform to the metrics and business rules. The second is whether the results of the various metrics and remedies calculations are accurate. Finally, the third is what do the metrics and remedies results mean in terms of performance rendered, parity of service, and openness of market, which aspects are ultimately the endgame questions...”

^{28/} It is our understanding that staff from the NYPSC has or had access to the Verizon computer systems in New York. Regardless of the accuracy of this understanding, we believe that access to the formulae that Verizon uses is essential to the review function we have had in place since PMO I and which we reaffirmed herein.”

and

“...The algorithms are the formulae used to process the collected raw data into final metrics and remedies reports. In our opinion, they are part and parcel of the “work” that must be visible and open for inspection by this Commission and others who rely on the integrity of the reports. In our opinion, it would be less burdensome and faster for all parties for Verizon to provide the algorithms for review than for each entity to develop its own algorithms and then argue which set of algorithms is better...”

The primary types of documentation that exist within Verizon PA, specifically relating to Segment C and D calculations, are:

- C2C Guidelines – overall statement of requirements
- FACT Table descriptions of the data mart – the definition of the data sources for calculating the performance metrics.
- Carrier Metric Algorithms (CMA) – algorithms that have been taken from the production code. These are algorithms, as specified in the PMO II order, although they contain a significant amount of redundancy and superfluous information that obscures key information.

DCI has concerns with the latter two Verizon PA documents, specifically the FACT Table and CMA, as described in Findings listed in Exhibits V-2 and V-3.

B – DOCUMENTATION FINDINGS

1. Problems Exist With The FACT Table Documentation Provided To DCI For Use During Replication.

The FACT Table documentation represents the data structure of the data tables that are contained in the data mart as shown in Table V-3. These tables, provided to DCI for its use during replication of Verizon PA metric calculation results, are the source tables upon which the metric algorithms are applied to calculate individual performance metrics. An example of a FACT Table (for metric PO-1) is shown in Table V-3.

Table V-3
PO-1 FACT Table Description

Field Name	Description	Data Type	Values
INTERFACE_SOURCE	Indicates the INTERFACE_SOURCE	VARCHAR2(1)	C = for CORBA E = EDI/Netlink W = Web N = OSS transactions (Retail)
PRE_ORDER_FACT_ID	An Oracle generated running sequence number	NUMBER(10)	(NOT USED IN METRIC CALCULATION)
TRANSMISSION_METHOD		VARCHAR2(1)	(NOT USED IN METRIC CALCULATION)
STATE_CODE	A two character State code	VARCHAR2(2)	14 states data only
COMPANY_CODE	Company code	VARCHAR2(50)	IP Address in CORBA/ Company Code in EDI / Company Name in WEB
CLEC_ID	4 character CLEC id	VARCHAR2(4)	
TRANSACTION_TYPE_SEQUENCE	Inbound transaction code up to 4 characters	VARCHAR2(40)	
RETURNED_TRANSACTION_CODE	Returned transaction code up to 4 characters	VARCHAR2(40)	
ARRIVAL_DATE	Arrival Date and Time of the transaction	DATE	YYYY-MM-DD HH24:MI:SS
OUTBOUND_DATE	Outbound Date and Time of the transaction	DATE	YYY-MM-DD HH24:MI:SS
TRANSACTION_IDENTIFIER	Unique Transaction Identifier	VARCHAR2(50)	PON in CORBA / Tracking ID in EDI / Customer Bundle ID in WEB
ORDER_ORIGIN	States that whether the record is from the production feed or from Enview feed	VARCHAR2(1)	P = for Production data N = for Enview Data
TIME_OUT_INDICATOR	Indicates whether the transaction was timed out or not	VARCHAR2(1)	Y = Time Out N = Not timed Out
RESPONSE_TIME	Number	NUMBER(13,3)	Actual response time in seconds calculated up to 3 decimal places
CLLI	CLLI code	VARCHAR2(15)	
NPA_NNX	NPA_NNX	VARCHAR2(10)	
TN	Telephone number	VARCHAR2(10)	
TEST_ACCOUNT_IND	Indicates whether the CLEC was test account or not	VARCHAR2(1)	Y = Test CLEC V = Verizon Affiliates N = Actual CLEC

The column headings identify the four pieces of information that are presented for each field in the table. Although all of the information is important for replication purposes, the fourth column (labeled “Values”) is where an individual CLEC or outside auditor

attempting to replicate Verizon PA’s results needs to look for specific information such as:

- *What individual fields in the table define the information needed and what are the values for the performance metric?* In the particular example in Table V-3, the TRANSACTION_TYPE_SENT and RETURNED_TRANSACTION_CODE files are used for distinguishing the various transaction types, although this cannot be determined from the FACT description, in that no information is contained in “Values” cell location.
- *For table fields that have been derived based on certain business rules within the NMP, how were those values derived?* In the particular example of Table V-3 the TIME_OUT_INDICATOR field is a derived field. If the response time (RESPONSE_TIME) exceeds a certain level, the TIME_OUT_INDICATOR field is set (derived) to either Y (Yes) or N (No) based on that set value. The calculations are performed in the NMP.

Much of this information is available in the FACT Table descriptions; however, DCI found many areas such as those illustrated above, for which the FACT Table descriptions were missing this information, or the information was incorrect or misleading. For some additional examples, see Appendix B, Findings 20, 21 and 30, and Appendix C, Findings 6, 11, and 17. Because of the importance of metric calculations, a quality review of all FACT Table descriptions would ensure that all data transformations and calculations that occur primarily in the data warehouse to data mart migration (in many cases referred to by Verizon PA Personnel as spool procedures) are clearly documented in the FACT Table descriptions.

2. Many Problems Existed With Each Of The Multiple Versions Of CMA Documentation That Were Provided To DCI.

At Verizon PA, the mechanisms and methodologies by which the Company develops its metrics (using the NMP) are very complex and involved. In putting its proposal together, DCI had looked at what could be considered a combination of the C2C Guidelines and the metric algorithms on the New Jersey BPU website. That documentation appeared relatively straightforward, perhaps simplistic, in comparison to what has been created with Verizon PA’s adoption of NMP. In addition, DCI was familiar with Qwest, SBC, and BellSouth documentation and expected something of similar content and quality.

However, the documentation provided by Verizon PA, in terms of the CMA (which is electronically extracted from the NMP), was significantly more difficult to understand than that encountered on previous similar ILEC studies. This is not being negative regarding the NMP, in that with Verizon PA being responsible for reporting on these metrics in multiple states, the NMP may be the best way to proceed. However, the NMP is a relatively new system (in which certain metrics are still in the process of being incorporated); it is taking Verizon PA more time than expected to develop and document as a truly transparent system for performance metrics and related remedies program. In

the meantime, DCI was required to deal with inconsistencies in documentation, difficulties understanding the data transformations involved in the metrics (due to the computer technology employed by Verizon PA), and Verizon PA personnel's difficulty in responding to DCI's questions as quickly as they should.

DCI ultimately worked with three versions of the CMA. Initially, in mid-June Verizon PA provided the New York CMA as a guideline. However, when DCI began to identify numerous problems (inconsistencies, missing information, etc.), DCI was told to wait for the first set of the Verizon PA CMA, which were produced for the months of April and May 2003, and made available to DCI in early August 2003. However, when DCI began to identify numerous problems (inconsistencies, missing information, etc.) with this CMA, DCI was told to wait for the next set of Verizon PA CMA, which was produced for the month of June 2003 time period and made available to DCI on September 28, 2003.

For example, DCI identified numerous inconsistencies and other difficulties with the first Pennsylvania CMA documentation, specifically:

- Incorrect or impossible statements (not valid SQL), such as SQL statements referencing no tables (i.e. a SELECT * FROM ?).
- Inconsistencies between field definitions in the documentation and field definitions in the FACT Table DCI received.
- Comparisons being made in the metric algorithms that just would not run – comparing a date field to a string field with no data transformation – i.e. `FILING_DATE = "200305"`.
- Identical code in the numerator and denominator of the PA CMA that would result in one in all cases – i.e. $2/2 = 1$, $a/a = 1$, $(x+y)/(x+y) = 1$.
- Several instances where DCI consultants had to go back to Verizon PA to get additional information (such as a `REPORT_PERIOD = Null` issue) or request additional tables to do our analysis, because of the joins (merges) with a FACT Table in the analysis. For instance, without some of these tables, one cannot calculate the parity measure for PO-1. Verizon PA did send the tables late in the project but DCI consultants subsequently had to request the data structure so DCI could use the tables.
- Superfluous code throughout the CMAs making it more difficult to work through the materials. See Appendix C, Finding 1, and response to Data Request C-047.
- Missing documentation (e.g. PO-1-x-6050 -- web interface -- report queries are missing from the PA guidelines entirely). See also Appendix C Findings 23, 27, 30, 34, 35 and Appendix D, Findings 13 and 20.

- Misleading information (e.g. DCI consultants were told at the domain review sessions early in the project that the follow-up electronic materials Verizon PA gave us would be that which was in use for April data; it was not until after DCI completed its April analysis using these materials that Verizon PA told DCI it was the wrong set of guidelines).
- Incomplete documentation (e.g. the table fields documents sometimes have valid values and their meanings, but very often they do not).
- Several instances where the CMA algorithms for either the numerator or the denominator was inappropriate for the metric, yet the results were based on a different correct algorithm. See Appendix B, Findings 2, 8, 16, 29, Appendix C, Findings 22, 26, 36 and 37 and Appendix D, Findings 9 and 15.

All of the above items caused DCI to expend much more effort than originally envisioned. DCI notes that Verizon PA's various revisions to the CMA have significantly improved many of the issues that DCI previously identified. However, even with the latest submission, the June CMA, inconsistencies and missing information still exist in this 1,100 page document.

EVALUATION OF JUNE CMA

The initial (April/May 2003) PA CMA was issued and filed with the PA PUC on August 1, 2003. This was the CMA that DCI was planning to use for this review. However, Verizon PA issued the June PA CMA on September 29, 2003. Verizon PA stated that it had corrected many of DCI's algorithm findings concerning the April/May CMA. As added scope to this review, Verizon PA requested DCI to review and determine if the new CMA had corrected the algorithm deficiencies DCI had found.

The results of this review are summarized in Table V-4. The details of this review are provided in Appendix G.

Table V-4
Incorrect April/May 2003 Algorithms Corrected in the June CMA

Domain	Algorithms With Problems April-May CMA	Number Modified June CMA	Number Resolved¹	Outstanding Issues June CMA
PreOrdering	87	71	71	16
Ordering	14	11	12	2
Provisioning	104	93	62	42
M&R	185	131	67	118
Total	390	306	212	178

¹ Fully or significantly resolved.

3. The Present Structure Of CMA Documentation Precludes A Transparent Process.

The CMA is an electronic extraction of the code in the NMP. DCI sees a benefit to being able to electronically extract the code that is actually in production for documentation purposes. However, this code contains a significant amount of superfluous code that tends to obscure the actual essence of the performance metric algorithm. Table V-5 shows a sample Verizon PA CMA algorithm using PO-1-03.

Table V-5
Sample CMA Algorithm²
(PO-1-03)

<i>Numerator 1</i>	<i>Alias: PO103NUMERAT</i>	<i>Denominator 1</i>	<i>Alias: PREORDERRECC</i>
<pre>create table ZZMD08 as select a12.GROUP_NAME GROUP_NAME, to_char(a11.OUTBOUND_DATE,'YYYYMM') MONTH_ID, sum(a11.RESPONSE_TIME) PO103NUMERAT, count(a11.RESPONSE_TIME) PREORDERRECC, sum(a11.RESPONSE_TIME) PO103NUMERAT1, count(a11.RESPONSE_TIME) PREORDERRECC1, sum(a11.RESPONSE_TIME) PO103NUMERAT2, count(a11.RESPONSE_TIME) PREORDERRECC2, count(a11.RESPONSE_TIME) PREORDERRECC3, count(a11.RESPONSE_TIME) PREORDERRECC4, sum(a11.RESPONSE_TIME) PO103NUMERAT3, sum(a11.RESPONSE_TIME) PO103NUMERAT4 from TB_PO_C2C_FILING_MART a11, TB_GEOGRAPHY_ST_GRP_DIMENSION a12 where a11.STATE_CODE = a12.STATE_CODE and (a11.STATE_CODE = a12.STATE_CODE and a12.GROUP_NAME not in ('MD', 'DC', 'VA', 'WV', 'DE') and a11.REPORT_PERIOD in (200305) and a11.INTERFACE_SOURCE = 'E' and a11.ORDER_ORIGIN = 'P' and a11.TIME_OUT_INDICATOR = 'N' and a11.TEST_ACCOUNT_IND = 'N' and a11.TRANSACTION_TYPE_SENT in ('ADR', 'ADT', 'CADR', 'CADT')) and a11.RETURNED_TRANSACTION_CODE in ('ADA', 'ADI')) group by a12.GROUP_NAME, to_char(a11.OUTBOUND_DATE,'YYYYMM')</pre>		<pre>create table ZZMD08 as select a12.GROUP_NAME GROUP_NAME, to_char(a11.OUTBOUND_DATE,'YYYYMM') MONTH_ID, sum(a11.RESPONSE_TIME) PO103NUMERAT, count(a11.RESPONSE_TIME) PREORDERRECC, sum(a11.RESPONSE_TIME) PO103NUMERAT1, count(a11.RESPONSE_TIME) PREORDERRECC1, sum(a11.RESPONSE_TIME) PO103NUMERAT2, count(a11.RESPONSE_TIME) PREORDERRECC2, count(a11.RESPONSE_TIME) PREORDERRECC3, count(a11.RESPONSE_TIME) PREORDERRECC4, sum(a11.RESPONSE_TIME) PO103NUMERAT3, sum(a11.RESPONSE_TIME) PO103NUMERAT4 from TB_PO_C2C_FILING_MART a11, TB_GEOGRAPHY_ST_GRP_DIMENSION a12 where a11.STATE_CODE = a12.STATE_CODE and (a11.STATE_CODE = a12.STATE_CODE and a12.GROUP_NAME not in ('MD', 'DC', 'VA', 'WV', 'DE') and a11.REPORT_PERIOD in (200305) and a11.INTERFACE_SOURCE = 'E' and a11.ORDER_ORIGIN = 'P' and a11.TIME_OUT_INDICATOR = 'N' and a11.TEST_ACCOUNT_IND = 'N' and a11.TRANSACTION_TYPE_SENT in ('ADR', 'ADT', 'CADR', 'CADT')) and a11.RETURNED_TRANSACTION_CODE in ('ADA', 'ADI')) group by a12.GROUP_NAME, to_char(a11.OUTBOUND_DATE,'YYYYMM')</pre>	

Using Table V-5 to illustrate some of these issues, the following issues can readily be identified:

- Identical code in the numerator and denominator of the PA CMA. Comparing the code line by line, one finds that it is identical. That would result in one in all cases – i.e. $2/2 = 1$, $a/a = 1$, $(x+y)/(x+y) = 1$. In fact the numerator and denominator are being calculated multiple times in each statement.

² These data are excerpted and reprinted with permission from Verizon Pennsylvania Carrier-to-Carrier Metric Algorithms (CMAs) which are subject to copyright protection. Copyright ©2003 Verizon. All rights reserved. No compilation, modification, translation, storage in a retrieval system or reproduction (by photocopying or other means) of these data or any other parts of the CMAs is permitted without the separate, express written permission of Verizon. Title to these data, the CMAs and all intellectual property rights therein shall remain with Verizon.

- Superfluous code – create table ZZM08 as – this is only relevant within the NMP process, but not necessary for performance metric replication
- Superfluous code – multiple SUM and COUNT on the same field. The code is summing (sum) RESPONSE.TIME field five times in a row and counting (count) the RESPONSE.TIME field five times in a row. In reality that calculation only needs to be done once and then the resulting numbers divided by each other to calculate the performance metric. The multiple summing and counting into different variables (such as) PO103NUMERAT, PREORDERRECC, etc.) are most likely useful for downstream reporting, and really not relevant for performance metric replication
- Unnecessary JOINS – this algorithm would be easier to understand without the join to TB_GEOGRAPHY_ST_GRP_DIMENSION. The JOIN is essentially a filter on state IDs. Furthermore, the statement: where a11.STATECODE = a12.STATE.CODE and a11.STATECODE = a12.STATE.CODE in the above code is duplicative.

Some of this code is automatically generated by the software product solely for the purpose of supporting the downstream creation of specific reports, rather than the calculation of the individual performance metric. Furthermore, the fact that the NMP is creating various temporary tables is not useful information for replicating the results. In many cases, the same algorithms are repeated over many pages of the CMA documentation with only one item in a WHERE clause (an SQL statement that filters or excludes certain information) being different with each redundant listing of the algorithm.

As a result, a significant amount of superfluous code is contained within the CMA documentation. This is the primary reason that the CMA consists of over 1,100 pages of documentation, as shown in Table V-6.

Table V-6
CMA Documentation Pages
(June 2003 Verizon)

Domain	Number of Pages
Pre Order	111
Ordering	130
Provisioning	479
Maintenance & Repair	348
Network Performance	21
Billing	39
Operator Services	3
General Standards	8
Total	1,139

The important information required for Verizon PA could be more succinctly presented by presenting an algorithm that is supported by criteria table for the various variations of the specific performance metric. DCI consultants used the PO-1 metric as an example to illustrate the clarity that would be possible by condensing information contained within the CMAs into a more useful document. In Exhibit V-4, following Section F of this chapter DCI condensed PO-1 to the important information necessary for a CLEC or an outside reviewer to use in performing its own replication. (See Appendices B and D for additional examples) This resulted in a four-page document compared to the original 76 pages contained within the CMA for that metric.

Extrapolating this result to the remaining portions of the CMA, metric algorithms could be produced for all of the metrics in less than 200 pages – a document that would not only be more concise, but also easier to maintain. The ultimate determination of whether or not to adopt DCI's recommendation or to continue using the CMA in its present form (as well as decisions concerning other issues cited in this report) should be a PA PUC decision, with PA CWG input.

C – SUMMARY OF FINDINGS BY METRIC

DCI's overall summary of the metric replication is presented in the following paragraphs. DCI has categorized our findings on individual performance metrics as follows:

- **C2C Guideline Issues** – specifically, issues with the interpretation of the Carrier-to-Carrier Guidelines documentation. DCI divided these findings into the following four designations:
 - **NI – No C2C Guideline Issues** – DCI and Verizon PA interpretation of the C2C guidelines is in agreement.
 - **NC – C2C Needs Clarification, Verizon PA implementation OK** – Verizon PA implementation of the C2C performance metric is probably correct, but the C2C Guidelines should be revised to reflect that implementation.
 - **VD – Verizon PA Deviation from C2C** – In DCI's opinion, Verizon PA's implementation of the C2C performance metric deviates from C2C Guidelines.
- **Programming Issues** – specifically, DCI has identified issues with how the calculation of the performance metric has been programmed. DCI divided these findings into the following three designations.
 - **NP – No Programming Issues** – DCI did not identify any specific programming issues.
 - **MP – Minor Programming Issues** – DCI has identified minor issues with the programming of the performance metric and it needs to be addressed by Verizon PA. These corrections would make the performance metric more transparent and auditable.
 - **SP – Specific Programming Issues** – DCI has identified specific issues with the programming of the performance metric and it needs to be addressed by Verizon PA. These issues could impact results.

Either C2C Guideline Issues or Programming Issues can lead to Calculation Errors, as described below:

- **Calculation Errors** – specifically the extent to which DCI was able to replicate the Verizon PA reported performance “numbers” for the individual metric. DCI divided these findings into the following four designations:

- **MR – Matched Results** – DCI matched Verizon PA reported results for our sample.
- **MD – Minor Discrepancy** – DCI results differed from Verizon PA reported results, but not significantly enough to impact determinations of whether the metric standard is met or PA PAP penalty calculations are effected in our opinion.
- **SD – Significant Deviation** – DCI results were significantly different from Verizon PA reported results to the extent that it might have an impact on determinations of whether the metric standard is met or PA PAP penalty calculations are affected. Although parity might not have been affected in the review time period, DCI may consider the magnitude of a discrepancy large enough that it might have significant bearing on whether the standard would be met in some future month.
- **N/A – Not Applicable** – No data in the timeframe from which to verify calculations, data was provided too late for DCI to perform its review, or data appeared to be inaccurate.

The results of DCI's review and evaluation of the performance metric on a metric-by-metric basis are summarized in Exhibit V-1. The details supporting these overall assessments are contained in Exhibits V-2 (C2C Guideline Findings by metric), and Exhibit V-3 (C2C Programming Findings by Metric) and the appendices to this report. As shown on Exhibit V-1, 26 of 130 metrics contained errors of one type or another. Findings shown on Exhibit V-1 represent worst case scenarios for each metric.

The details supporting these overall assessments are contained in the Appendices to this report and in the Exception Reports (ERs) that were issued during the course of this project. The remainder of this chapter briefly presents DCI's main findings, in Sections D (C2C Guideline Findings By Metric) and E (Programming Findings By Metric) The Chapter text concludes with Section F – Recommendations. Exhibits V-2, V-3 and V-4 follow Section F – Recommendations.

**SUMMARY OF METRIC CALCULATION RESULTS ON A
METRIC-BY-METRIC BASIS**

Metric No.	Metric Description	# of sub Metrics	Calculations				C2C Guidelines				Programming Issues			
			MR	MD	SD	N/A	NI	NC	VD	N/A	NP	MP	SP	N/A
PRE-ORDERING		24												
PO-1	Response Time OSS Pre-Ordering Interface	9		•			•							•
PO-2	OSS Interface Availability	2			•		•							•
PO-3	Contact Center Availability	2		•				•				•		
PO-4	Change Management Notice	3	•					•			•			
PO-5	Average Notification of Interface Outage	1	•					•			•			
PO-6	Software Validation	1	•					•			•			
PO-7	Software Problem Resolution Timeliness	4				•		•						•
PO-8	Manual Loop Qualification	2				•		•				•		
ORDERING		30												
OR-1	Order Confirmation Timeliness	8		•					•			•		
OR-2	Reject Timeliness	6		•				•				•		
OR-3-01	Percent Rejects	1		•					•		•			
OR-3-02	% VZ-requested resubmissions rejected as duplicative	1				•				•				•
OR-4	Timeliness of Completion Notification	4		•				•				•		
OR-5-01	% Flow-Through – Total	1	•				•				•			
OR-5-03	% Flow Through – Achieved	1				•				•				•
OR-6-01	% Service Order Accuracy	2				•	•					•		
OR-6-03	% Accuracy – LSRC (Long Term)	1				•	•					•		
OR-7	Percent Order Confirmation/Rejects Sent Within 3 days	1	•				•				•			
OR-8	Acknowledgement Timeliness	1	•				•				•			
OR-9	Order Acknowledgement Completeness	1	•				•				•			

**SUMMARY OF METRIC CALCULATION RESULTS ON A
METRIC-BY-METRIC BASIS**

Metric No.	Metric Description	# of sub Metrics	Calculations				C2C Guidelines				Programming Issues				
			MR	MD	SD	N/A	NI	NC	VD	N/A	NP	MP	SP	N/A	
OR-10	PON Notifier Exception Resolution Timeliness	2				•	•						•		
PROVISIONING		37													
PR-1	Average Interval Offered	10			•				•				•		
PR-3	Completed within Specified Number of Days (1-5 Lines)	7			•		•						•		
PR-4	Missed Appointments	9		•			•						•		
PR-5	Facility Missed Orders	4		•			•						•		
PR-6	Installation Quality	3			•		•						•		
PR-8	Open Orders in a Hold Status	2	•							•			•		
PR-9	Hot Cut Performance	2	•				•					•			
MAINTENANCE & REPAIR		23													
MR-1	Response Time OSS Maintenance Interface	6		•						•			•		
MR-2	Trouble Report Rate	3		•			•						•		
MR-2-04	Subsequent Troubles	1			•					•			•		
MR-2-05	TOK/FOK/CPE Rate	1			•					•			•		
MR-3	Missed Repair Appointments	3			•		•						•		
MR-4	Trouble Duration Intervals	8			•		•						•		
MR-5	Repeat Trouble Reports	1	•				•						•		
NETWORK PERFORMANCE		2													
NP-1	Percent Final Trunk Group Blockage	1	•							•			•		
NP-2	Collocation Performance	1	•							•			•		

**SUMMARY OF METRIC CALCULATION RESULTS ON A
METRIC-BY-METRIC BASIS**

Metric No.	Metric Description	# of sub Metrics	Calculations				C2C Guidelines				Programming Issues			
			MR	MD	SD	N/A	NI	NC	VD	N/A	NP	MP	SP	N/A
BILLING		13												
BI-1	Timeliness of Daily Usage Feed	1	•				•				•			
BI-2	Timeliness of Carrier Bill	1	•					•			•			
BI-3	Billing Accuracy and Claims Processing	5	•					•			•			
BI-6	Completeness of Usage Charges	2	•					•			•			
BI-7	Completeness of Fractional Recurring Charges	2	•				•				•			
BI-8	Non-Recurring Charge Completeness	2	•				•				•			
OPERATOR SERVICES		1												
OD-1	Operator Services – Speed of Answer/Directory Assistance	1	•					•			•			
GENERAL STANDARDS		7												
GE-1	Directory Listing Verification Reports	5				•				•				•
GE-3	Timely and Accurate Provisioning of White Page Directory Listings LSRs and DSRs	2				•				•				•

D – C2C GUIDELINE FINDINGS BY METRIC

This Section highlights the more important Findings described in Exhibit V-2. These Findings are those which do not follow the C2C Guidelines and also have the most impact on the metric results.

1. Verizon PA Does Not Follow The C2C Guidelines In Calculating Some Metrics.

At a minimum, Verizon PA deviates in practice from the C2C Guidelines by: 1) by adding entitlement times to Resale and UNE disaggregations, 2) excluding certain valid LSR service order types, and 3) counting both initial and subsequent reports in denominators. Three Examples follow:

MR-1 Response Time OSS Maintenance Interface: Verizon PA is adding an entitlement time for the calculation of response time that is not provided for in the C2C Guidelines. (See Exhibit V-2, Finding No. D-1)

OR-3 Percent Rejects: Verizon PA's implementation of the Resale and UNE disaggregations for this measure results in the exclusion of valid LSR orders whose service order type is null. (See Exhibit V-2, Finding No. D-6)

MR-2-04 Subsequent Report Rate: Verizon PA counts both initial and subsequent reports in the denominator. Per the C2C Guidelines, only initial reports should be counted in the MR-2-04 denominator. (See Exhibit V-2, Finding No. D-9)

2. Verizon PA Makes Assumptions In Some Metric Calculations That Are Not Specifically Addressed In The C2C Guidelines.

Where voids exist in the C2C Guidelines Verizon PA has made assumptions rather than seeking CWG and Commission clarification. Two illustrations follow:

OR-1-04, OR-1-06 Order Confirmation Timeliness, OR-4 Timeliness of Completion Notifications: Verizon PA does not report results for UNE DS1 and DS3 ASR disconnects in OR-1-04 or OR-1-06. The C2C note defining the performance standard for Special Services orders not requiring a facility check does not explicitly exclude these orders. (See Exhibit V-2, Findings Nos. D-3, D-8)

MR-2-05 Report Rate: Verizon PA is including in the MR-2-05 results, troubles other than those specified in the Guidelines (CC – Came Clear, IEC – InterExchange Carrier, INF - Information, and “ “ - Unspecified) (See Exhibit V-2, Finding No. D-10)

E – PROGRAMMING FINDINGS BY METRIC

This Section provides the more important Findings listed in Exhibit V-3. These Findings include those which have programming errors or data errors which resulted in DCI's inability to replicate. It also includes those metrics for which errors were found in programming, which then resulted in errors in metric calculations.

1. Several Verizon PA Reported Metrics Could Not Be Replicated

DCI could not replicate the following Metrics because of data or algorithm problems: PO-1: Response Time of OSS Pre-Order Interface; PO-2: OSS Interface Availability; PO-8: Manual Loop Qualifications; OR-5: Percent Flow-Through; OR-10: PON Notifier Exception Resolution Timeliness. (See Exhibit V-3, Findings Nos. E-1, E-6, E-10, E-12)

2. Several Order Types Are Not Properly Identified In The OSS Systems For Correct Metric Disaggregations.

Special Services ordered via LSRs are not properly identified in the Verizon PA Data Mart for measurement calculation purposes. This is the result of the inability of Verizon PA's source OSS systems to properly identify DS-0 and DS-1 LSR orders. The relevant metric is OR-1: Order Confirmation Timeliness. (See Exhibit V-3, Finding No. E-7)

3. Verizon PA Programming Errors Result In Incorrect Metric Calculations.

Although Verizon PA's C2C reports indicate there were no data for PR-1-01-3342, UNE 2-wire xDSL Loops, DCI found 22 eligible records in April, with an average offered interval of 6.41 days; 42 eligible records in May, with an average offered interval of 6.00 days; and 43 eligible records in June, with an average offered interval of 6.00 days. Verizon PA indicated that it reviewed its code and found an error, which caused all UNE 2-wire xDSL Loops to not be counted in this submetric, PR-1: Average Interval Offered. (See Exhibit V-3, Finding No. E-15)

Verizon PA incorrectly excludes all orders with due dates shorter than the standard offered interval, for many provisioning performance measurement calculations for UNE 2-wire Digital Loops, xDSL Loops, LineSharing and LineSplitting products. The metrics are PR-1 and PR-3: Completed Within Specified Number of Days. (See Exhibit V-3, Findings Nos. E-16 and E-24)

PR-1, PR-3: Verizon PA has incorrectly excluded S-coded orders (shorter than standard interval) from PR-1-01-2341 and all PR-1-12 calculations (both CLEC and Retail comparatives).(See Exhibit V-3, Findings Nos. E-17and E-23)

PR-1: Verizon PA incorrectly excluded all UNE DS1s received via ASR (PR-1-07-3211) in its C2C reports for April, May, and June. (See Exhibit V-3, Finding No. E-20)

PR-1: Verizon PA incorrectly excluded all trunks from PR-1-09 (Over 99%) whose Customer Desired Due Date is greater than 18 days. (See Exhibit V-3, Finding No. E-23)

In calculating Line Counts for xDSL Loops, Verizon PA has incorrectly included Line Sharing line counts in metric MR-2 Trouble Report Rate. (See Exhibit V-3, Finding No. E-31)

F – RECOMMENDATIONS

1. Develop FACT Table And Metric Algorithms That Fulfill The Requirements Of PMO II. (Refer to Findings Nos. 1, 2 and 3 Section B)

Develop FACT Table and Metric Algorithms that are complete, concise, correct and transparent, in order to fulfill the requirements of PMO II. The PMO II order was very specific relative to the requirements placed on Verizon PA regarding the need to provide the data and algorithms, and that the process be transparent. The primary types of documentation that existed within Verizon PA, specifically relating to these requirements, are:

- C2C Guidelines – overall statement of requirements.
- FACT Table descriptions of the data mart – the definition of the data sources for calculating the performance metrics.
- Carrier Metric Algorithms (CMAs) – algorithms that have been taken from the production code. These are algorithms, as specified in the PMO II order. However, they contain a significant amount of redundant and superfluous information that obscures key information.

As discussed in Findings Nos. 1, 2, and 3, Section B, DCI is concerned for the latter two Verizon PA produced documents, specifically the FACT Table and CMAs.

Webster's Third International Dictionary provides the following insight into the word **transparent**: free from pretense or deceit, easily detected or seen through, obvious, readily understood, clear. The PA PUC's intent with PMO II was for Verizon PA to provide an understandable document, useful to CLECs and Staff. In DCI's opinion, Verizon PA must improve its documentation in order to satisfy the requirements of PMO II. In particular:

- Verizon PA should conduct a detailed review of all FACT Table descriptions hand-in-glove with the creation of a separate metric algorithm mentioned in the next bulleted item, to ensure that – between both documents – all the information is available to easily replicate results. All of the currently published FACT Table need to be reviewed in light of the comments made in Finding 1, Section B.
- Verizon PA needs to produce a separate document to fulfill the requirements of metric algorithms as identified in Findings Nos. 2 and 3 (See Example in Exhibit V-4). Essentially, the CMAs should be condensed into a much smaller document, that would be easier to maintain and would be more transparent.

- The Verizon PA Wholesale Quality Assurance Team or a third party should separately replicate Verizon PA results to ensure that the documents are complete and correct.

The documents referenced above would be easier for all parties to use and understand and would fulfill the requirements of the PMO II order. DCI believes that individuals within Verizon PA Wholesale Quality Assurance already have parts of such a document prepared regarding these metrics, for their quality assurance activities.

2. Verizon PA Must Follow C2C Guidelines In Making Metric Calculations (See Finding No. 1, Section D of this chapter)

The PA PUC has adopted the C2C Guidelines and Verizon PA is required to calculate metrics accordingly.

3. Verizon PA Should Request Clarification Of C2C Guidelines Instead Of Making Assumptions. (See Finding No. 2, Section D)

When the C2C Guidelines are not clear or require interpretation, Verizon PA should request clarification from the CWG, and specify in the C2C Guidelines what is required.

4. Verizon PA Should Investigate Metrics Which DCI Could Not Replicate To Determine Root Causes. (See Finding No. 1, Section E)

There were several Metrics that could not be replicated to Verizon PA's reported results. These should be investigated to determine whether the cause was a data problem, an algorithm problem, or other problems, and whether or not it has been corrected, as appropriate.

5. Verizon PA Should Ensure That OSS Systems Are Properly Identifying Input Data. (See Finding No. 2, Section E)

Verizon PA should implement a fix to correct orders with incorrect service order class IDs, so that they may be included in the correct metric disaggregations.

6. Verizon PA Should Improve Testing Of Metric Calculations In Order To Ensure Accurate Metric Calculations. (See Finding No. 3, Section E)

As indicated by the large number of findings in Exhibit V-2, Verizon PA needs to improve its testing of metric calculations in order to ensure greater accuracy.

C2C GUIDELINE FINDINGS AND RECOMMENDATIONS BY METRIC

MR-1 Response Time OSS Maintenance Interface

Definition: This metric measures the response time defined as the time, in seconds, that elapses from issuance of a query request to receipt of a response by the requesting carrier. For CLECs this performance is measured at the access platform.

Finding D-1: Verizon PA is performing an entitlement time calculation in the MR_1 metric that is not provided for in the C2C Guidelines. The performance standard for MR-1 is: Parity with Retail plus not more that four (4) seconds. Four (4) second difference allows for variations in functionality.

However, in MR-1, Verizon PA makes an adjustment to certain transactions that involves a security login to the LMOS. This is something that is not necessary on the retail side (the parity measurement). DCI's interpretation of the C2C Guidelines is that difference would have already been allowed for in the "Four second difference to allow for variations in functionality." DCI's review of the C2C Guidelines did not find any clear allowance for such a calculation, using the definition on pages 10 and 11, for the impact of this finding..

[Guidelines: VD, Calculations: MD]

Recommendation D-1: The Carrier Working Group should clarify its intent with respect to the calculation of entitlement time in the MR-1, and update the C2C Guidelines.³

OR-1 Order Confirmation Timeliness

Definition: This metric measures the amount of time between receipt of a valid order request and distribution of a Confirmation. For Resale and UNE orders, the measurement is of elapsed time, whereas for Trunks the measurement is in business days.

Finding D-2: Based on the C2C definition of the EDI notifier sent time, Verizon PA excludes incoming EDI orders if the outbound notification was not sent via EDI. However, the C2C does not explicitly exclude such orders. DCI found the impact of this exclusion to be minimal. For detail see Appendix B, Finding OR-1-4.

[Guidelines: NC, Calculations: MD]

Recommendation D-2: The C2C guidelines should clearly state that EDI orders with outbound notifications not sent via EDI are excluded if that is the intent of the Carrier Working Group.

³ DCI understands that this, and other issues, are pending review and possible adoption by the PA CWG.

Exhibit V-2
Page 2 of 4

Finding D-3: Verizon PA does not report results for UNE DS1 and DS3 ASR disconnects in OR-1-04 or OR-1-06. The C2C note defining the performance standard for Special Services orders not requiring a facility check does not explicitly exclude these disconnect orders. The C2C guidelines need clarification before determining impact. For detail see Appendix B, Finding OR-1-7.

[Guidelines: VD, Calculations: MD]

Recommendation D-3: The Carrier Working Group should clarify its intent with respect to Special Services disconnect orders not requiring a facility check and update the C2C guidelines.

OR-2 - Reject Timeliness

Definition: This metric measures the percentage of rejected orders whose rejection took place within the agreed-upon timeframe.

Finding D-4: Finding D-2 for OR-1 also affects OR-2. The impact is extremely minimal. For detail see Appendix B, Finding OR-2-3.

[Guidelines: NC, Calculations: MD]

OR-3 - Percent Rejects

Definition: This metric measures the percent of orders received (including supplements and re-submissions) by Verizon PA that are rejected or queried. Orders are rejected due to omission or error of required order information. Orders that are queried are considered rejected.

Finding D-5: Verizon PA does not calculate this metric in exact compliance with the C2C Guidelines. Verizon PA calculates the numerator and denominator as two separate queries – orders rejected this month, and orders received this month. Consequently, a very small number of orders which are received this month and whose reject takes place next month will be incorrectly excluded from the numerator, and a roughly similarly small number of orders rejected this month, which were received in the previous month will be incorrectly included in the numerator. DCI accepts Verizon PA's approach to the calculation as being reasonable. However, it is not technically compliant with the Guidelines. For detail see Appendix B, Finding OR-3-1.

[Guidelines: NC, Calculations: MR]

Exhibit V-2
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Recommendation D-4: This issue should be revisited by the CWG to either change Verizon PA’s calculation process or the C2C Guidelines Definition.

Finding D-6: Verizon PA’s implementation of the Resale and UNE disaggregations for this measure results in the exclusion of valid LSR orders whose service order type (SVC_ORDER_CLASS_ID) is null. The impact of Verizon PA’s implementation was to exclude 550 orders received in April, 448 in May, and 489 in June from the denominator. This exclusion slightly overstates the percent of orders rejected by about 0.7% for Resale orders, and about 0.05% for UNE orders. For detail see Appendix B, Finding OR-3-2.

[Guidelines: VD, Calculations: MD]

Recommendation D-5: The disaggregations required by the C2C Guidelines for this metric are possible by using the ORDER_TYPE field rather than the SVC_ORDER_CLASS_ID. Verizon PA should use the ORDER_TYPE field, which prevents the exclusion of orders whose SVC_ORDER_CLASS_ID field are null, but are otherwise eligible for inclusion in the metric.

OR-4 - Timeliness of Completion Notification

Definition: This metric measures the timeliness of Provisioning Completion Notifications (PCNs) and Billing Completion Notifications (BCNs) in various ways. It applies to EDI-submitted LSRs only.

Finding D-7: Verizon PA’s selection criterion for inclusion of records in the monthly reported OR-4 results is not in exact compliance with the C2C Guidelines. Verizon PA bases the inclusion of records on their SOP_NOTIF_DATE being within the report month. The C2C Guidelines define the Denominators of the OR-4 metrics in terms of the number of EDI LSRs whose last service order has been updated as provisioning complete during the reporting month. This appears to more closely match the LSR Ordering Fact Table Layout definition for SOP_COMPL_DATE. The result is that Verizon PA reported 43 orders too many in April, and 30 too many in May. This is less than 0.1% of the orders. DCI accepts Verizon PA’s approach to the calculation as being reasonable. However, it is not technically compliant with the Guidelines. For detail see Appendix B, Finding OR-4-1.

[Guidelines: NC, Calculations: MD]

Recommendation D-6: The Guidelines should be updated to reflect Verizon PA’s approach, or Verizon PA should change its approach; to define the denominators in terms of the number of EDI LSRs whose SOP notification date is within the reporting month.

Exhibit V-2
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Finding D-8: See Finding D-2 for OR-1. This Finding also affects OR-4. The effect is minimal for OR-4-16, but significant for OR-4-17, with a reported result of 3% worse than actually incurred. For details see Appendix B, Finding OR-4-2.

[Guidelines: NC, Calculations: MD]

Trouble Report Rate (MR-2)

Definition: This metric measures the total initial customer direct or referred troubles reported, where the trouble disposition was found to be in the network, per 100 lines/circuits/trunks in service. In addition, MR-2-04 measures subsequent reports, which are additional customer trouble calls while an existing trouble report is pending – typically for status or to change or update information.

Finding D-9: Verizon PA counts both initial and subsequent reports in the MR-2-04 denominator. Per the C2C Guidelines, only initial reports should be counted in the MR-2-04 denominators - “Number of Total Disposition Codes 03, 04, and 05 troubles reported (Per MR-2-01).” The impact of incorrectly counting subsequents in the denominator depends on the rate of subsequents, and can be quite large. For example, in June, the correct MR-2-04 result for POTS Loops (MR-2-04-3550) is 61.01. Due to Verizon PA’s inclusion of subsequents, the reported C2C result was 37.89. For detail see Appendix D, Finding MR-2-5.

[Guidelines: VD, Calculations: SD]

Recommendation D-7: Verizon PA should exclude subsequent Trouble Reports from the MR-2-04 denominator per the C2C Guidelines.

Finding D-10: Verizon PA is including in the MR-2-05 results Trouble Reports with the trouble codes other than those specified in the Guidelines (CC – came clear, IEC – interexchange carrier, INF - information, and “ “ - unspecified). The intent of the Guidelines, however, is that MR-2-05 report CPE, TOK, FOK, and NTF situations only. The impact of including these tickets has been to inflate the MR-2-05 CLEC results by about 10% overall. For detail see Appendix D, Finding MR-2-6.

[Guidelines: VD, Calculations: SD]

Recommendation D-8: Verizon PA should include only the Trouble Reports with trouble codes identified in the C2C Guidelines.

**PROGRAMMING FINDINGS AND RECOMMENDATIONS BY
METRIC**

PO-1 Response Time of OSS Pre-Ordering Interface

Definition: This metric measures the response time of the OSS Pre-Ordering interface.

See findings and recommendations for PO-2

PO-2 OSS Interface Availability

Definition: This metric measures the OSS Interface availability.

There are several concerns regarding the programming of these metrics contained within Appendix of this report. These are briefly described below.

Finding E-1: Verizon PA's published metric results for PO -1 and PO 2 could not be duplicated in many cases.

DCI performed its metric analysis several times with several versions of the Carrier Metric Algorithms provided by Version. Out of approximately 50 different variations on both the PO-1 and PO-2 metric there were 8 different variations for which DCI was unable to match Verizon PA calculated results. For detail see Appendix A to this report.

[Programming: SP, Calculations: MD]

Recommendation E-1: Verizon PA should review the algorithms for the areas where PO-1 and PO-2 differences were identified to ensure that the algorithms are being properly applied.

Finding E-2: Verizon PA's methodology for selecting records could be done in ways that are less complex and more transparent. In general, Data Marts are designed so that few table joins need to be done to extract data, because such joins degrade the performance of queries, particularly on large data sets. However, Verizon PA does use joins for some queries where it does not appear to be necessary to do so.

Finding E-3: Verizon PA may be improperly excluding data from some metrics, and improperly including data in others.

[Programming: SP, Calculations: MD]

Exhibit V-3
Page 2 of 12

Two factors are involved in choosing what data to include in a metrics report: 1) the business rules that govern what is allowed and not allowed to be included the query, and 2) writing code that implements the business rules; that is, selecting the correct records from the database with which to perform calculations. DCI uncovered possible issues with both factors.

Finding E-4: Verizon PA is not consistent in its methodology for measuring metrics data.

Accepted coding practices dictate that when very similar tasks are performed in a system, they should be performed in consistent ways. Performing a task in inconsistent ways can yield inconsistent results. Verizon PA's methods for calculating metrics often are not consistent. Examples are included in Appendix A

[Programming: SP, Calculations: MD]

Recommendation E-2: Verizon PA should review its programming methodologies for the comments identified above to ensure that the algorithms are being properly applied.

PO-3 Contact Center Availability

Definition: This metric measures Contact Center Availability. Contact Center Availability is the hours of operation for the Centers that support CLECs for Ordering, Provisioning, Maintenance and Billing issues.

Finding E-5: Busy call data (calls to the Center that received a busy signal) were not provided with the data used to calculate PO-03-04. These data were provided for the other PO-3 sub-metrics. Absence of these data caused some minor variance between the review calculations and the C2C guideline report.

[Calculations: MD, Programming: MP]

Recommendation E-3: Verizon PA should provide all required data for metric replication.

PO-8 Manual Loop Qualification

Definition: The PO-8 metric measures the response time for the provisioning of loop qualification information required to provision more complex services, when such information is not available through an electronic database.

Exhibit V-3
Page 3 of 12

Finding E-6: DCI could not match any of the field data extracted from the Request Net screen prints with those of the FACT Table. The date and time stamps were compared for a close match and found to vary by 3-8 seconds, making confirmation of the data questionable. DCI submitted a data request to clarify the findings. Verizon PA responded with the explanation that data comparisons are difficult to perform. Verizon PA stated that information collected for this measure came from a system called Wisdom, which extracts the timings from the gateway, and not RequestNet. As a result DCI could not verify the data.

[Calculations: N/A, Programming: SP]

Recommendation E-4: Verizon PA should coordinate the field identifiers for RequestNet and include them in the source data for the NMP. These data fields combined with the sent/received data/time stamps taken from the gateway by Wisdom will allow future CLECs or reviewers sufficient information to complete their reviews in a timely fashion. Verizon PA should develop and document detailed methods and procedures for the calculation and reporting of all the PO-8 sub-metrics.

OR-1 Order Confirmation Timeliness

Definition: This metric measures the amount of time between receipt of a valid order request and distribution of a Confirmation. For Resale and UNE orders, the measurement is of elapsed time, whereas for Trunks the measurement is in business days.

Finding E-7: Special Services ordered via LSRs are not properly identified in the Verizon PA data mart for measurement calculation purposes. This is the result of the inability of Verizon PA's source OSS systems to properly identify DS0 and DS1 LSR orders. The effect is significant but difficult to quantify. For details see Appendix B, Finding OR-1-8.

[Programming: SP, Calculations: SD]

Recommendation E-5: Verizon PA should implement a fix to correct orders with incorrect service order class IDs, so that they may be included in the correct metric disaggregations.

OR-4 Timeliness of Completion Notification

Definition: This metric measures the timeliness of Provisioning Completion Notifications (PCNs) and Billing Completion Notifications (BCNs) in various ways. It applies to EDI-submitted LSRs only.

Exhibit V-3
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Finding E-8: Verizon PA uses an inappropriate data field, RM_PCN_DATE, as a proxy to calculate the ONTIME_SOP_COMPL field when the SOP_COMPL_DATE field has no value and the WORK_COMPL_DATE field has an “invalid” value. This introduces bias into the metric because starting the interval to the PCN from an instant before the PCN, rather than when the work was actually completed, or the SOP was updated with its completion, guarantees that such records with invalid WORK_COMPL_DATES automatically have their PCNs considered On-Time. For detail see Appendix B, Finding OR-4-3.

[Programming: SP, Calculations: MD]

Recommendation E-6: Verizon PA should exclude records that have neither a valid SOP_COMPL_DATE nor a valid WORK_COMPL_DATE from the OR-4 metrics, and report the number of such records excluded in the C2C reports.

Finding E-9: BCNs sent out via Netlink/EDI in a different month than the PON was issued are counted in the month in which the SOP_NOTIF_DATE occurs. This is not consistently the month of SOP Completion (the beginning of the interval measured), nor is it consistently the month of Billing Notification (the end of the interval being measured). Whether the BCN was on time will be counted exactly once for each PON, so the excesses of PONs counted in one month will be balanced by not counting those PONs in a subsequent or previous month. The effect is minimal and DCI concurs with this practice, provided it is clarified in the Guidelines.

[Programming: NC, Calculations: MD]

Recommendation E-7: Clarify the practice described in Finding E-9, in the C2C Guidelines.

OR-5 Percent Flow-Through

Definition: This metric measures the percent of valid LSRs received electronically that process directly to the SOP without manual intervention.

Finding E-10: Verizon PA relies on ACE to analyze system response messages to determine if a PA April 2003 order whose INITIAL_FLOWTHRU_IND indicated that it was flowthru eligible, really was flowthru eligible. The result of this process is to substantially reduce the number of orders considered flow-through eligible. To determine the effect requires a review of the ACE process. For detail see Appendix B, Finding OR-5-1.

[Programming: N/A, Calculations: N/A]

Recommendation E-8: The ACE process and flowthru eligibility determinations should be thoroughly reviewed. DCI did not do this during the review, because of the late date (October 23, 2003) that the ACE data was supplied.

OR-10 PON Notifier Exception Resolution Timeliness

Definition: The OR-10 sub-metrics measure the percent of Netlink EDI PON Notifier Exceptions resolved within three (3) business days and ten (10) business days from the day of receipt of the completed PON Notifier Exception.

Finding E-11: Based on the data that Verizon PA provided DCI for replication, OR-10 could not be replicated. DCI utilized Verizon PA's SQL queries against the database as Verizon PA specified in the documentation. DCI could not duplicate results.

[Calculations: N/A, Programming: SP]

Recommendation E-9: Verizon PA should review and provide accurate data for replication of metrics.

PR-1 Average Interval Offered

Definition: This metric measures the average interval offered (in business days) for completed and cancelled orders.

Finding E-12: DCI found 229 provisioning records, all from the SCABS system feed, which did not identify whether the Provider was Resale, UNE, or Retail. These would not have affected the metric results, as they are disconnects of trunks, and although disconnects are counted in the PR-1-12 metric, Feature Group D and Interconnection Trunks are not reported disaggregations. For detail see Appendix C, Finding PR-1-2.

[Programming: MP, Calculations: MR]

Recommendation E-10: DCI accepts that metric results were not affected, but recommends that systems be improved to ensure that Provider is always identified on each record, in all provisioning data mart tables, so that Verizon PA will be in a position to react promptly when C2C Guidelines change.

Finding E-13: DCI found 22,142 April provisioning records designated as Platform product, yet having Retail Provider. Verizon PA responded that these are Retail orders relating to LineSharing product (thus, the Platform product designation is incorrect) which would not have been counted in the metrics because they are administrative orders. Verizon PA indicated that it will issue a process improvement Change Control to correct the product designation on the types of orders, but none of the notifications provided to DCI appear to address this issue. For detail see Appendix C, Finding PR-1-3.

[Programming: MP, Calculations: MR]

Exhibit V-3
Page 6 of 12

Recommendation E-11: Verizon PA should issue a process improvement Change Control to correct the product designation on these types of orders, as indicated in its response to ER D-003.

Finding E-14: Although Verizon PA's C2C reports indicate there were no data for PR-1-01-3342, UNE 2-wire xDSL Loops, DCI found 22 eligible records in April, with an average offered interval of 6.41 days; 42 eligible records in May, with an average offered interval of 6.00 days; and 43 eligible records in June, with an average offered interval of 6.00 days. Verizon PA indicated that they reviewed its code and found an error, which caused all UNE 2-wire xDSL Loops not to be counted in this submetric, and indicated that this would be corrected via issuance of a Change Control. Although this is a small number of orders, the effect could be significant. For detail see Appendix C, Finding PR-1-4.

[Programming: SP, Calculations: SD]

Recommendation E-12: DCI verified that Verizon PA sent out a Change Control, and implemented corrected code beginning with the August data month, and has no further recommendation regarding it.

Finding E-15: Verizon PA incorrectly excludes all orders with due dates shorter than the standard offered interval, for many provisioning performance measurement calculations for UNE 2-wire Digital Loops, xDSL Loops, Linesharing and LineSplitting products. Verizon PA's response to ER D-011 agreed with the exception. For detail see Appendix C, Finding PR-1-8.

[Programming: SP, Calculations: SD]

Recommendation E-13: DCI verified that Verizon PA sent out a Change Control and implemented corrected code beginning with the September data month, and has no further recommendation regarding it.

Finding E-16: Verizon PA has incorrectly excluded S-coded orders (shorter than standard interval) from PR-1-01-2341 and all PR-1-12 calculations (both CLEC and Retail comparatives). The Verizon PA issued Change Control dealt specifically with PR-1-01-2341 and did not correct code for other sub-metrics where similar issues occurred. For detail see Appendix C, Finding PR-1-7.

[Programming: SP, Calculations: SD]

Recommendation E-14: Verizon PA should correct its code to not exclude S-coded orders in all the provisioning performance measurement calculations.

Exhibit V-3
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Finding E-17: Verizon PA's policy of using LN_I_CNT as a surrogate for determining whether an order would have been dispatched had it not been cancelled prior to the DISPATCH_IND being set by WFA, is inaccurate, and leads to a substantially biased parity comparison for PR-1-01 (Non-Dispatched) 2-wire digital services, both for Resale and for UNE. The effect on retail is estimated to be 11% too high. Resale and UNE are inflated less. There may also be a slight bias in the opposite direction for PR-1-02 (Dispatched), but this is more difficult to detect. For detail See Appendix C, Finding PR-1-10.

[Programming: SP, Calculations: SD]

Recommendation E-15: Verizon PA should revise its procedures, as follows. Those cancelled orders for which it is definitely determinable that WFA did not set the dispatch indicator to either 'Y' or 'N' should be flagged for exclusion from these metrics.

Finding E-18: Verizon PA incorrectly includes Line Splitting orders for PR-1-01 and PR-1-02 for UNE 2-wire xDSL Line Sharing. Verizon PA's response to ER D-013 agreed with this exception, and indicated that it would issue a Change Control to correct this problem with targeted implementation of the October 2003 data month. Impact is extremely minimal. For detail see Appendix C, Finding PR-1-13.

[Programming: SP, Calculations: MD]

Recommendation E-16: DCI verified that Verizon PA scheduled a change control to correct this issue, and has no further recommendation regarding it.

Finding E-19: Verizon PA incorrectly excluded all UNE DS-1s received via ASR (PR-1-07-3211) in its C2C reports for April, May, and June. Verizon PA indicated that it had previously reported this metric under a different product code, but DCI found that this product code also omitted the DS-1 orders received via ASRs. This causes a significant effect, as nearly all DS-1 orders are issued via ASR. For details see Appendix C, Finding PR-1-14.

[Programming: SP, Calculations: SD]

Recommendation E-17: DCI verified that Verizon PA issued a change control to correct this issue, and has no further recommendation regarding it.

Finding E-20: All ASRs where the customer requested a shorter than standard interval (S-coded) are incorrectly excluded from PR-1 metric results. This occurs because the WCODED_IND field, used to determine eligibility based on the customer due date requested, is derived incorrectly. Verizon PA agreed that WCODED_IND was being improperly derived. For detail see Appendix C, Finding PR-1-15.

[Programming: SP, Calculations: SD]

Exhibit V-3
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Recommendation E-18: DCI verified that Verizon PA issued a change control indicating it had corrected this issue, and has no further recommendations regarding it.

Finding E-21: Many ASRs for which the customer accepted the standard interval (W-coded) are incorrectly excluded from PR-1 metric results. This occurs because the WCODED_IND field, used to determine eligibility based on the customer due date requested, is derived incorrectly. Verizon PA agreed that WCODED_IND was being improperly derived. This is significant, as half the orders (77 out of 142) were incorrectly excluded. For detail see Appendix C, Finding PR-1-16.

[Programming: SP, Calculations: SD]

Recommendation E-19: DCI verified that Verizon PA issued a change control indicating it had corrected this issue, and has no further recommendations regarding it.

Finding E-22: Verizon PA excludes all trunks from PR-1-09 whose Customer Desired Due Interval is greater than 18 days. Over 99% of all otherwise eligible CLEC and Retail trunk provisioning records are excluded from PR-1-09 because the Customer Desired Due Interval is greater than 18 days. Eighteen days is the standard interval for only a small subset of trunk orders. Many trunk orders have standard intervals of 30 or 60 business days. Under these conditions it is inappropriate to exclude all trunks with a customer desired interval greater than 18 days. For detail see Appendix C, Finding PR-1-19.

[Programming: SP, Calculations: SD]

Recommendation E-20: Eliminate the exclusion of all trunks whose customer desired due interval is greater than 18 days.

PR-3 Completed Within Specified Number of Days (1-5 lines)

Definition: This metric measures the average interval offered (in business days) for completed and cancelled orders.

Finding E-23: Finding E-17 for PR-1 also affects PR-3. This is significant, in that ‘S’ coded orders make up 3% to 5% of the Retail orders. For detail for PR-3 (PR-3-10-3341) see Appendix C, Finding PR-3-1.

[Programming: SP, Calculations: SD]

Finding E-24: Finding E-16 for PR-1 also affects PR-3 for UNE 2-wire Digital Loops, xDSL Loops, Linesharing and Line Splitting products. This is significant, as half of CLEC orders have shorter than standard interval for this metric. For detail for PR-3 see Appendix C, Finding PR-3-2.

[Programming: SP, Calculations: SD]

Exhibit V-3
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Finding E-25: Finding E-18 for PR-1 also affects PR-3 (PR-3-03 for UNE 2-wire xDSL Line Sharing). This has minimum effect since Linesplitting is very low volume compared to Linesharing. For detail for PR-3 see Appendix C, Finding PR-3-4.

[Programming: SP, Calculations: MD]

PR-4 Percent Missed Appointments

Definition: This metric measures the average interval offered (in business days) for completed and cancelled orders.

Finding E-26: Finding E-18 for PR-1 also affects PR-4 (PR-4-02,03,04, and 05 for UNE 2-wire xDSL Line Sharing). For detail for PR-4 see Appendix C, Finding PR-4-1.

[Programming: SP, Calculations: MD]

PR-5 Percent Facility Missed Orders

Definition: This metric measures the percent of installation appointments missed due to facility reasons.

Finding E-27: Finding E-18 for PR-1 also affects PR-5 (PR-5-01 and PR-5-02 for UNE 2-wire xDSL Line Sharing). For detail for PR-5 see Appendix C, Finding PR-5-1.

[Programming: SP, Calculations: MD]

PR-6 Installation Quality

Definition: This metric measures the percent of lines/circuits/trunks installed where a reported trouble was found in the network within 30 days of order completion.

Finding E-28: Finding E-18 for PR-1 also affects PR-6 (PR-6-01 and PR-6-03 for UNE 2-wire xDSL Line Sharing). For detail for PR-6 see Appendix C, Finding PR-6-2.

[Programming: SP, Calculations: MD]

Finding E-29: Verizon PA reported incorrect denominators for PR-6-03-3112 in its C2C results for April, May and June. However, the metric results matched those calculated by DCI exactly. Verizon PA acknowledged this error and stated that it used the correct denominators in the actual calculations. For details see Appendix C, Finding PR-6-5.

[Programming: MP, Calculations: MD]

Exhibit V-3
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Recommendation E-21: DCI verified that Verizon PA scheduled a Change Control to revise the report mapping for PR-6-03 UNE POTS Loops Denominator, with implementation scheduled for the November data month. If Verizon PA completes this, DCI has no further recommendations regarding the issue.

PR-8 Rate of Open Orders in a Hold Status

Definition: This metric measures the number of open orders that, at the close of the reporting period, have been in a hold status for more than 30 or 90 calendar days, as a percentage of orders completed in the reporting period.

Finding E-30: Finding E-18 for PR-1 also affects PR-8 (PR-8-01 and PR-8-03 for UNE 2-wire xDSL Line Sharing). For PR-8 details See Appendix C, Finding PR-8-1.

[Programming: SP, Calculations: MD]

MR-2 Trouble Report Rate

Definition: This metric measures the total initial customer direct or referred troubles reported, where the trouble disposition was found to be in the network, per 100 lines/circuits/trunks in service.

Finding E-31: In calculating Line Counts for xDSL Loops, Verizon PA has incorrectly included LineSharing line counts. Verizon PA correctly does not include LineSharing troubles in the numerators. The error of including LineShare inventory together with xDSL therefore leads these metrics to be substantially understated by about 30% (in a relative, not an absolute, sense). Verizon PA agreed with DCI's finding and indicated this error would be corrected via the Change Control process. For detail see Appendix D, Finding MR-2-3.

[Programming: SP, Calculations: SD]

Recommendation E-22: DCI has not found any Change Control notification indicating that this issue is scheduled to be resolved or has been resolved. Verizon PA should correct this error.

MR-3 Missed Repair Appointments

Definition: This metric measures the percent of reported Network Troubles not repaired and cleared by the date and time committed.

Exhibit V-3
Page 11 of 12

Finding E-32: Although the C2C Guidelines exclude redirected troubles, Verizon PA’s exclusion is too broad, and results in the incorrect exclusion of misidentified records which were never dispatched IN. This error could have substantial and material impact on the C2C results and PA PAP payment calculations derived therefrom. For detail see Appendix D, Finding MR-3-2.

[Programming: SP, Calculations: SD]

Recommendation E-23: DCI recommends that Verizon PA restrict the exclusion to operate only when a ticket had been dispatched IN once (change DISPATCH_IN_CNT <= 1 to DISPATCH_IN_CNT = 1). Such tickets are “possible redirects”. Those which had DISPATCH_IN_CNT = 0 are not even candidates for redirects and certainly should not be excluded. Among the “possible redirects” the trouble may or may not have been found on the second dispatch, so not necessarily all “possible redirects” are definitely redirects, and not necessarily all “possible redirects” should be excluded.

MR-4 Trouble Duration Intervals

Definition: This metric measures trouble duration intervals, i.e.: Mean Time to Repair (MTTR): For Network Trouble reports, the average duration time from trouble receipt to trouble clearance.

Finding E-33: Finding E-32 for MR-3 also affects MR-4. This is significant, as it results in a 20% error in duration time. For detail see Appendix D, Finding MR-4-3.

[Programming: SP, Calculations: SD]

Finding E-34: The DCI calculated and C2C Guideline reported results and denominators for MR-4-01-2216 matched perfectly, however, the statistical scores did not match. The only explanation for this is that the standard deviation was not calculated on the same data as the results and denominators. For detail see Appendix D, Finding MR-4-6.

[Programming: SP, Calculations: MD]

Recommendation E-24: Verizon PA’s system design is such that each standard deviation has a separate algorithm. If Verizon PA intends to maintain this design, safeguards should be built into it, to ensure that a standard deviation is being calculated on the same variable and on the same set of records as the mean and record count to which it is intended to relate.

Exhibit V-3
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Finding E-35: In the case of MR-4-04-2216, DCI and Verizon PA are in complete agreement regarding the underlying data. However, the statistical scores are wildly different. DCI considers that the statistical scores provided using Verizon PA's methodology, are completely unrealistic for these data, based on inadequate methodology for data which approximate either 0% or 100%. For detail see Appendix D, Finding MR-4-7.

[Programming: SP, Calculations: MD]

Recommendation E-25: Verizon PA should implement a statistical methodology which is more robust at results close to 0% and 100%.

SAMPLE PO-1 ALGORITHM

This metric measures the response time of the OSS Pre-Ordering Interface. Two different algorithms (SQL statements) are used for calculating these performance metrics. The first algorithm is used response time performance metrics (PO-1-01 through PO-1-07 and PO-1-09) and the second for rejected query performance metrics (PO-1-08).

DEFINITIONS

- **Response Time:** For metrics PO-1-01 through PO-1-06, and PO-1-09, response time is the amount of time, rounded to the nearest 1/100th of a second for a successful Pre-Order transaction.
- **Rejected Query:** A rejected query is a query that cannot be processed successfully due to incomplete or invalid information submitted by the sender, which results in an error message back to the sender.

DIMENSIONS

Performance metrics are calculated on a Verizon PA Retail, CLEC Aggregate, and CLEC specific basis as identified below for each of the different available interfaces.

- Company:
 - VZ Retail
 - CLEC Aggregate
 - CLEC Specific (PO-1-09 only)
- Geography:
 - Pennsylvania

Metric	CLEC CORBA	CLEC EDI	CLEC WEB	Verizon
PO-1-01	X	X	X	X
PO-1-02	X	X	X	X
PO-1-03	X	X	X	X
PO-1-04	X	X	X	X
PO-1-05	X	X	X	X
PO-1-06	X	X	X	X
PO-1-07	X	X	X	X
PO-1-08	X	X	X	
PO-1-09	X	X		X

ALGORITHMS**PO-1-01 through PO-1-07 and PO-1-09**

Replace the bold entry codes, below, with values from tables, below.

Formula

The sum of the response times divided by the number of queries in the report period.

SQL

```
SELECT SUM(SDT.RESPONSE_TIME)           AS numerator,  
COUNT(SDT.RESPONSE_TIME)             AS denominator,  
SUM(SDT.RESPONSE_TIME)/COUNT(SDT.RESPONSE_TIME) AS average_time  
FROM SDT, GRT  
WHERE  
SDT.STATE_CODE = GRT.STATE_CODE  
AND (GRT.GROUP_NAME IN (GN)  
AND SDT.INTERFACE_SOURCE = IS  
AND SDT.ORDER_ORIGIN = OO  
AND SDT.TEST_ACCOUNT_IND = TA  
AND SDT.TIME_OUT_INDICATOR = T0  
AND SDT.TRANSACTION_TYPE_SENT IN (TSent)  
AND SDT.RETURNED_TRANSACTION_CODE IN (TReturned)  
GROUP BY TO_CHAR(SDT.OUTBOUND_DATE,'YYYYMM'),  
GRT.GROUP_NAME;
```

PO-1-08**Formula**

Number of transactions that timeout divided by the total number of transactions.

SQL**Numerator**

```
SELECT COUNT(SDT.RESPONSE_TIME) AS numerator
FROM SDT, GRT
WHERE
SDT.STATE_CODE = GRT.STATE_CODE
AND (GRT.GROUP_NAME IN (GN)
AND SDT.INTERFACE_SOURCE = IS
AND SDT.TRANSACTION_TYPE_SENT IN (TSent)
and SDT.TEST_ACCOUNT_IND = TA
AND SDT.ORDER_ORIGIN = OO
AND SDT.TIME_OUT_INDICATOR = T0)
GROUP BY TO_CHAR(SDT.OUTBOUND_DATE,'YYYYMM'),
GRT.GROUP_NAME;
```

Denominator

```
SELECT COUNT(SDT.RESPONSE_TIME) AS denominator
FROM SDT, GRT
WHERE
SDT.STATE_CODE = GRT.STATE_CODE
AND (GRT.GROUP_NAME IN (GN)
AND SDT.INTERFACE_SOURCE = IS
AND SDT.TRANSACTION_TYPE_SENT IN (TSent)
AND SDT.TEST_ACCOUNT_IND = TA
AND SDT.ORDER_ORIGIN = OO)
GROUP BY TO_CHAR(SDT.OUTBOUND_DATE,'YYYYMM'),
GRT.GROUP_NAME;
```

Exhibit V-4
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SUPPORTING DATA TABLES

The following data tables are used in the calculation of the performance metrics.

SDT = TB_PRE_ORDER_FACT

GRT = TB_GEOGRAPHY_ST_GRP_DIMENSION

ENTRIES REQUIRED

The following entries (substitutions) for variables in the query that vary depending on the metric and dimension desired.

Entry code	Entry required	Explanation	Value
SDT	Supporting data table	Name of table containing supporting data for this measure	TB_PRE_ORDER_FACT
GRT	Geographic rollup table	Name of table containing geographical information	TB_GEOGRAPHY_ST_GRP_DIMENSION
IS	Interface source	Code indicating the source interface of the record	See below
OO	Order origin	Code indicating the origin of the record	See below
TO	Time out indicator	Code indicating whether the record timed out	See below
TA	Test account indicator	Code indicating whether the record is a test	See below
TSent	Transaction type sent	Code indicating the type of transaction, or submetric	See below
TReturned	Returned transaction code	Code indicating the result of the transaction	See below
GN	Group name	Code indicating the geographic group	'DC', 'MD', 'VA', 'WV', 'DE', 'PN'

Where an entry value is not needed, its line may be eliminated from the SQL documented below.

Exhibit V-4
Page 5 of 5

ENTRY VALUES

The following values are used to differentiate the interface used. They are the same for all performance metrics

Entry code	Verizon	CORBA	EDI	Web GUI
IS	N	C	E	W

The following values vary by the performance metric being calculated

Entry code	PO-1-01	PO-1-02	PO-1-03	PO-1-04	PO-1-05	PO-1-06	PO-1-07	PO-1-08	PO-1-09
TO	N	N	N	N	N	N	Y	N	N
TSent	CSR	DDA	ADR, ADT, CADR, CADT	PSA	TNS, CTNV	LXR	Not needed	ADR, ADT, CADR, CADT, CSR, DDA, PSA, TNS, CTNV, LXR, PCSR	PCSR
TReturned	CSA	DDR	ADA, ADI	PSR	ADA, RTR	LXA	REJ	Not needed	PCSA

The following entry codes distinguish whether the information is a Verizon PA or CLEC transaction or a test transaction.

Entry code	Verizon	CLEC
OO	N	P
TA	Not needed	N

VI – METRIC INPUT QUALITY ASSURANCE

VI – METRIC INPUT QUALITY ASSURANCE

A. – BACKGROUND

In order to audit the processes intended to ensure the accuracy of performance measures, DCI consultants reviewed relevant Verizon PA training documentation, reviewed relevant Verizon PA Methods and Procedures documentation, and interviewed Managers in numerous Verizon PA organizations which impact metrics capture and/or creation. Observations were made of the management of the Installation and Maintenance Service Technicians, the Designed Services technicians, the Wholesale Dispatch Resource Center, Central Office operations, and various Centers involved with the provision and maintenance of Competitive Local Exchange Carrier (CLEC) products and services.

INSTALLATION AND MAINTENANCE (I&M)- NON DESIGNED SERVICE

Three Verizon PA Installation and Maintenance Local Managers were interviewed on-site by DCI consultants with a specific emphasis on quality control and auditing. In order to develop a more complete profile of the situations and environment faced by the full range of Verizon PA Service Technicians, the Local Managers that were interviewed were from three different demographic and geographic areas listed below:

- Urban Service Center location (south Philadelphia)
- Suburban Service Center location (southern Chester County)
- Rural Service Center location (Coatesville, PA)

It is believed that this mix of customer environments provided the DCI consultants with an opportunity to evaluate whether or not Service Technicians were properly equipped and trained to handle their specific situations, in a wide range of customer service environments. The regions varied in terms of the saturation of business clients and the names and number of CLECs providing service to the regions visited. All three Local Managers reported that the number of Verizon PA customer lines within their respective service areas had been declining recently due to the increasing use of telecommunications services supplied by CLECs and wireless providers, for both business and residential customers. The interviews with and observations of the Local Managers in the three service areas revealed that there were strong similarities among the locations in terms of training, documentation, and organization in relation to the understanding of and efforts to achieve the applicable performance metrics.

Each of the Local Managers stressed the fact that their assigned Service Technicians had been trained to handle the CLEC-related work in the same manner that they handle retail work. The Local Managers also stated that they placed a significant amount of emphasis on this initiative in their staff meetings and daily tailgate sessions. There are only two significant operational differences between the CLEC work and the retail work that is performed by the Service Technicians. First, for the CLEC work, the Service

Technicians do not leave any paperwork at the customer site. Second, the Service Technicians generally do not communicate with the customer of the CLEC, as Verizon PA is only responsible for providing service to the point of demarcation, which is generally at the Network Interface Device (NID), or Minimum Point of Entry (MPOE) for certain business customers.

The CLEC is responsible for the provision of service on the customer side of the NID or MPOE. CLEC work is generally considered as being a bit easier than retail work by the Service Technicians as they only have to deal with getting service to the demarcation point and do not have to get involved with any Customer Premise Equipment (CPE) or inside wiring issues. In general, all of the Service Technicians perform CLEC related work; it is not specifically assigned to certain Technicians or work groups.¹

It was the stated opinion of the Local Managers that the Technicians treat the CLEC work as a priority over the retail work, due to the attention that this work, and its timely performance, receives from management. CLEC work has a high level of visibility within Verizon PA due to the presence of management reports (such as the monthly Customer Care Index report, which includes retail as well as CLEC customer responses) that are focused on tracking the performance of the Service Technicians versus the applicable performance standards.²

As a further method of ensuring the accurate and timely completion of the CLEC work, the Dispatch Resource Center (DRC) is required to contact the Local Manager immediately when a problem is identified with respect to a CLEC job, so that the problem can be quickly resolved. If a priority CLEC job is received, the DRC is responsible for contacting the assigned Service Technician directly via cell phone or pager. The Technician will be instructed to pick up the new job by dialing in (or docking in their communication device at the Service Center) to get the details of the priority CLEC job so that they can reprioritize their work schedules. It was the opinion of the Local Managers that, in general, the field operations groups have become much more efficient at handling CLEC work over the past year as both sides (Verizon PA and the CLECs) have become more familiar with the work, systems and processes.³

CLEC Reporting

Several situations were cited by the Local Managers in which problems that had been reported by CLEC customers were not problems with the service provision by Verizon PA, but rather they were CLEC technical problems. Such incorrect reports of trouble to Verizon PA are generally due to the fact that some customers do not understand which entity is responsible for which portion of the provision of their service. Local Managers stated that there were some initial problems encountered with the accurate and timely entry of CLEC job completion data in the time period when CLECs first appeared on the scene in Pennsylvania. This was primarily a systems problem that

¹ Interview Requests B-024, B-025, and B-026

² Interview Requests B-024, B-025, and B-026

³ Interview Requests B-024, B-025, and B-026

has since been resolved by software script changes which were instituted in early 2003. These changes reduced the number of job codes that were applicable to CLEC work, thereby simplifying the data entry process for Service Technicians. This made the process of closing out the CLEC work much more straight-forward, and resulted in a significant reduction in the number of errors that were being experienced.

Closeout information related to CLEC work (as well as retail work) is entered into the Intelligent Field Access System (IFAS) through the truck-mounted laptop terminals (which are docked and downloaded in the Service Centers each day). As part of the close-out procedure, the Technician also enters a narrative that describes the work done and any complications that may have been encountered in performing it. To complete the close-out of CLEC jobs, the Service Technician calls the CLEC and informs it that the work has been completed. When the CLEC-related work first began, the Technicians encountered frequent problems with contacting the CLECs once the job had been completed, but that situation has improved greatly over the past year. Related billings for the work performed are sent out by Verizon PA, based on the Service Technician's close out documentation and coding.

Installation and Maintenance (I&M) Training and Review

To ensure the quality of the work performed by the Service Technicians (in terms of both work performed and job completion data entered) the Local Managers perform a minimum of one quality inspection per month for each Service Technician. Generally, more frequent inspections (two-to-three times per month) are performed on the work of any Technicians who are new, or who have had recent performance or quality problems. These quality inspections generally include both post-work completion inspections and in-progress work inspections. As part of these inspections, the Local Manager verifies both the technical quality of the work completed, and the accuracy of the resulting data entry and paperwork. This includes review of the related timesheets and closeout documentation (including closeout codes and narratives) for accuracy. Local Managers frequently talk with Verizon PA customers when they are on-site, to get direct feedback on the quality of work and level of customer service provided by the Technician.

After inspections are completed, Local Managers meet with Technicians to review the results of inspections, and implement corrective action, if required. When the Local Manager encounters a quality problem, he or she will review the problem with the Service Technician and/or assign more training to be provided to the Technician. Most of the quality problems that Local Managers identify are detail-related, rather than anything major. The results of these quality reviews are documented and become part of the formal mid-year and annual Service Technician performance reviews.⁴

If a significant performance or quality problem is identified, the Local Manager performs a 3-day ride-along with the subject Technician to observe performance and implement necessary improvements. These ride-alongs are generally driven by productivity problems, rather than quality problems. The results of the rides are summarized by the

⁴ Information Request B-037

Local Manager and are submitted to the Quality Manager for the Service Center area. The Local Managers stated that these ride-alongs have historically proved to be effective at improving the performance of the subject employees. Local Managers are also responsible for performing two safety inspections per Technician per month. Local Manager's paperwork and performance are reviewed on a regular basis by the Area Manager, who also accompanies the Local Manager on a sampling of the field inspections.⁵

Service Technicians are supplied with full documentation related to the proper procedures to be used in closing out jobs, which they use for reference purposes, as required, such as the Verizon PA Method and Procedures Manual and training guides.⁶ They are also provided with on-line access to documentation, and updates and changes via their IFAS terminals. In addition, some of the Local Managers have produced summary sheets that include those codes that are used on a regular basis to document or close out jobs. All three of the Local Managers interviewed stated that they continually emphasize accuracy of data entry.⁷

Data related to the Jobs-per-Day performance statistics for each of the Service Technicians and the number of repeaters (jobs which have to be revisited for whatever reason) for each Technician are published weekly, and the Local Manager shares these data with them as a form of feedback on their performance. Jobs-per-Day is a very straightforward number that is easy to calculate. However, repeaters have to be researched by the Local Manager to determine if they are valid repeats. An example of a repeat that would not be considered valid is one for which access was not available for the technician. The reports used by the local managers to evaluate repeaters per technician do not contain this information; the manager must do some additional research to obtain it.

Internal reviews of Service Technician work quality are performed by Verizon PA subject matter experts from the Network Operations staff. These reviewers are responsible for performing these reviews on a full-time, year-round basis. Such reviews are not performed on a regularly scheduled basis, but rather are done on a random timeframe with no prior notice to Service Center management. These reviews include timesheet and time and material reviews. In advance of the review, Local Managers are directed to submit documentation associated with a selected set of completed jobs. This documentation is then reviewed by the subject matter experts for accuracy and completeness. These reviews may also include field inspections of the work that was performed. The results of these reviews are transmitted to the responsible Local Manager so that they can gauge the performance of their Service Technicians, and institute any necessary corrective actions.

DCI requested copies of all of the reports resulting from the audits and reviews performed on the field operations groups. The resultant documents did not include any

⁵ Interview Requests B-024, B-025, and B-026

⁶ Information Request B-015

⁷ Interview Requests B-024, B-025, and B-026

that verified that the disposition coding was reviewed and validated as a result of these analyses.⁸ Therefore, DCI consultants cannot confirm that this coding verification is being done on a regular basis.

Service Centers

The Service Centers are also subject to occasional DRC reviews. Additionally, Service Center managers are occasionally sent to review other Service Centers. These internal reviews are performed following a standardized routine and using standardized forms to report on the results.⁹

There is a Quality Manager assigned to each of the designated geographic areas who is responsible for the quality program at the Service Centers within that area. This Quality Manager works primarily on developing and updating procedures for the Service Technicians, and also coordinates the 3-day ride-along program, and other initiatives focused on reducing the rate of repeaters.¹⁰

The Service Technicians get their initial training at the Verizon PA Plant School which is located in Valley Forge, PA. This (three-week) program focuses on safety, climbing, communication tool usage and testing, customer contact, and technical training. The Technicians are then sent to the field with an experienced Technician for about three weeks to learn, in an on-the-job environment. Continuing training is being performed via training handouts and at the tailgate meetings that are held by the Local Managers every morning before the Technicians go into the field. In the case of the introduction of new equipment (for example, the Sidekick testing units that the Technicians now use), a representative from the equipment vendor conducts formal classes in the Service Center, for all Technicians.¹¹

The Technicians have been educated in the performance metrics process and are, therefore, very aware of the role that they play in the overall process. Because of this, they tend to watch their CLEC-related commitments very closely. The Local Managers get regular reports from corporate in instances in which a CLEC commitment is missed, or other CLEC-related problems are encountered. The Local Manager is assigned the responsibility of investigating, in detail, all missed commitments (both CLEC and retail) to determine a cause and a resolution to the problem, in order to avoid a recurrence in the future.¹²

The Local Managers receive Customer Care Index (CCI) reports on a monthly basis, which report the performance results for each of the Service Technicians reporting to each of the Local Managers. These CCI reports are produced by a Verizon PA corporate entity. The reviews may include phone calls made to a random sampling of customers

⁸ Information Request B-019

⁹ Interview Requests B-024, B-025, and B-026

¹⁰ Interview Requests B-024, B-025, and B-026

¹¹ Interview Requests B-024, B-025, and B-026

¹² Interview Requests B-024, B-025, and B-026

who have had work done recently, to determine their satisfaction with the work that was performed.¹³

Monthly CCI meetings are held to review the CCI reports with all of the Local Managers, their Area Managers, and the appropriate Vice President to cover the performance of the previous month and investigate any issues that may have occurred. (Note: These meetings had been discontinued prior to the interviews by DCI consultants due to the contract negotiations process, but they were scheduled to be reestablished after the contract was settled.) Each of the Local Managers is responsible for discussing monthly performance of assigned Service Technicians, and the efforts that are being made to improve performance and quality of the work performed.¹⁴

I&M – DESIGNED SERVICES

In locations with sufficient volume, there are organizations with responsibility for the installation and maintenance of wholesale designed services, including access services for Interexchange Carriers (IXC's) and special services for the CLEC's. The Wholesale Dispatch Resource Center (WDRC) handles designed wholesale services for Pennsylvania, Delaware, Western Maryland, and West Virginia. Dedicated technicians for these services are assigned to specific geographic areas and are dispatched by the WDRC. To review this operation, DCI interviewed the Area Manager-Business Operations for Eastern Pennsylvania and Delaware, a Local Manager in the organization, the Area Manager-WDRC, and the Director-National Operations, Mid-Atlantic-Wholesale Operations. In addition, a visit was made to the WDRC to review work operations and interview a Supervisor, National Operations, Mid-Atlantic-Wholesale Operations, who is charged with tracking the quality of technician reporting. This effort is discussed in some detail, after a brief review of overall order flow and local efforts on quality control.

Overall Order Flow

The Carrier Access Test Center (CATC) furnishes orders for new service and maintenance work from the IXC's to the WDRC for dispatch, while the CLEC Loop Provisioning Center (CLPC) and the Regional CLEC Maintenance Center (RCMC) perform these functions for CLEC work. All work orders are handled via the Work Force Administration-Dispatch Out (WFA-DO) system. The CATC, CLPC, and RCMC, are control offices for their respective orders and troubles. As control offices they are responsible for monitoring, tracking, and controlling orders and trouble conditions; and interact directly with the technicians for testing, trouble closeouts, and order completions.¹⁵

¹³ Interview Requests B-024, B-025, and B-026

¹⁴ Interview Requests B-024, B-025, and B-026

¹⁵ Interview Requests B-003, B-011, and B-013

The WDRC assigns and dispatches work to the technicians in accordance with a Dispatch Priority Matrix which is a standard in all Dispatch Resource Centers. Decisions are based on this matrix, with consideration being given to special commitments, access requirements at customer premises, and geography. A review of the matrix, a one page document, was performed by DCI. It was found to be very understandable, with the following general guidelines: “There may be occasions when there will be potential for missed appointments. The Dispatch Priority Matrix will guide personnel when selecting work to be dispatched.”¹⁶ Visits to DRC’s verified that this matrix is in place and being used.¹⁷

Technician Reporting

At the local level, technician accuracy and quality are addressed by the Local Manager, who is required to conduct two on-site inspections per technician per quarter, with follow-up to ensure deficiencies are corrected. The Area Manager participates in these inspections twice yearly with the Local Managers.¹⁸ DCI requested documentation of field reviews made for January 2003, through June 2003, for a Local Manager in this organization. Our analysis of this material indicates that the reviews are very comprehensive, including the physical work operations performed, and reporting. However, for the period noted there were only 26 reviews furnished for the Local Manager, indicating that the goal of two reviews per quarter per technician was not attained.¹⁹ DCI estimates that based on two reviews per quarter, 48 to 56 reviews should have been performed.²⁰

The Local Manager and the Area Manager also have Scorecards, which include extensive measurements and objectives. Included on the Local Manager Scorecard is a Quality section that addresses Riding Exercises and Inspections. A review of these scorecards for all of 2002 and for June YTD 2003 for all the Local Managers in this organization revealed that these lines of the Quality Section were not populated at all in most cases, and only sporadically in the remainder.²¹

As a further review of efforts to ensure the accuracy of technician reporting, a visit was made to the WDRC to assess the efforts being made by the Center to assist field supervision. The intent of the Center effort is to develop information that the Local Manager or Area Manager can use to focus on specific groups or technicians that are the major contributors to poor performance for whatever metric is being addressed. At the time of this visit, particular emphasis was being given to correct disposition coding and Mean Time to Repair (MTTR). Based on requirements from staff and other support organizations for the correct coding and closeouts, a mechanized program was developed

¹⁶ Data Request B-028

¹⁷ Interview Requests B-012, and B-016

¹⁸ Interview requests B-003, B-011, and B-013

¹⁹ Data Request B-013

²⁰ Based on average spans of control for first levels of 12-14 technicians.

²¹ Data Request B-014

that compares the close out code used by the technician in WFA-DO to key words from the supporting narrative supplied by the technician.

Since the narratives are scripted for particular disposition codes, mismatches can be identified programmatically by keying on specific words and phrases. Manual reviews are undertaken if there appear to be gray areas. From these comparisons, reports are created at the Technician, Local Manager, and Area Manager levels, and forwarded weekly to appropriate management. With this information, management can readily identify technicians, or groups of technicians, that are adversely affecting coding compliance and provide appropriate coaching or training. Although this particular technique seemed especially effective to the DCI consultant review team, the Mid-Atlantic Wholesale organization appears to be the only group using it.²²

Central Office Operations

Pennsylvania Central Office (CO) operations were also reviewed by DCI. The Director-Network Operations, Pennsylvania is responsible for all central offices located in Pennsylvania, a dispatch center, and the Recent Change Memory Administration Center (RCMAC). Work operations for the technicians in this organization flow through the Work Force Administration-Dispatch In (WFA-DI) system, and the Frame Order Management System (FOMS). For CLEC related orders and troubles, the Regional CLEC Control Center (RCCC) is the primary interface for the CO technicians, and is the Center for closing out this work. Normal provisioning orders are sent to the CO as a single work ticket. However, coordinated cuts, or “hot cuts”, require two work tickets. The first calls for pre-wiring the cutover, and is completed the day prior to the scheduled coordinated cut. The “cut ticket” provides for the actual cut to be made with a specific schedule. To ensure compliance, these are managed manually, and are tracked by the RCCC for timing and adherence.

Quality control for the organization is accomplished through a system called Competitive Management Performance Standards (CMPS). Under this plan, the first level supervisor is required to conduct three observations per month per technician to assess work performance, including documentation.²³ The documentation for June 2003, for one technician in each supervisor group was requested. As a result, some 78 observations were reviewed. The observations are very comprehensive, addressing record keeping, proper use of systems, correct use of tools (for appropriate titles), effectiveness of customer contacts when appropriate, safety, and any training conducted for the individual during the period. The groups addressed ranged from the frame, to switch personnel, to power technicians, to clerical staff. Depending on the person being observed, each form provided an opportunity for as few as 15 yes/no responses to over 30, yes meaning they were in compliance; no meaning they were not. DCI found one “no” response among the 78 observations reviewed.²⁴

²² Interview Request B-016

²³ Interview Requests B-005 and B-015

²⁴ Data Request B-023

VERIZON PA CENTERS HANDLING CLEC WORK

DCI also reviewed various Centers, each discussed below, that are involved in CLEC order and trouble processing (the Centers are generally organized to handle a specific product or set of related products).

The Regional Resold Services Center (RRSC) handles Unbundled Network Element – Platform (UNE-P) special circuits for the Verizon PA footprint, functioning as the Order Control Office (OCO) and the Maintenance Control Office (MCO) for the products handled. Quality reviews are done by management to ensure that correct notes are entered in the WFA, that orders are statused and closed out properly, and that trouble tickets are closed out properly. The organization is ISO 9000 certified, and is reviewed periodically to ensure the certification is appropriate.²⁵ A sample of the management quality reviews was requested and reviewed by DCI. In general, the review format was very good, and the reviews indicated that items needing attention were identified and addressed.²⁶

The RCCC does provisioning for unbundled loops. Regular dial tone orders are loaded into WFA-DO and sent to the appropriate DRC for dispatching. As noted earlier, in the CO discussion, this Center also handles the coordinated cuts. In this Center the team leads are required to make four observations per technician or Maintenance Administrator (MA) per month for quality purposes. This Center is ISO 9000 certified, with periodic reviews being conducted to ensure the rating should be maintained.²⁷ DCI requested and reviewed the Report Card used to capture the review results for an MA and for a technician. This is a yearly scorecard that shows monthly results. The reviewed documents were current and comprehensive.²⁸

One CLPC provisions and maintains the UNE High Capacity circuits for the CLEC customers. For the products handled, this Center is the OCO and MCO as appropriate. The Center is ISO 9000 certified and undergoes periodic reviews to ensure adherence. Team Leads make observations and reviews of the technicians to assess compliance.²⁹ A sample of these was reviewed, and they appeared to be thorough and timely.³⁰

A second CLPC is responsible for Digital Service Line (DSL) products for the CLEC's and Data Local Exchange Carriers (DLEC's), to include VADI, a Verizon PA affiliate operating as a DLEC. Line sharing, line splitting, and digital loop Integrated Services Digital Network (ISDN) are handled by this CLPC. The Team Leaders are required to perform four quality inspections per craft employee per month. ISO 9000 certification has been completed for this Center, and it has recently been re-certified.³¹

²⁵ Interview Request B-006

²⁶ Data Request B-037

²⁷ Interview Request B-007

²⁸ Data Request B-042

²⁹ Interview Request B-009

³⁰ Data Request B-045

³¹ Interview Request B-008

The RCMC is the call receipt Center for trouble reporting and statusing for various CLEC products and services. It was noted that the RCMC is not in the Wholesale organization, but is part of National Operations. Reviews are done of the employees taking calls, to assess their performance. Generally two or three reviews are also done in the Center locations by the Staff group from National Operations each year. These review teams sit with the employees doing the work, as well as review documentation.³² DCI requested documentation for a review and was furnished one review made in Richmond, Virginia on June 3, 2003. The quality audit summary provided clear findings and action plans to address them.³³

NON-PAP METRICS

An element of the DCI investigation was a determination of the level of focus and attention given to those metrics which are included in the Carrier-To-Carrier (C2C) Guidelines, but which do not appear in the Pennsylvania Performance Assurance Plan (PA PAP), or have resulting penalties directly or indirectly attached. Obviously the concern is that those metrics which are not attached to financial penalties may not receive the emphasis that PA PAP metrics do. DCI's review found that all metrics are given similar focus and attention.

Verizon PA addresses all CLEC activity and metrics equally, including those metrics which are not subject to the PA PAP. As discussed earlier, field operations are mostly driven towards performance standards that do not segregate CLEC from Verizon PA, let alone PAP from non-PAP metrics. The President – Wholesale Operations holds weekly conference calls in which any metrics which have been missed or are in danger of being missed are discussed. Managers who are responsible for the area/metrics involved are “invited” to join this call. A report which specifically address non-PAP metrics is produced for the President-Wholesale Operations. This report specifically highlights any non-PAP metric that has been missed in any state.³⁴

DOCUMENTATION

As part of this investigation, DCI consultants reviewed Verizon PA documentation related to performance metrics as they apply to field operations personnel. Such documents included the following:

- Copies of Verizon PA Pennsylvania training manuals and materials as they relate to performance metrics, with a particular emphasis on Service Center operations personnel. This included the course materials and student workbook for Course #DI5730, entitled *System Expediting the Remote Verification and Input of Customer Enhancements (SERVICE)* as developed by the Bell Atlantic Learning

³² Interview Request B-021

³³ Data Request B-055

³⁴ DR B-049, C2C outliers.xls (for both May and June 2003)

Center and dated April 1997. The course focused on using the *SERVICE* system, which is a Bell Atlantic-developed system that was initially designed to meet the requirements of the Maintenance Case Team for easy access to all central office switch types, for both verify and update functions. It focuses primarily on training in how to verify lines from different types of switches, and how to verify the presence of available CLASS features such as Caller ID, Call Block, Call Trace, and other switch features.³⁵

- Methods and Procedures documentation used by the Verizon PA Service Technicians who provide wholesale services for IXC and CLEC customers. This included the Verizon PA Methods & Procedures Release Document Number 2003-00614-MDP, which focused on the description and uses of IFAS for use by Verizon PA Service Technicians in the Potomac Region, as issued in July 2003.³⁶ The documentation focuses primarily on the process to be followed by Verizon PA Service Technicians in using IFAS to perform and record installation and maintenance tasks. Such tasks included the following:
 - Receive and view a new job
 - Usage of the Mechanized Loop Testing (MLT), Loop Facility Assignment Control System (LFACS), Cable Records Analysis System (CRAS)
 - View line record and trouble history
 - Close out an installation or maintenance job
- The Guide to Residential Product Knowledge for Maryland, issued by the Verizon PA Training and Education Department in April 2000. This document provides information concerning residential customer classes of service and the optional telephone services and maintenance service plans that are available.³⁷
- The Verizon PA Basic Installation & Maintenance (I&M) Student Guide dated November 2001. This document is the basic training manual for Verizon PA Service Technicians. It covers a wide range of topics ranging from basic telephony circuitry principles through the basic concepts and processes for installation and maintenance procedures and circuit and equipment testing.³⁸
- Mechanized Trouble Analysis System (MTAS) Trouble Reports-Type, Disposition and Cause Loop Maintenance Operations System (LMOS) document was reviewed. This 218 page document provides the definitions and descriptions of the codes used by the field technicians when closing out troubles. It covers the type code which generally describes the customer experience such as Type Code 100 No Dial Tone, Disposition Codes 01 through 12³⁹ and Cause Codes 1 through 5.⁴⁰

³⁵ Information Request B-016

³⁶ Information Request B-015

³⁷ Information Request B-015

³⁸ Information Request B-015

³⁹ Disposition Code 13 is not in use

⁴⁰ Data Request B-082 (a follow-up to Data Request B-068)

B. – FINDINGS

1. Training, Support and Internal Supervisory Reviews Of Field Technicians Handling Of CLEC Work Activities Are Sufficient.

The training, technical documentation, methods and procedures, and wholesale operations supervisory reviews provided by Verizon PA to their Service Technicians in the field are sufficient to support them in properly fulfilling their role in achieving the targeted performance statistics. While the training and documentation that was reviewed was not specifically focused on the fulfillment of the requirements of performance metrics, it did focus on how to properly perform and document the installation and maintenance tasks for CLECs (as well as for retail customers). Such documentation is an important element in ensuring that the tasks that are assigned to the Verizon PA Service Technicians are performed properly and efficiently.⁴¹ As we note throughout the background section, technicians receive initial and follow-up training, and have access to proper procedures in hardcopy and electronic formats. Further, the local managers perform work evaluations which include evaluating jobs performed for CLECs.

2. Verizon PA Local Managers Place Proper Emphasis On PA PAP Performance Metrics.

Verizon PA's local managers in Pennsylvania Service Centers place proper emphasis on the importance of achieving the targeted performance statistics as measured by the PA PAP.⁴² Due partly to the strong emphasis placed on the achievement of the performance statistics by the Verizon PA Network Operations group management, Local Managers are very aware of the importance of the CLEC performance statistics and they, in turn, pass this emphasis on to their Service Technicians. The Local Managers also perform a standardized quality monitoring and control function that ensures that any problems that are experienced by the CLECs are identified and resolved on a priority basis. The Service Technicians have a strong awareness of their roles in fulfilling the service requirements of the PA PAP process.

3. The Additional Follow Up Review Being Performed On Disposition Codes By The WDRC Is An Excellent Process That Should Be Used By Other Verizon PA Organizations.

The programmatic checking of designed services trouble disposition codes being done in the WDRC with field follow-up and review appears to DCI to be an excellent approach to maintaining or improving the accuracy of this coding. The importance of accurate coding has been recognized in the Wholesale Designed Services organization, and a mechanized approach to ensuring that it is maintained or improved has been developed. This programmatic effort allows for a much broader review than one requiring manual review of closed out troubles. It also provides for a much more focused approach, in that reports

⁴¹ Information Requests B-015 and B-016

⁴² Interview Requests B-024, B-025, and B-026

can be customized to address differing groups or metrics. Typically, coding reports are developed at the individual technician level, if the Local Managers think this is warranted based on their observations. Reports are also furnished weekly at the Local Manager and Area Manager level. DCI did not find this process in any other organization reviewed. It appears to be unique to the Wholesale Designed Services organization.

4. Verizon PA Does Not Perform Formal Internal Audits Or Staff Reviews Of Disposition Coding.

DCI was not provided any evidence of formal Internal Audits or Reviews of customer trouble report disposition coding, nor was there any data provided for comparative analysis of retail and wholesale disposition coding of trouble reports.⁴³ Trouble Report disposition code accuracy is critical to the accuracy of the parity measurements, and in addition to the accuracy of CLEC billing for trouble handling. Since many of the 123X codes and the 1207 code are chargeable to the CLEC, CLEC billing is affected by technicians inaccurately closing out CLEC troubles. DCI requested a history of disposition codes by retail and wholesale in an effort to determine trends in their use, but was advised that the information would not be furnished, since Verizon PA thought it did not apply to performance metrics, and would require writing code to get the detail requested.

However, as part of the review of the Maintenance and Repair Metrics, DCI was able to develop a comparison of disposition codes for the April, May and June 2003, time frame. While all codes were reviewed, of particular interest is the comparison of the percent of total troubles coded as 09's and 12's for the retail versus the UNE product. For the period noted, 13.6 percent of the retail troubles were closed with a disposition code 09XX, while 2.9 percent of the UNE product troubles were closed as code 09XX. Conversely, for the same period, 22.4 percent of the retail troubles were closed to disposition code 12XX, while 41.9 percent of the UNE product troubles were closed as code 12XX. This indicates that Verizon PA may be incorrectly closing a higher percentage of CLEC troubles to Code 12 than they are closing Verizon PA retail troubles. This not only has the potential to affect the accuracy of the parity metrics, but also could be a CLEC billing issue as well. DCI understands that disposition codes are reviewed by local managers. However, DCI believes that disposition coding Internal Audits and Reviews are required because of the criticality of disposition coding to the accuracy of the parity measurements as well as billing to CLECs for trouble handling.

⁴³ As stated in this section, DCI was made aware of informal reviews of disposition codes by local managers; however DCI does not consider this sufficient.

C. – RECOMMENDATIONS

1. Continue Providing Support To Field Technicians Through Training And Supervisory Reviews. (Refer to Finding No. 1)

Verizon PA should continue to support field technicians with training and supervisory reviews currently provided. Depending on the findings of the Internal Audit recommended in Recommendation 4 below, additional training should be provided to address any deficiencies identified.

2. Encourage Local Managers To Continue To Emphasize PA PAP Metrics With Field Technicians. (Refer to Finding No. 2)

Local Verizon PA Managers place adequate emphasis on performance measures including the PA PAP performance measures. They should be encouraged to continue this effort, through emphasizing the measuring and reporting of specific PA PAP performance measures at the local manager level.

3. Expand The Approach Of Programmatic Checking Used In The WDRC To Include The POTS Installation And Maintenance Organizations. (Refer to Finding No. 3)

The mechanized approach to coding in use by the Wholesale Designed Services organization was noted in Finding No. 3 as an excellent method for addressing coding accuracy. However, a similar approach was not found in the Plain Old Telephone Service (POTS) organization that handles both retail and wholesale work. Verizon PA should examine the process used by the WDRC and adapt it for other Verizon PA Installation and Maintenance organizations and Centers. Of particular note is the mechanized review process which is made possible by standardization of phases.

4. Perform Internal Audits Of Field Technician Disposition Coding. (Refer to Finding No. 4)

DCI was unable to validate the accuracy of disposition coding by Field Technicians with any degree of certainty. This not only has the potential to affect the accuracy of the parity metrics, but also could be a CLEC billing issue as well. Internal audits of this area should be undertaken as soon as practical. At a minimum, the audits should examine, on a retail versus wholesale comparative basis, a statistically valid sampling of tickets closed out to Code 12 and to Code 9. The internal audits should include multiple locations in the Pennsylvania service territory. Based on the findings of the initial audits, a schedule of future audits should be developed. The PA PUC should be notified when the internal audits are completed, and the audit results should be furnished to the PA PUC upon completion.

VII – PERFORMANCE ASSURANCE PLAN SUPPORTING
DOCUMENTATION REVIEW

VII – PERFORMANCE ASSURANCE PLAN SUPPORTING DOCUMENTATION REVIEW

A. BACKGROUND

Performance measures were developed to provide the necessary evidence to ensure the Incumbent Local Exchange Carrier's (ILEC's) local network was open to competition, providing a level playing field, prior to the Federal Communications Commission (FCC) granting authorization for the incumbent to enter the long distance market. However, many interested parties were concerned that once allowed to enter the long distance market, with the "271 incentive" behind them, there would no longer be a reason for the ILEC to continue to provide the same level of service that was necessary for FCC authorization and required by law.

In response to this concern the FCC has required the ILEC to agree to a self-executing performance incentive/assurance plan as part of each §271 application. In most jurisdictions, this plan includes a sub-set of the total performance measures and contains the measures that are considered to most affect competition. The plan calls for significant penalties to be imposed should the ILEC fail to meet performance standards during a certain period. Penalties can be paid to individual CLECs, the Competitive Local Exchange Carrier (CLEC) community in total, and to the state.

Prior to 2000, the New York Public Service Commission (NY PSC) determined a list of measures that were considered important to competition and negotiated weights for each with Verizon PA. The most important measures are also critical measures and are assigned the greatest weights. The weights assigned to each sub-metric determine the amount of penalty for missing the metric.¹ The Pennsylvania Public Utility Commission (PA PUC), which adopted the New York Performance Assurance Plan (NY PAP), has the right to re-evaluate the weights as needed in accordance with the plan. This plan is documented in the "*Performance Assurance Plan Verizon Pennsylvania Inc.*" (PA PAP or PAP), of which the latest version is dated June 1, 2003.²

The original performance plan in Pennsylvania went into effect in June 2000, which is also the first month in which penalties were imposed. This PAP was in effect through March 2003. According to Verizon PA, there were many problems with the original PAP. This original PAP was based on failure to meet standards for two consecutive months, and there were no provisions for bill credits to CLECs. Penalties were incurred every month, and the penalties were paid by check instead of bill credits. Although the Pennsylvania measures have evolved over the years with many revisions, they are not as extensive as the changes that have occurred in the PA PAP.³

¹ Telephone interview with New York Public Service Commission (NY PSC) Staff, July 29, 2003

² Information Response A-003 (*Performance Assurance Plan Verizon Pennsylvania Inc., dated June 1, 2003*)

³ *Id.*

When the decision was made to conform Pennsylvania to the New York metrics it was also decided to move Pennsylvania to the NY PAP. Verizon PA did not go directly to the NY PAP, but in March 2003, went to the Virginia PAP that was based on the NY PAP.⁴

The decision to conform the PA PAP to the NY PAP was based mainly on Verizon PA's argument that performance metrics and the related Performance Assurance/Incentive Plans for other ILECs are standardized across their relative serving regions. DCI's experience with other ILEC's reflect that although for the most part, the equivalent to the Carrier-to-Carrier (C2C) Guidelines is fairly standardized across the ILEC's region, the state PAP plans are not. The commissions put much effort in assuring that their performance plans carry out their purpose based on the particular geography, level of existing competition, metrics to be included in the plans, provisioning for periodic audits, total dollars at risk, tendency to consider penalties as a cost of doing business, etc., and place little emphasis on whether the plans are consistent across other states. Therefore, the Performance Assurance/Incentive Plans tend to vary greatly from state to state for other ILECs.

April 2003 is the first month that Verizon PA operated under the version of the PAP that is the subject of this audit. Eleven of Verizon PA's states have adopted this PAP. New York and Massachusetts have operated the longest under this plan. According to NY PSC staff, penalty payments originally ran around two million dollars per month, but have decreased to only a few hundred thousand dollars a month. The reduction in penalty payments is credited to Verizon PA making major improvements in its ordering systems, as opposed to any revisions that may have occurred in the provisions of the PAP.⁵ Other revisions were made to the April 1, 2003 PAP that went into effect June 1, 2003. The major change between these two versions is dividing the reporting of Unbundled Network Elements (UNEs) into two separate categories of UNE-Platform and UNE-Loop for both critical measures and Mode of Entry (MOE). Although this split is based mostly on existing market conditions, the split to segregate UNE-Loop also allows the PAP to be used to push growth to UNE-loop to provide an added incentive for true facilities-based competition.

Additions or revisions to the PAP are handled differently in Pennsylvania than they are in New York. In Pennsylvania, the Pennsylvania Carrier Working Group (CWG) not only evaluates Pennsylvania specific proposals or those referred by the New York CWG to revise the C2C, they also deal with proposals to amend the PA PAP. The New York CWG does not deal with PAP issues except to clarify minor provisions and make certain the appendices agree with the main provisions.⁶

As part of audit activities, DCI consultants were charged with assessing the completeness of Verizon PA's documentation that supports the penalty assessment calculation and reporting process. Audit activities were to be conducted to:

⁴ Telephone interview with PPUC Staff, August 6, 2003

⁵ Telephone interview with NY PSC Staff, July 29, 2003

⁶ Telephone interview with Verizon PA Technical Staff, July 22, 2003

- Determine whether related procedures for developing and maintaining documentation related to the calculation and reporting of PA PAP remedies exists and whether such procedures conform to reasonable levels of quality and quality control as well as the PA PAP.
- Determine whether supporting documentation exists for calculating and reporting PA PAP remedies resulting from performance metric results, including calculations, formulae, weights, performance standards and aggregations/disaggregation and whether such documentation faithfully reflects Commission order(s), the PA PAP, and meets reasonable standards for clarity and completeness.

In order to perform its evaluation, DCI requested that Verizon PA provide the following documentation:

- An up-to-date copy of the PA PAP
- All Methods & Procedures documentation interpreting the PA PAP
- Final Opinion and Order on Performance Measures and Payments for Wholesale Performance for Verizon PA (PMO II)
- Any testimony, filed comments and informal documentation pertaining to the PA PAP
- Relevant Commission rulings and regulations
- All dockets or orders generated from the PA PUC pertaining to the PA PAP
- Network Metric Platform System (NMP) documentation describing the process of calculating penalty assessments from C2C performance results

DCI also conducted interviews with the NY PSC, the staff of the PA PUC and Verizon PA personnel. In addition, Verizon PA held a one-day workshop with DCI in Philadelphia, in order to walk DCI through its processes and interpretations in implementing the provisions of the PA PAP. The purpose of these interviews and the workshop was to gather background information on the development of the PA PAP, gain a better understanding of certain provisions of the PA PAP and to verify DCI's understanding of the more complex provisions contained within the PA PAP. A follow-up interview was held in New York City to clarify certain PA PAP provisions and address inconsistencies found in the documentation or discussed in previous interviews.

This section of the report deals only with the adequacy of the documentation supporting the PA PAP calculations and not the accuracy of the monthly performance penalties themselves. The reader should refer to Chapter VIII of this report, "Calculation of Performance Assurance Plan Penalty Payments", for a discussion of the accuracy of Verizon PA's calculated remedy payments.

B - FINDINGS

1. Documentation Supporting Verizon PA's Implementation Of The PA PAP Is Insufficient Without The Excel Model Spreadsheet.

Verizon PA informed DCI that there was no internal documentation supporting the implementation of the PA PAP. According to Verizon PA, everything that is needed to calculate penalty payments based on monthly performance results is contained within the PA PAP document itself.⁷ However, DCI learned from an interview with the NY PSC of the existence of an “Excel model spreadsheet” developed by NY PSC staff, which is necessary to fully understand many of the provisions of the PA PAP. Originally it was not clear to DCI whether the provisions of the PA PAP took precedence over the Excel model spreadsheet should there be a discrepancy between the two, or vice versa. According to NY PSC, if there is a difference between the model and the NY PAP, the model will take precedence.⁸ Verizon PA, PA PUC Staff, and CLECs agreed that the NY Excel model spreadsheet, which was developed for the PA PAP, is helpful in the interpretation of a NY style PAP, but the NY spreadsheet has had numerous errors identified that resulted in incorrect calculations of remedy payments. Although there has been a spreadsheet developed for use in Pennsylvania;⁹ neither it, nor the NY spreadsheet is part of the record in Pennsylvania, therefore, in Pennsylvania the PA PAP is the controlling document.

DCI did find that it would be impossible to implement the PA PAP without the assistance of the Excel model spreadsheet. However, the PA PAP contains no reference to this spreadsheet. Verizon PA explained that the NY Excel model spreadsheet is provided to parties on a NY PSC website.¹⁰ Because of the usefulness and importance of the PA Excel model spreadsheet, DCI finds that it would be helpful to have some statement in the PA PAP which refers to the PA spreadsheet and that Verizon PA makes this spreadsheet available in PA, to provide further clarification of calculations made to implement the PA PAP.

Verizon PA also explained that the majority of the formulae necessary to calculate PA PAP remedies are contained within the Excel model spreadsheet, with the exception of certain manual processes that are either too cumbersome, such as statistical tests on small sample sizes, or those that are rarely triggered. This is due to limitations of the Excel model spreadsheet; but Verizon PA stated that all these calculations are performed within its NMP. DCI requested all NMP supporting documentation but was informed that Verizon PA has not yet developed this documentation.¹¹

⁷ Telephone interview with Verizon PA Technical Staff, July 22, 2003

⁸ Telephone interview with NY PSC Staff, July 29, 2003

⁹ During DCI's field work, this was not referenced in PA PAP documentation.

¹⁰ Interview with Verizon PA Technical Staff in New York City, New York, September 24, 2003

¹¹ Interview with Verizon PA Technical Staff in New York City, New York, September 24, 2003

In addition to the lack of supporting technical documentation, through its interviews and workshops held with the various parties, DCI identified several areas where the information contained within the PA PAP is unclear and should be clarified, or cases of inconsistency or discrepancies within the PA PAP itself that should be corrected.

2. Verizon PA's PAP Documentation Does Not Satisfy PA PUC Requirements.

The documentation provided by Verizon PA does not satisfy the PA PUC's requirement regarding the level of detail required, nor fulfill Verizon PA's obligation to interested parties to make the penalty assessment process easy to work with (showing its work in arriving at the end result). The process, as currently documented by Verizon PA, does not meet the PA PUC's requirement of transparency. The documentation must be such that it allows all parties to understand the process by which Verizon PA derives correct remedy payments for individual CLECs from the monthly performance metric results. This is required to ensure: 1) that the results of the various remedy calculations are accurate and reflect the actual performance rendered by Verizon PA, 2) parity of service, and 3) openness of the market in Pennsylvania.

DCI found the PA PAP documentation inadequate in detail for even a relatively experienced auditor to replicate remedy payments resulting from performance results. Even with the assistance of the Excel model spreadsheet, DCI found it difficult to perform its own calculations. According to the PMO II, Verizon PA has the obligation to provide business rules to the Staff, to consultants and to the CLEC community that support the PA PAP. It should contain step-by-step instructions on how Verizon PA calculates remedy payments. The PMO II requires Verizon PA to provide the following:

- Each CLEC, upon its request, and the Commission should receive its own CLEC-specific data (*e.g.*, flat files), metric and remedies reports, as well as aggregate metrics and remedies reports. Verizon PA may honor a CLEC's request for less than the full information packet.
- The Commission will receive CLEC-specific data, metric and remedies reports (subject to proprietary designation) as well as aggregate metric and remedies reports.
- Verizon PA should work with appropriate Commission staff to provide the reporting in a format usable to the Commission.¹²

DCI found that Verizon PA's PAP documentation does not meet these requirements.

3. The Data Verizon PA Provides To Commission Staff And Third-Party Reviewers Does Not Meet The Requirements Of The PMO II.

During the development of PMO II, Verizon PA argued that it is extremely cumbersome to provide each CLEC with its individual CLEC-specific data (*e.g.*, flat files), metric and

¹² See *Final Opinion and Order on Performance Measures and Remedies for Wholesale Performance for Verizon Pennsylvania Inc.*, Docket No. M-00011468 (Opinion and Order entered December 10, 2002) (PMO II).

remedies reports, as well as aggregate metrics and remedies reports. Therefore, Verizon PA requested that this reporting not be automatic, but rather, the CLECs should be required to request what they want in the way of reporting.¹³ The Commission agreed in its order that Verizon PA would only be required to furnish the CLEC the C2C and PA PAP reports as requested by the CLEC, but Verizon PA would be obligated to provide CLECs a complete list of what is available on a yearly basis. The CLEC would not be limited on the number of times per year it would be allowed to change its request.

DCI identified a problem with Verizon PA only providing what is requested by each CLEC during its attempt to replicate Verizon PA's calculated remedy results. Since DCI was only provided with the CLEC reports that Verizon PA had produced (those which had been requested by the CLECs) DCI could not replicate Verizon PA's results in order to verify the accuracy of Verizon PA's reported remedy payments based on C2C results. Although Verizon PA was only required to furnish reports to CLECs upon request, the PMO II still requires Verizon PA to furnish all individual and aggregate reports to the Commission. Therefore, DCI finds Verizon PA does not meet its obligation to make CLEC-specific data, metric and remedies reports available to the Commission as required by the PMO II.

4. Certain Provisions Of The PA PAP Are Not Clearly Stated Within The Document.

DCI found that some PA PAP provisions are not clearly documented, which can be misleading and lead to confusion and misunderstanding. One of the provisions of the PA PAP gives the PA PUC the unilateral authority to shift money from one area of the plan to another upon providing 15 days notice prior to the month in which the shift is to become effective. Although it is not clear in the documentation, this provision allows the Commission to shift money between MOE, critical measures, special provisions, or the Change Control Assurance Plan (CCAP), in addition to the ability to shift money between resale, UNE-Loop, UNE-Platform, etc. The Commission may also produce this shift of money by changing the weights allocated to each of the measures within the MOE and critical measures.

This shift of money is accomplished by Commission order and depends on the terms contained within the order. The PA PAP could be revised in either a temporary shift or a permanent one. According to Verizon PA, this is a very open-ended statement, and is intended to be so in order to not limit the powers of the Commission.¹⁴ If this is the case, then the PA PAP should state that the powers of the Commission are not limited and may be exercised unilaterally at any time, in order to make it clear. (In some jurisdictions, an ILEC argued adamantly that a PAP is a voluntary, self-executing commitment, therefore a state has no right to make unilateral changes.) Since that is clearly not the case in Pennsylvania, a clear statement to the contrary will eliminate any confusion.

¹³ *Id.*

¹⁴ DCI Exception Report A-002

Another provision governing the MOE metrics allows for a doubling of penalty payments in the case of significantly poor performance over a consecutive three-month period. This provision has never been triggered in Pennsylvania; however, the PA PAP states that once triggered, the doubling of the MOE will remain in effect until Verizon PA achieves a score of one quarter (or greater) the difference between the minimum and maximum scores. It is not clear from this statement that it is necessary to add the one-quarter difference to the minimum score to establish the score required to eliminate the doubling effect, since the statement, “the difference between the minimum and maximum score”, is necessary to describe what is to be divided into fourths.¹⁵ It would be helpful if the more complicated provisions of the PA PAP contained mathematical examples, especially in the related Appendices, for clarity. Verizon PA did state its intention to add the mid-point to the Minimum and Maximum Bill Credit Tables contained within Appendix A, which DCI finds to be very helpful in performing the MOE calculations.¹⁶

Section J of the PA PAP recognizes instances where the quality of service provided by Verizon PA to its wholesale customers in Pennsylvania can be influenced by factors beyond the control of Verizon PA. Appendix D of the PA PAP describes several situations for which Verizon PA can file an exception or waiver in case of such an instance. Event, Time or Location driven clustering are three such situations. Both event and time driven exceptions call for a comparison of Verizon PA’s performance to that of the CLEC performance for the clustered event, prior to excluding the data from the overall measure results. This evidence is helpful for Verizon PA to provide to the PA PUC in order for them to rule favorably on Verizon PA’s exception. Location Driven Clustering due to facility problems does not require such a comparison to Verizon PA’s retail results.¹⁷ Verizon PA agreed that this was not included in the documentation due to an oversight but states it would include this information with its exception filing regardless, since the Commission most likely would not rule in Verizon PA’s favor without such a showing.¹⁸

DCI found that the documentation in the PA PAP, specifically Section B of Appendix F, is not clear on exactly how the individual CLEC rule works. Section B is unclear in that it looks at two consecutive months of individual CLEC data where performance falls below a -1 , and there is no payment generated under the aggregate CLEC rule for that critical measure.¹⁹ NY PSC staff informed DCI that to understand this provision requires the assistance of the Excel model spreadsheet, as this is the most complex item contained within the PA PAP, along with the domain-clustering rule, which has not been triggered in Pennsylvania as of June 2003. The individual CLEC rule should either be made clearer in the PA PAP using a mathematical example or the PA PAP should refer the reader to the PA Excel model spreadsheet. The individual CLEC rule is triggered almost every month in New York and there is no dollar cap associated with the provision, which

¹⁵ DCI Exception Report A-002

¹⁶ Interview with Verizon PA Technical Staff in New York City, New York, September 24, 2003

¹⁷ DCI Exception Report A-002

¹⁸ Interview with Verizon PA Technical Staff in New York City, New York, September 24, 2003

¹⁹ See Performance Assurance Plan Verizon Pennsylvania Inc., dated June 1, 2003

is also not clear in the documentation.²⁰ According to PA PUC staff, there were \$409,000 in actual penalties in Pennsylvania for the month of May due to the individual CLEC rule. However, Verizon PA disagrees that there is no cap associated with the individual CLEC rule, as described in the following sentences. According to Verizon PA, the Critical Measures cap is the maximum that can be paid out for the individual CLEC rule also. The aggregate would be triggered if the individual CLEC went above 50%, therefore, there is no way the individual CLEC payment could cause the penalties paid out to exceed that of the cap for the Critical Measures. Verizon PA has agreed to use the PA Excel model spreadsheet to explain this very important provision of the PA PAP.²¹

Under Section II(E) of the PA PAP, documenting the Special Provisions-UNE measures, there are two Tiers associated with the hot cut measures described in sub-section 3. The documentation is not clear whether these penalties can be applied together. For example, can Verizon PA be subjected to paying penalties under both Tiers in any given month, or do they only pay the more stringent Tier II penalty if they fail both for the month? DCI was originally told to refer to the Excel model spreadsheet to determine if this was an either/or type penalty as this was also not clear to NY PSC staff.²² According to Verizon PA, this is an either/or type penalty. This is another instance where an example in the PA PAP, which describes implementing this provision, would be helpful for clarification purposes.²³

Originally, DCI believed that the PA PAP was incorrect in stating that bill credits to CLECs are processed within 30 days of the close of the second month in which performance is evaluated. DCI believed the correct statement would be that the market adjustment due the CLEC is determined within 30 days, but the actual bill may not be credited until 30 days later depending on the CLEC's bill cycle. For example, April penalties are determined 30 days after the close of June; therefore the first opportunity for a bill credit to be processed would be after the 28th of July and may not occur until the 28th of August.²⁴ However, Verizon PA explained that these credits are actually applied to the CLEC bill within the 30 day period as stated in the PA PAP, although the CLEC may not see the credit until it actually receives its bill, which would be sometime within the next 30 day timeframe, as described above.²⁵ DCI recommends that this be clarified to avoid confusion.

Section II(C)3 of the PA PAP, describing the Domain Clustering Rule for the Pre-Ordering Domain, is another item DCI originally believed to be in error. The rule is explained in this section as:

“If 75% or more of the respective Ordering, Provisioning, or Maintenance and Repair Domain weights are tripped, the higher of the clustering

²⁰ Telephone interview with NY PSC Staff, July 29, 2003

²¹ Interview with Verizon PA Technical Staff in New York City, New York, September 24, 2003

²² Telephone interview with NY PSC Staff, July 29, 2003

²³ Interview with Verizon PA Technical Staff in New York City, New York, September 24, 2003

²⁴ DCI Exception Report A-003

²⁵ Interview with Verizon PA Technical Staff in New York City, New York, September 24, 2003

overlay or overall market will be used to determine the market adjustments for the Resale, UNE-Platform, UNE-Loop, and DSL MOEs. The same rule will apply to the Preordering Domain (*emphasis added*), except that the clustering overlay would be effective if all Pre-Ordering response time measures failed at the –2 level, in which case 75% would be used in the overlay.²⁶

In the PA PAP workshop it was explained that all domains were tripped at 75% except Pre-Ordering, which is tripped at 66.7%. This led DCI to conclude this to be a documentation discrepancy.²⁷ However, the documentation is actually correct but is not quite clear. The 75% mentioned in Section II(C)3 of the PA PAP applies to the PO-1 measure only. This is different than the requirement of tripping 66.7% of the total weights for the Pre-Ordering domain to activate the Domain Clustering Rule that Verizon PA referred to in the workshop. This is documented in Appendix E of the PA PAP but is not mentioned in the main document, which leads to the misunderstanding.²⁸ Also the statement contained in Section II(C)3 that “The same rule will apply to the Preordering Domain” after discussing the 75% for the other domains without noting the 66.7% difference helps further the misunderstanding.

5. There Are Discrepancies In Product Codes Between The C2C Performance Reports And The PA PAP Excel Model Spreadsheet.

DCI encountered a roadblock in attempting to replicate the June penalty payments due under the PA PAP. In order to complete this task, DCI needed to transfer the metric results reported on the June C2C Performance Standards and Reports to the PA PAP Excel model spreadsheet to perform the calculations. DCI had difficulty completing this task because many of the metrics from the C2C report did not match those contained on the PA PAP Excel model spreadsheet. Verizon PA later explained that the product codes had been updated in the C2C report, but this update had not yet been reflected on the PA PAP Excel model spreadsheet.²⁹

6. The PA PAP Documentation Is Unclear Concerning How Critical Components Of Penalty Payment Calculations Are Derived.

The penalty payments due to individual CLECs for both the MOE and Critical Measures are based on the total number of lines in service per CLEC for the particular service that failed to meet the performance standard. For example, assume Verizon PA failed to meet parity performance for PR-4-04, “Percent of Missed Appointments-Dispatch-2-Wire Digital-UNE/Resale”, resulting in a total penalty payment of \$90,000 for the month of April 2003 for MOE. Assume also there is a total of 100,000 wholesale 2-Wire Digital UNE/Resale lines in Pennsylvania and CLEC A has 20,000 of these lines in service. The amount due CLEC A would be based on its proportion of total 2-Wire Digital

²⁶ See Performance Assurance Plan Verizon Pennsylvania Inc., dated June 1, 2003, § II(C)3.

²⁷ DCI Exception Report A-003

²⁸ Interview with Verizon PA Technical Staff in New York City, New York, September 24, 2003

²⁹ Interview with Verizon PA Technical Staff in New York City, New York, September 24, 2003

UNE/Resale lines, one-fifth of the \$90,000, or \$18,000. Therefore, one of the key components necessary to calculate an individual CLECs share of penalty payments is total lines in service per service category per CLEC. Verizon PA was not able to explain where the total lines in service per CLEC comes from for this calculation, and DCI did not find an explanation in the PA PAP documentation.³⁰ A data request was issued to Verizon PA to obtain this information in order to replicate penalty payments per CLEC. In response to this request, Verizon PA stated that lines in service data by individual CLECs are provided on the PA PAP report. However, Verizon PA did not explain where the data were obtained in order for DCI to verify.³¹

7. There Are Discrepancies Between Some Of The Provisions Of The PA PAP, Between The PA PAP And Verizon PA's Actual Process Or Between The PA PAP And The Appendices.

When DCI first reviewed the PA PAP documentation, attended Verizon PA's workshops and conducted interviews with Verizon PA, and with New York and Pennsylvania staff, there appeared to be a discrepancy between how Verizon PA calculates the penalty paid per CLEC due to missing an aggregate CLEC Critical Measure and the documentation describing this process in the PA PAP documentation. According to the PA PAP, Section II(D)2, bill credits for CLECs for unsatisfactory performance for Critical Measures under the aggregate CLEC rule are determined based on usage for those CLECs that qualify for payment (CLECs whose performance results are not in parity with retail or do not meet the benchmark).³² However, DCI was informed during its interview with the NY PSC staff, that under the NY PAP the portion of the total penalty to be distributed to a particular CLEC is determined by how far below the performance is from the standard. For example, the dollars are allocated based on how far each individual CLEC's result was from meeting the standard.³³

DCI found no mention in the PA PAP documentation of the payment being based on how far from the standard the service provided the CLEC actually was.³⁴ Verizon PA later explained that the portion of a CLEC's payment due from Verizon PA missing an aggregate CLEC Critical Measure is actually a combination of the two (how far below the standard is the CLEC's result, times its volume) and stated that the PA PAP explains this in Appendix F. DCI then looked for this in Appendix F, could not find it and notified Verizon, which acknowledged the omission. According to Verizon PA, one would have to review the Excel model spreadsheet to determine that it is, in fact, a combination of the two.³⁵ When DCI reviewed the Excel Model Spreadsheet, it found that documentation was not complete.

³⁰ Interview with Verizon PA Technical Staff in New York City, New York, September 24, 2003

³¹ Information Response C-055

³² See Performance Assurance Plan Verizon Pennsylvania Inc., dated June 1, 2003, § II(D)2.

³³ Telephone interview with NY PSC Staff, July 29, 2003

³⁴ DCI Exception Report A-003

³⁵ ³⁵ Interview with Verizon PA Technical Staff in New York City, New York, September 24, 2003

DCI reviewed the PA PAP documentation further following its interview with Verizon PA. Based on this review, DCI determined that the total dollars to be distributed is determined by how far the aggregate performance deviates from the standard but not the individual CLEC's deviation. Once that total is determined, the amount due each individual CLEC is based on its proportion of qualified misses for all those CLECs whose result failed to meet the standard. The only reason an individual CLEC's performance result is reviewed under the "Aggregate Rule", is that only those CLECs who had poor performance are eligible for a payment.

Upon further review of the PA Excel model spreadsheet and Appendix F of the PA PAP, DCI determined that the amount of payment due an individual CLEC is, in fact, based on a combination of how far from the standard the CLEC's individual result is along with its total number of lines in service (described as CLEC's weighted share in Appendix F). This could be much less confusing by referencing the spreadsheet or by using a mathematical example in Appendix F.

DCI identified another discrepancy in its review of the PA PAP appendices. Appendix E of the PA PAP describes the steps that are taken to determine whether bill credits are due to any CLEC for the MOE categories. Item 4 on page 2 of Appendix E refers to Bill Credit Tables that are located in Appendix A of the PA PAP. Item 5 states that the MOE Bill Credit Table contains the following items:

- The range of the aggregate performance scores from the minimum to maximum
- The monthly dollars attributable to each score
- The aggregate CLEC monthly volumes for the measure
- The corresponding monthly rate that will be paid to each CLEC if Verizon PA's performance is at that particular level.

Item 4 also states that these tables will be adjusted to reflect the monthly volumes or units being used by the CLECs, however, the tables in Appendix A do not contain the aggregate CLEC monthly volumes or the corresponding monthly rate to be paid to each CLEC.³⁶ This is something that would change on a monthly basis and would need to be updated. Appendix E should be revised to state where this information would come from, and how it is used in the calculation of remedy payments.

In addition, Appendix F speaks of an increment table that is to be developed for each critical measure to determine bill credits for poor performance for CLECs in the aggregate. When questioned, Verizon PA replied that this is actually contained within the PA Excel model spreadsheet. There is no mention of the Excel model spreadsheet (a vital part of calculating remedy payments) anywhere in the PA PAP or its appendices.

³⁶ See Performance Assurance Plan Verizon Pennsylvania Inc., dated June 1, 2003, Appendices A and E.

C – RECOMMENDATIONS

1. Develop An English Version Document Describing Verizon PA’s Business Rules Used To Implement The Provisions Of The PA PAP. (Refer to Findings Nos. 1, 2, 4 and 6)

An English version of Verizon PA's business rules should be developed providing the level of detail that would be found in the PA Excel model spreadsheet. This documentation should also cover all the calculations and functions that are performed within NMP. Detail on how all elements required to calculate remedy payments are obtained should be included in this documentation, in order for other parties to verify the accuracy of the information. Once such documentation is developed, future PA PUC audits of the accuracy of Verizon PA's remedy calculations will be possible. Such documentation will also allow for other parties, such as the PA PUC Staff and CLECs, to have a better understanding of the process, and have confidence in the end result.

Internal documentation is needed for Verizon PA's own interest in consistency and quality control. In addition, provisions of the PA PAP that have not yet been implemented, or are currently manual processes, should be thoroughly tested and documented. Providing supporting technical documentation will also allow for the PA PAP to provide a high level overview of the process. Thus, technical aspects and clarifying information, such as calculation examples, would not be necessary.

2. Eliminate Discrepancies Between C2C Guidelines, C2C Performance Standards And Reports, And The PA PAP. (Refer to Findings Nos. 5 and 7)

Discrepancies between the C2C, C2C Performance Standards and Results, and the PA PAP, should be corrected regardless of the reason for the discrepancy or the size of the discrepancy. Product Codes should be consistent throughout the performance measurement reporting and remedies calculation processes. If a metric is disaggregated for PA PAP reporting purposes, then the C2C should also reflect that level of disaggregation. In addition, when updates are made to one, there should be follow-through to ensure that the updates are made to all other documentation that is affected.

3. Require Verizon PA To Furnish All CLEC Reports Automatically To The PA PUC Staff and Third Part Reviewers, As Appropriate, Without The Requirement That The CLEC Request Such Information. (Refer to Findings No. 3)

Verizon PA should be required to automatically furnish all CLEC reports listed in Section VII of PMO II to the PA PUC regardless of whether the individual CLEC requests such level of detail in order for PA PUC Staff or third party reviewers to replicate Verizon PA's results, as required in PMO II. In the alternative, Verizon PA should be required to produce a separate report for PA PUC Staff or outside reviewers that includes aggregate and each individual CLEC's metric result (consolidating different

identification codes for the same CLEC) in order to replicate and verify Verizon PA’s reported results.

4. Revise The PA PAP And Update It To Clarify The Issues Identified In This Report. (Refer to Findings Nos. 4 and 6)

The PA PAP documentation, or should the Staff require or Verizon PA decide to develop supporting technical documentation, should be updated to clarify the issues that have been identified that originally led to confusion in conducting the audit. Where appropriate, mathematical examples should be provided to clarify the more complex calculations. The PA PAP should incorporate by reference the PA Excel model spreadsheet or other documentation that details how all the calculations are performed for outside parties. The documentation should detail how all components critical to the calculation of remedy payments are determined and the source for each.

VIII – PERFORMANCE ASSURANCE PLAN PENALTY
PAYMENT CALCULATION

VIII – PERFORMANCE ASSURANCE PLAN PENALTY PAYMENT CALCULATION

This chapter describes DCI analysis activities involving the Verizon Pennsylvania Performance Assurance Plan (PA PAP). The analysis was based on data for the months of April, May, and June of 2003.

A – BACKGROUND

This background section includes descriptions of major plan components, scoring of measures, including Mode of Entry (MOE) measures, critical measures, and special provisions, dollars at risk, exceptions and waivers, audits, and the DCI replication methodology.

MAJOR PLAN COMPONENTS

The PA PAP has three major components:¹

- Metrics used to report performance
- Methodology used to determine billing credits, including service segmentation, scoring methodology, and other rules
- Dollars at risk

The *Pennsylvania Carrier-to-Carrier (C2C) Guidelines Performance Standards and Reports* metrics include hundreds of individual data points that track and report Verizon PA's wholesale performance. Some metrics are compared with analogous Verizon PA retail services to ensure parity of service and others, where no retail analog exists, are reviewed on the basis of absolute standards. The PA PAP incorporates C2C measures and standards.² It includes three service segmentations, as follows:³

- MOE measures; which measure the overall level of service on an industry-wide basis for each method or mode by which carriers can enter the local exchange market under the Telecommunications Act of 1996. Bill credits are allocated by lines in service to competitors purchasing these types of services:
 - Resale
 - Unbundled network elements – platform (UNE-P)
 - Unbundled network elements – loop (UNE-L)
 - Interconnection (trunks)
 - Digital subscriber line (DSL)

¹ June 2003 PA PAP Page 1

² June 2003 PA PAP Pages 1-2

³ June 2003 PA PAP Pages 2-3 and 7-8

- Critical measures (CM) at both the overall and Competitive Local Exchange Carrier (CLEC) specific levels; which measure performance in critical areas that have been identified by the PA Carrier Working Group (CWG) (comprised of Verizon PA, Pennsylvania Public Utility Commission (PA PUC), and CLEC representatives) as those that are most important to the provision of quality service and are a subset of the MOE measures; plus measures for collocation, specials, and resolution process. Bill credits are provided on measures that fail to meet the standards as a means to assure that carriers are receiving non-discriminatory service on an individual basis.
- Special provisions (SP); which focus on selected UNE measures that are viewed by the CWG as measuring key aspects of Verizon PA’s performance after it gains entry into InterLATA (Local Access Transport Area) long distance markets, including targets for flow-through, order processing, hot-cuts, local service request (LSR) confirmations, and reject notices. Bill credits are provided to carriers who receive service that is below target levels.

Additionally, Verizon PA is subject to a separate Change Control Assurance Plan (CCAP), which is designed to measure Verizon PA’s performance in implementing revisions to Operations Support System (OSS) interfaces and business rules that affect CLECs.⁴

According to Verizon PA, key PA PAP sections to review, to more fully understand the details of each service segment, are shown in Table VIII-1.⁵

Table VIII-1
Key PA PAP Sections

Item	PA PAP Location
MOE	Section II.C, Appendix A, Appendix E
CM	Appendix F
SP	Section II.E, Appendix H
CCAP	Section II.B.2
Statistical Methodologies	Appendix D

As of June 1, 2003 the PA PAP was amended to reflect the New York 1Q 2003 performance assurance plan revisions, as follows:⁶

- Structural changes
 - UNE was split into platform and loop in both MOE and CM components

⁴ June 2003 PA PAP Page 3

⁵ June 2003 PA PAP Pages 2-3

⁶ PA PAP Workshop Materials

- Specials were added to the CM component and removed from MOE component
- A resolution process category was added to the CM component to measure trouble tickets and billing claims related to purchase order numbers (PONs)
- Bill credits were shifted from special provisions to critical measures, though total dollars at risk remained unchanged
- Electronic Data Interchange (EDI) measures were removed from special provisions
- Statistical changes
 - Expanded the use in PA PAP Appendix D of small sample tables to all absolute standards
 - Adopted changes in statistical methodology to be consistent with C2C⁷ guidelines, including:
 - Expanded use of Fisher Exact test for percentages
 - Defined sample sizes in PA PAP Appendix D for statistical testing
 - Used additional months (looking back one or two months) to make final determination of -1 performance scores when there is no activity
 - Used an additional month's performance for the CM "individual rule" when there is no activity
- Additions, changes, and deletions in measures
 - Disaggregated UNE measures for platform and loop
 - Disaggregated some measures for business and residence
 - Determined that Hot Cut MOE measures must meet standards for both on-time performance and installation quality
 - PR-4-15 (% on-time) for interconnection trunks replaced PR-4-01 (% missed appointments)
 - Added measures, including completion notifiers (OR-4-11, OR-4-16, OR-4-17), order accuracy (OR-6-03), resolution timeliness (OR-10-01, OR-10-02, BI-3-04, BI-3-05), and % out-of-service > 4 and > 12 hours (MR-4-06, MR-4-07)

A summary of the metrics included in the April-May 2003 and June 2003 PA PAP reports is included in Exhibit VIII-1 on the following pages.

⁷ NY changed its guidelines in 4Q2002. The 1Q2003 NY PAP changes correspond to the 4Q2002 C2C Guidelines changes. PA changed its C2C Guidelines and PA PAP effective June 2003 to reflect both the 4Q2002 NY C2C Guidelines changes and the 1Q2003 NY PAP changes.

Exhibit VIII-1
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INCLUSION OF METRICS IN THE PA PAP REPORT

Metric #	Function	Inclusion in April/May 2003 PAP	Inclusion in June 2003 PAP
PRE-ORDERING			
PO-1	Response Time OSS Pre-Ordering Interface		
PO-1-01	Average Response Time - Customer Service Record	MOE Resale (EDI), MOE Resale (CORBA), MOE Resale (Web GUI) MOE UNE (EDI), MOE UNE (CORBA), MOE UNE (Web GUI) CM (EDI), CM (CORBA), CM (Web GUI)	MOE Resale (EDI), MOE Resale (Web GUI) MOE UNE-P (EDI), MOE UNE-P (CORBA), MOE UNE-P (Web GUI) MOE UNE-L (EDI), MOE UNE-L (CORBA), MOE UNE-L (Web GUI) MOE DSL (EDI), MOE DSL (CORBA), MOE DSL (Web GUI)
PO-1-02	Average Response Time - Due Date Availability	MOE Resale (EDI), MOE Resale (CORBA), MOE Resale (Web GUI) MOE UNE (EDI), MOE UNE (CORBA), MOE UNE (Web GUI)	
PO-1-03	Average Response Time - Address Validation	MOE Resale (EDI), MOE Resale (CORBA), MOE Resale (Web GUI) MOE UNE (EDI), MOE UNE (CORBA), MOE UNE (Web GUI)	MOE Resale (EDI), MOE Resale (Web GUI) MOE UNE-P (EDI), MOE UNE-P (CORBA), MOE UNE-P (Web GUI) MOE UNE-L (EDI), MOE UNE-L (CORBA), MOE UNE-L (Web GUI)
PO-1-04	Average Response Time - Product & Service Availability	MOE Resale (EDI), MOE Resale (CORBA), MOE Resale (Web GUI) MOE UNE (EDI), MOE UNE (CORBA), MOE UNE (Web GUI)	
PO-1-05	Average Response Time - Telephone Number Availability & Reservation	MOE Resale (EDI), MOE Resale (CORBA), MOE Resale (Web GUI) MOE UNE (EDI), MOE UNE (CORBA), MOE UNE (Web GUI)	
PO-1-06	Average Response Time - Mechanized Loop Qualification - xDSL	MOE DSL (EDI), MOE DSL (Web GUI) CM (EDI), CM (Web GUI)	MOE DSL (EDI), MOE DSL (CORBA), MOE DSL (Web GUI) CM (EDI), CM (CORBA), CM (Web GUI)
PO-1-07	Average Response Time - Rejected Query		

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INCLUSION OF METRICS IN THE PA PAP REPORT

Metric #	Function	Inclusion in April/May 2003 PAP	Inclusion in June 2003 PAP
PO-1-08	Average Response Time - % Time outs		
PO-1-09	Average Response Time - Parsed CSR		
PO-2	OSS Interface Availability		
PO-2-01	Not in use in Verizon PA		
PO-2-02	OSS Interface Availability - Prime-Time	MOE Resale (EDI), MOE Resale (CORBA), MOE Resale (Web GUI) MOE UNE (EDI), MOE UNE (CORBA), MOE UNE (Web GUI) CM (EDI), CM (CORBA), CM (Web GUI)	MOE Resale (EDI), MOE Resale (Web GUI) MOE UNE-P (EDI) , MOE UNE-P (CORBA), MOE UNE-P (Web GUI) MOE UNE-L (EDI), MOE UNE-L (CORBA), MOE UNE-L (Web GUI) MOE DSL (EDI), MOE DSL (CORBA), MOE DSL (Web GUI) CM (EDI), CM (CORBA), CM (Web GUI)
PO-2-03	OSS Interface Availability - Non-Prime-Time		
PO-3	Contact Center Availability		
PO-3-01	Not in use in Verizon PA		
PO-3-02	% Answered within 30 Seconds - Ordering	MOE Resale MOE UNE	
PO-3-04	% Answered within 30 Seconds - Repair	MOE Resale MOE UNE	
PO-4	Change Management Notice		
PO-4-01	% Change Management Notices Sent on Time		
PO-4-02	Change Management Notice - Delay One (1) to Seven (7)		
PO-4-03	Change Management Notice - Delay Eight (8) Plus Days		
PO-5	Average Notification of Interface Outage		
PO-5-01	Average Notice of Interface Outage		
PO-6	Software Validation		
PO-6-01	Software Validation		
PO-7	Software Problem Resolution Timeliness		
PO-7-01	% Software Problem Resolution Timeliness		
PO-7-02	Delay Hours - Software Resolution - Change - Transactions Failed, No Workaround		

Exhibit VIII-1
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INCLUSION OF METRICS IN THE PA PAP REPORT

Metric #	Function	Inclusion in April/May 2003 PAP	Inclusion in June 2003 PAP
PO-7-03	Delay Hours - Software Resolution - Change - Transactions Failed With Workaround		
PO-7-04	Delay Hours - Failed/Rejected Test Deck Transactions - Transactions Failed, No Workaround		
PO-8	Manual Loop Qualification		
PO-8-01	% On Time - Manual Loop Qualification	MOE DSL	MOE DSL
PO-8-02	% On Time - Engineering Record Request	MOE DSL	MOE DSL
PO-9	Timeliness of Trouble Ticket Resolution		
PO-9-01	% Missing Notifier Trouble Ticket PONs Cleared within 3 Business Days		Eliminated Metric in June 2003
ORDERING			
OR-1	Order Confirmation		
OR-1-01	Not in use in Verizon PA		
OR-1-02	% On Time LSRC - Flow-through	MOE Resale (POTS) MOE UNE (POTS) CM (POTS-2 Hrs)	MOE Resale (POTS/Pre-Qualified Complex-2 Hrs) MOE UNE-P (Platform - 2 Hrs) MOE UNE-L (Loop/Pre-qualified - 2 Hrs) CM
OR-1-03	Not in use in Verizon PA		
OR-1-04	% On Time LSRC/ASRC - No Facility Check (Electronic - No Flow-through)	MOE Resale (POTS), MOE Resale (Specials) MOE UNE (POTS), MOE UNE (Specials) MOE DSL (2W Digital), MOE DSL (2W xDSL), MOE DSL (Line Share) CM (POTS), CM (2W xDSL), CM (DSL Line Share)	MOE Resale (POTS/Pre-Qualified Complex) MOE UNE-P (Platform) MOE UNE-L (Loop/LNP) MOE DSL (2W Digital - UNE/Resale), MOE DSL 2W xDSL Loops) MOE DSL (Line Share/Split) CM (2W Digital - UNE/Resale), CM (2W xDSL Loops), CM (Line Share/Split), CM (All Specials - UNE/Resale)
OR-1-05	Not in use in Verizon PA		

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INCLUSION OF METRICS IN THE PA PAP REPORT

Metric #	Function	Inclusion in April/May 2003 PAP	Inclusion in June 2003 PAP
OR-1-06	% On Time LSRC/ASRC - Facility Check (Electronic - No Flow-through)	MOE Resale (POTS), MOE Resale (Specials), MOE UNE (POTS), MOE UNE (Specials) MOE DSL (2W Digital), MOE DSL (2W xDSL), MOE DSL (Line Share) CM (POTS)	MOE Resale (POTS/Pre-Qualified Complex) MOE UNE-P (Platform) MOE UNE-L (Loop/LNP) MOE DSL (2W Digital - UNE/Resale), MOE DSL 2W xDSL Loops) MOE DSL (Line Share/Split) CM (All Specials - UNE/Resale)
OR-1-07	Not in use in Verizon PA		
OR-1-08	% On Time ASRC - No Facility Check (Fax/Mail)		
OR-1-09	Not in use in Verizon PA		
OR-1-10	% On Time ASRC - Facility Check (Fax/Mail)		
OR-1-11	Not in use in Verizon PA		
OR-1-12	% On Time FOC	MOE Interconnection	MOE Interconnection (LE 192 Forecasted Trunks) CM
OR-1-13	% On Time Design Layout Record (DLR)	MOE Interconnection	MOE Interconnection CM
OR-1-14	Not in use in Verizon PA		
OR-1-15	Not in use in Verizon PA		
OR-1-16	Not in use in Verizon PA		
OR-1-17	Not in use in Verizon PA		
OR-1-18	Not in use in Verizon PA		
OR-1-19	% On Time Response - Request for Inbound Augment Trunks		MOE Interconnection (LE 192) CM
OR-2	Reject Timeliness		
OR-2-01	Not in use in Verizon PA		
OR-2-02	% On Time LSR Reject (Flow-through)	MOE Resale (POTS) MOE UNE (POTS) CM (POTS)	MOE Resale (POTS/Pre-Qualified Complex) MOE UNE-P Platform MOE UNE-L (Loop/Pre-qualified)
OR-2-03	Not in use in Verizon PA		

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INCLUSION OF METRICS IN THE PA PAP REPORT

Metric #	Function	Inclusion in April/May 2003 PAP	Inclusion in June 2003 PAP
OR-2-04	% On Time LSR/ASR Reject - No Facility Check (Electronic - No Flow-through)	MOE Resale (POTS), MOE Resale (Specials) MOE UNE (POTS), MOE UNE (Specials) MOE DSL (2W Digital), MOE DSL (2W xDSL), MOE DSL (Line Share) CM (POTS), CM (2W xDSL), CM (DSL Line Share)	MOE Resale (POTS/Pre-Qualified Complex) MOE UNE-P (Platform) MOE UNE-L (Loop/LNP) MOE DSL (2W Digital - UNE/Resale), MOE DSL 2W xDSL Loops) MOE DSL (Line Share/Split) CM (2W Digital - UNE/Resale), CM (2W xDSL Loops), CM (Line Share/Split), CM (UNE/Resale)
OR-2-05	Not in use in Verizon PA		
OR-2-06	% On Time LSR/ASR Reject - Facility Check (Electronic - No Flow-through)	MOE Resale (POTS), MOE Resale (Specials) MOE UNE (POTS), MOE UNE (Specials) MOE DSL (2W Digital), MOE DSL (2W xDSL), MOE DSL (Line Share) CM (POTS)	MOE Resale (POTS/Pre-Qualified Complex) MOE UNE-P (Platform) MOE UNE-L (Loop/LNP) MOE DSL (2W Digital - UNE/Resale), MOE DSL 2W xDSL Loops) MOE DSL (Line Share/Split) CM (UNE/Resale)
OR-2-07	Not in use in Verizon PA		
OR-2-08	% On Time Reject - No Facility Check (Fax)		
OR-2-09	Not in use in Verizon PA		
OR-2-10	% On Time Reject - Facility Check (Fax)		
OR-2-11	Not in use in Verizon PA		
OR-2-12	% On Time Trunk ASR Reject	MOE Interconnection	MOE Interconnection
OR-3	Percent Rejects		
OR-3-01	% Rejects		
OR-3-02	% LSR Resubmission Not Rejected		
OR-4	Timeliness of Completion Notification		
OR-4-01	Not in use in Verizon PA		
OR-4-02	Not in use in Verizon PA		
OR-4-03	Not in use in Verizon PA		
OR-4-04	Not in use in Verizon PA		
OR-4-05	Not in use in Verizon PA		
OR-4-06	Not in use in Verizon PA		
OR-4-07	Not in use in Verizon PA		
OR-4-08	Not in use in Verizon PA		
OR-4-09	% SOP to Bill Completion Within 3 Business Days	MOE Resale MOE UNE CM	Eliminated Metric in June 2003
OR-4-10	Not in use in Verizon PA		

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INCLUSION OF METRICS IN THE PA PAP REPORT

Metric #	Function	Inclusion in April/May 2003 PAP	Inclusion in June 2003 PAP
OR-4-11	% Completed Orders With Neither a PCN nor BCN Sent		MOE Resale MOE UNE-P MOE UNE-L MOE DSL
OR-4-12	Not in use in Verizon PA		
OR-4-13	Not in use in Verizon PA		
OR-4-14	Not in use in Verizon PA		
OR-4-15	Not in use in Verizon PA		
OR-4-16	% Provisioning Completion Notifiers Sent Within One (1) Business Day		MOE Resale MOE UNE-P MOE UNE-L MOE DSL CM
OR-4-17	% Billing Completion Notifiers Sent Within Two (2) Business Days		MOE Resale MOE UNE-P MOE UNE-L MOE DSL
OR-4-18	Not in use in Verizon PA		
OR-5	Percent Flow-Through		
OR-5-01	% Flow-through - Total		
OR-5-02	Not in use in Verizon PA		
OR-5-03	% Flow-through - Achieved	MOE Resale (POTS and Specials) MOE UNE (POTS and Specials)	MOE Resale (POTS) MOE UNE-P (POTS) MOE UNE-L (POTS)
OR-6	Order Accuracy		
OR-6-01	% Service Order Accuracy		
OR-6-02	Not in use in Verizon PA		
OR-6-03	% Accuracy - LSRC (Long-Term Measure)		MOE Resale MOE UNE-P (Platform) MOE UNE-L (Loop)
OR-6-04	% Accuracy - LSR/DSR White Page Listing		
OR-7	Percent Order Confirmation/Rejects Sent Within 3 days		
OR-7-01	% Order Confirmation/Rejects Sent Within Three (3) Business Days		
OR-8	Acknowledgement Timeliness		
OR-8-01	% Acknowledgement On Time		
OR-9	Order Acknowledgement Completeness		
OR-9-01	% Acknowledgement Completeness		
OR-10	PON Notifier Exception Resolution Timeliness		
OR-10-01	% of PON Exceptions Resolved Within Three (3) Business Days		CM

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INCLUSION OF METRICS IN THE PA PAP REPORT

Metric #	Function	Inclusion in April/May 2003 PAP	Inclusion in June 2003 PAP
OR-10-02	% of PON Exceptions Resolved Within Ten (10) Business Days		CM
PROVISIONING			
PR-1	Average Interval Offered		
PR-1-01	Average Interval Offered - Total No Dispatch		
PR-1-02	Average Interval Offered - Total Dispatch		
PR-1-03	Average Interval Offered - Dispatch One (1) to Five (5) Lines		
PR-1-04	Average Interval Offered - Dispatch Six (6) to Nine (9)		
PR-1-05	Average Interval Offered = Dispatch (Equal or Greater Than 10 Lines)		
PR-1-06	Average Interval Offered - <u>Specials</u> DS0		
PR-1-07	Average Interval Offered - <u>Specials</u> DS1		
PR-1-08	Average Interval Offered - <u>Specials</u> DS3		
PR-1-09	Average Interval Offered -		
PR-1-10	Average Interval Offered - Disconnects		
PR-2	Metrics not in use in Verizon PA		
PR-3	Completed within Specified Number of Days (1-5 Lines)		
PR-3-01	% Completed in One (1) Day - One (1) to Five (5) Lines - No Dispatch		MOE Resale (POTS Total) MOE UNE-P Platform) CM
PR-3-02	Not in use in Verizon PA		
PR-3-03	% Completed in Three (3) Days - One (1) to Five (5) Lines - No Dispatch	MOE DSL (Line Share) CM (Line Share)	MOE DSL (Line Share/Split)
PR-3-04	Not in use in Verizon PA		
PR-3-05	Not in use in Verizon PA		
PR-3-06	% Completed in Three (3) Days - One (1) to Five (5) Lines - Dispatch		
PR-3-07	Not in use in Verizon PA		
PR-3-08	% Completed in Five (5) Days - One (1) to Five (5) Lines - No Dispatch	MOE Resale (POTS), MOE UNE (UNE-P/OTHER)	

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INCLUSION OF METRICS IN THE PA PAP REPORT

Metric #	Function	Inclusion in April/May 2003 PAP	Inclusion in June 2003 PAP
PR-3-09	% Completed in Five (5) Days - One (1) to Five (5) Lines - Dispatch	MOE Resale (POTS), MOE UNE (UNE-P/OTHER)	
PR-3-10	% Completed in Six (6) Days - One (1) to Five (5) Lines - Total	MOE DSL (2W xDSL) CM (2W xDSL)	MOE DSL (2W xDSL Loops)
PR-3-11	% Completed in Nine (9) Days - One (1) to Five (5) Lines -		Eliminated Metric in June 2003
PR-4	Missed Appointments		
PR-4-01	% Missed Appointment - Verizon - Total	MOE Resale (Specials) MOE UNE (Specials), MOE UNE (EEL), MOE UNE (IOF) MOE Interconnection CM (Specials), CM (Trunks) CM (EEL)	CM (DSO-UNE/Resale), CM (DS1-UNE/Resale), CM (DS3-UNE/Resale) CM (Other-UNE/Resale), CM (EEL), CM (IOF)
PR-4-02	Average Delay Days - Total	MOE Resale (POTS), MOE Resale (Specials) MOE UNE (POTS), MOE UNE (Specials) MOE Interconnection MOE DSL (2W Digital), MOE DSL (2W xDSL), MOE DSL (Line Share) CM (2W xDSL), CM (Line Share)	MOE Resale (POTS) MOE UNE-P (POTS) MOE UNE-L (POTS) MOE DSL (2W Digital - UNE/Resale), MOE DSL (2W xDSL Loops) MOE DSL (Line Share/Split) CM, CM (2W Digital), CM (2W xDSL Loop), CM (Line Share/Split) CM (UNE/Resale), CM (EEL), CM (IOF)
PR-4-03	% Missed Appointment - Customer		
PR-4-04	% Missed Appointment - Verizon - Dispatch	MOE Resale (POTS) MOE UNE (Platform), MOE UNE (New Loop) MOE DSL (2W Digital), MOE DSL (2W xDSL), MOE DSL (Line Share) CM (POTS), CM (New Loops), CM (2W xDSL)	MOE Resale (POTS) MOE UNE-P (Platform) MOE UNE-L (Loop-New) MOE DSL (2W Digital - UNE/Resale) MOE DSL (Line Share/Split) CM, CM (2W Digital UNE/Resale), CM (Line Share/Split)
PR-4-05	% Missed Appointment - Verizon - No Dispatch	MOE Resale (POTS) MOE UNE (Platform) MOE DSL (Line Share) CM (POTS), CM (DSL Line Share) CM (Platform)	MOE Resale (POTS) MOE UNE-P (Platform) MOE DSL (2W Digital - UNE/Resale) MOE DSL (Line Share/Split) CM, CM (2W Digital-UNE/Resale), CM (Line Share/Split)
PR-4-06	Not in use in Verizon PA		

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INCLUSION OF METRICS IN THE PA PAP REPORT

Metric #	Function	Inclusion in April/May 2003 PAP	Inclusion in June 2003 PAP
PR-4-07	% On Time Performance - LNP Only	MOE Interconnection CM (LNP)	MOE Interconnection CM (LNP)
PR-4-08	% Missed Appointment - Customer - Due to Late Order Confirmation		
PR-4-09	Not in use in Verizon PA		
PR-4-10	Not in use in Verizon PA		
PR-4-11	Not in use in Verizon PA		
PR-4-12	Not in use in Verizon PA		
PR-4-13	Not in use in Verizon PA		
PR-4-14	% Completed On Time - 2-Wire xDSL		MOE DSL (2W xDSL Loops) CM (2W xDSL Loops)
PR-4-15	% On Time Provisioning - Trunks		MOE Interconnection CM
PR-5	Facility Missed Orders		
PR-5-01	% Missed Appointment - Verizon - Facilities	MOE Resale (POTS), MOE UNE (Specials) MOE UNE (POTS), MOE Resale (Specials) MOE Interconnection	MOE Resale (POTS) MOE UNE-P (Platform) MOE UNE-L (Loop) MOE Interconnection CM (UNE/Resale)
PR-5-02	% Orders Held for Facilities > 15 Days	MOE Resale (POTS), MOE Resale (Specials) MOE UNE (POTS), MOE UNE (Specials) MOE Interconnection	MOE Resale (POTS) MOE UNE-P (Platform) MOE UNE-L (Loop) MOE Interconnection CM (UNE/Resale)
PR-5-03	% Orders Held for Facilities > 60Days		
PR-5-04	% Orders Cancelled (> Five (5) Days) After Due Date - Due to Facilities		
PR-6	Installation Quality		
PR-6-01	% Installation Troubles Reported Within 30 Days	MOE Resale (POTS), MOE Resale (Specials) MOE UNE (POTS Other), MOE UNE (Specials) MOE Interconnection MOE DSL (2W Digital), MOE DSL (2W xDSL), MOE DSL (Line Share)	MOE Resale (POTS) MOE UNE-P (Platform) MOE UNE-L (Loop) MOE Interconnection MOE DSL (2W Digital - UNE/Resale), MOE DSL (2W xDSL Loops) MOE DSL (Line Share/Split) CM, CM (2W Digital Loop - UNE/Resale), CM (2W xDSL Loops), CM (Line Share/Split) CM (UNE/Resale)
PR-6-02	% Installation Troubles Reported Within Seven (7)	MOE UNE (Hot Cut Loops) CM (Hot Cut)	MOE UNE-L (Hot Cut) CM (Hot Cut)

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INCLUSION OF METRICS IN THE PA PAP REPORT

Metric #	Function	Inclusion in April/May 2003 PAP	Inclusion in June 2003 PAP
PR-6-03	% Installation Troubles Reported Within 30 Days - FOK/TOK/CPE		
PR-7	Metrics not in use in Verizon PA		
PR-8	Open Orders in a Hold Status		
PR-8-01	<u>Percent</u> Open Orders in a Hold Status > 30 Days		MOE Interconnection MOE DSL (2W Digital - UNE/Resale), MOE DSL (2W xDSL Loops) MOE DSL (Line Share/Split) CM (UNE-Resale), CM (EEL), CM (IOF)
PR-8-02	<u>Percent</u> Open Orders in a Hold Status > 90 Days		
PR-9	Hot Cut Performance		
PR-9-01	% On Time Performance - Hot Cut	MOE UNE (Hot Cut) CM (Hot Cut)	MOE UNE-L (Hot Cut) CM (Hot Cut)
PR-9-02	Not in use in Verizon PA		
PR-9-03	Not in use in Verizon PA		
PR-9-04	Not in use in Verizon PA		
PR-9-05	Not in use in Verizon PA		
PR-9-06	Not in use in Verizon PA		
PR-9-07	Not in use in Verizon PA		
PR-9-08	Average Duration of Service Interruption		
PR-9-09	Not in use in Verizon PA		
MAINTENANCE & REPAIR			
MR-1	Response Time OSS Maintenance Interface		
MR-1-01	Average Response Time - Create Trouble	MOE Resale MOE UNE	MOE Resale MOE UNE-P MOE UNE-L MOE DSL
MR-1-02	Average Response Time - Status Trouble		
MR-1-03	Average Response Time - Modify Trouble	MOE Resale MOE UNE	
MR-1-04	Average Response Time - Request Cancellation of	MOE Resale MOE UNE	
MR-1-05	Average Response Time - Trouble Report History (By TN/Circuit)		
MR-1-06	Average Response Time - Test Trouble (POTS Only)	MOE Resale MOE UNE	MOE Resale MOE UNE-P

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INCLUSION OF METRICS IN THE PA PAP REPORT

Metric #	Function	Inclusion in April/May 2003 PAP	Inclusion in June 2003 PAP
MR-2	Trouble Report Rate		
MR-2-01	Network Trouble Report Rate	MOE Resale (Specials) MOE UNE (Specials)	
MR-2-02	Network Trouble Report Rate - Loop	MOE Resale (POTS) MOE UNE (POTS) MOE DSL (2W Digital), MOE DSL (2W xDSL), MOE DSL (Line Share)	
MR-2-03	Network Trouble Report Rate - Central Office	MOE DSL (2W Digital), MOE DSL (2W xDSL), MOE DSL (Line Share)	
MR-2-	% Subsequent Reports		
MR-2-05	% CPE/TOK/FOK Trouble Report Rate		
MR-3	Missed Repair Appointments		
MR-3-01	% Missed Repair Appointment - Loop	MOE Resale MOE UNE MOE DSL (2W Digital), MOE DSL (2W xDSL), MOE DSL (Line Share) CM (2W xDSL), CM (DSL Line Share)	MOE Resale (Business), MOE Resale (Residence) MOE UNE-P (Platform-Business), MOE UNE-P (Platform-Residence) MOE UNE-L (Loop) MOE DSL (2W Digital - UNE Resale), MOE DSL (2W xDSL Loops) MOE DSL (Line Share/Split) CM (Business), CM (Residence), CM, CM (2W Digital-UNE/Resale), CM (2W xDSL Loops), CM (Line Share/Split)
MR-3-02	% Missed Repair Appointment - Central Office	MOE Resale MOE UNE MOE DSL (2W Digital), MOE DSL (2W xDSL), MOE DSL (Line Share)	MOE Resale (Business), MOE Resale (Residence) MOE UNE-P (Platform-Business), MOE UNE-P (Platform-Residence) MOE UNE-L (Loop) MOE DSL (2W Digital - UNE Resale), MOE DSL (2W xDSL Loops) MOE DSL (Line Share/Split)
MR-3-03	% CPE/TOK/FOK - Missed Appointment		
MR-4	Trouble Duration Intervals		
MR-4-01	Mean Time to Repair - Total	MOE Resale (Specials) MOE UNE (Specials) MOE Interconnection CM (Specials), CM (Trunks)	MOE Interconnection CM (non DSO & DSO-UNE/Resale), CM (DS1 & DS3-UNE/Resale)

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INCLUSION OF METRICS IN THE PA PAP REPORT

Metric #	Function	Inclusion in April/May 2003 PAP	Inclusion in June 2003 PAP
MR-4-02	Mean Time to Repair - Loop Trouble	MOE Resale MOE UNE MOE DSL (2W Digital), MOE DSL (2W xDSL), MOE DSL (Line Share) CM (2W xDSL), CM (Line Share), CM (Loop Trouble)	MOE Resale (Business), MOE Resale (Residence) MOE UNE-P (Platform-Business), MOE UNE-P (Platform-Residence) MOE UNE-L (Loop) MOE DSL (2W Digital - UNE Resale), MOE DSL (2W xDSL Loops) MOE DSL (Line Share/Split)
MR-4-03	Mean Time to Repair - Central Office Trouble	MOE Resale MOE UNE MOE DSL (2W Digital), MOE DSL (2W xDSL), MOE DSL (Line Share) CM	MOE Resale (Business), MOE Resale (Residence) MOE UNE-P (Platform-Business), MOE UNE-P (Platform-Residence) MOE UNE-L (Loop) MOE DSL (2W Digital - UNE Resale), MOE DSL (2W xDSL Loops) MOE DSL (Line Share/Split)
MR-4-04	% Cleared (All Troubles) Within 24 Hours		MOE DSL (2W Digital - UNE Resale), MOE DSL (2W xDSL Loops) MOE DSL (Line Share/Split) CM (2W Digital-UNE/Resale), CM (2W xDSL Loops), CM (Line Share/Split)
MR-4-	% Out of Service > 2 Hours		MOE Interconnection
MR-4-06	% Out of Service > 4 Hours		MOE Resale (Business), MOE Resale (Residence) MOE UNE-P (Platform-Business), MOE UNE-P (Platform-Residence) MOE Interconnection CM (non DSO & DSO-UNE/Resale), CM (DS1 & DS3-LINE/Resale)

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INCLUSION OF METRICS IN THE PA PAP REPORT

Metric #	Function	Inclusion in April/May 2003 PAP	Inclusion in June 2003 PAP
MR-4-07	% Out of Servie > 12 Hours		MOE Resale (Business), MOE Resale (Residence) MOE UNE-P (Platform-Business), MOE UNE-P (Platform-Residence) MOE UNE-L (Loop) MOE Interconnection MOE DSL (2W Digital - UNE Resale), MOE DSL (2W xDSL Loops) MOE DSL (Line Share/Split)
MR-4-08	% Out of Servie > 24Hours	MOE Resale (POTS), MOE Resale (Specials) MOE UNE (POTS), MOE UNE (Specials) CM (POTS)	MOE Resale (Business), MOE Resale (Residence) MOE UNE-P (Platform-Business), MOE UNE-P (Platform-Residence) MOE UNE-L (Loop) MOE Interconnection CM (Business), CM (Residence), CM (Total) CM (non DSO & DSO-UNE/Resale), CM (DS1 & DS3-LINE/Resale)
MR-4-	Not in use in Verizon PA		
MR-4-	Not in use in Verizon PA		
MR-5	Repeat Trouble Reports		
MR-5-01	% Repeat Reports Within 30 Days	MOE Resale (POTS), MOE Resale (Specials) MOE UNE (POTS), MOE UNE (Specials) MOE Interconnection MOE DSL (2W Digital), MOE DSL (2W xDSL), MOE DSL (Line Share) CM (POTS), CM (Specials), CM (2W xDSL), CM (DSL Line Share)	MOE Resale (POTS) MOE UNE-P (Platform) MOE UNE-L (Loop) MOE Interconnection MOE DSL (2W Digital - UNE/Resale), MOE DSL (2W xDSL Loops) MOE DSL ((Line Share/Split) CM, CM (2W Digital-UNE/Resale), CM (2W xDSL Loops), CM (Line Share/Split) CM (Specials LINE/Resale)
NETWORK PERFORMANCE			
NP-1	Percent Final Trunk Group Blockage		
NP-1-01	% Final Trunk Groups Exceeding Blacking Standard		
NP-1-02	% Final Trunk Groups Exceeding Blacking Standard (No Exceptions)		

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INCLUSION OF METRICS IN THE PA PAP REPORT

Metric #	Function	Inclusion in April/May 2003 PAP	Inclusion in June 2003 PAP
NP-1-03	% Final Trunk Groups Exceeding Blacking Standard - Two (2) Months	MOE Interconnection CM	MOE Interconnection
NP-1-04	% Final Trunk Groups Exceeding Blacking Standard - Three (3) Months	MOE Interconnection CM	MOE Interconnection CM
NP-2	Collocation Performance		
NP-2-01	% On Time Response to Request for Physical	CM, CM Collocation (New), CM Collocation (Augment)	CM-Total
NP-2-02	% On Time Response to Request for Virtual Collocation	CM, CM Collocation (New), CM Collocation (Augment)	
NP-2-03	Average Interval - Physical Collocation		
NP-2-04	Average Interval - Virtual Collocation		
NP-2-05	% On Time - Physical Collocation	CM, CM Collocation (New), CM Collocation (Augment)	CM-Total
NP-2-06	% On Time - Virtual Collocation	CM, CM Collocation (New), CM Collocation (Augment)	
NP-2-07	Average Delay Days - Physical Collocation	CM, CM Collocation (New), CM Collocation (Augment)	CM-Total
NP-2-08	Average Delay Days - Virtual Collocation	CM, CM Collocation (New), CM Collocation (Augment)	
BILLING			
BI-1	Timeliness of Daily Usage		
BI-1-01	Not in use in Verizon PA		
BI-1-02	% DUF in Four (4) Business Days	MOE Resale MOE UNE	MOE Resale MOE UNE-P
BI-1-03	Not in use in Verizon PA		
BI-1-04	Not in use in Verizon PA		
BI-2	Timeliness of Carrier Bill		
BI-2-01	Timeliness of Carrier Bill		
BI-3	Billing Accuracy and Claims Processing		
B1-3-01	% Billing Adjustments - Paper Bills		
B1-3-02	% Billing Adjustments - Number of Adjustments		
B1-3-03	% Billing Adjustments - Electronic Bills		
B1-3-04	% CLEC Billing Claims Acknowledged Within Two (2) Business Days		CM
B1-3-05	% CLEC Billing Claims Resolved Within 28 Calendar Days After Acknowledgement		CM

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INCLUSION OF METRICS IN THE PA PAP REPORT

Metric #	Function	Inclusion in April/May 2003 PAP	Inclusion in June 2003 PAP
BI-6	Completeness of Usage Charges		
B1-6-01	% Completeness of Usage Charges - Including Order Activity Post Completion Discrepancy Delayed Charged		
B1-6-02	% Completeness of Usage Charges - Excluding Order Activity Post Completion Discrepancy Delayed Charged		
BI-7	Completeness of Fractional Recurring Charges		
B1-7-01	% Completeness of Fractional Recurring Charges - Including Order Activity Post Completion Discrepancy Delayed Charges		
B1-7-02	% Completeness of Fractional Recurring Charges - Including Order Activity Post Completion Discrepancy Delayed Charges		
BI-8	Non-Recurring Charge Completeness		
B1-8-01	% Completeness of Non-Recurring Charges - Including Order Activity Post Completion Discrepancy Delayed Charges		
B1-8-02	% Completeness of Non-Recurring Charges - Excluding Order Activity Post Completion Discrepancy Delayed Charges		

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INCLUSION OF METRICS IN THE PA PAP REPORT

Metric #	Function	Inclusion in April/May 2003 PAP	Inclusion in June 2003 PAP
OPERATOR SERVICES			
OD-1	Operator Services – Speed of Answer/Directory Assistance		
OD-1-01	Average Speed of Answer - Operator Services		
OD-1-02	Average Speed of Answer - Directory Assistance		
OD-2	LIDB, Routing and OS/DA Platforms		
GENERAL STANDARDS			
GE-1	Directory Listing Verification Reports		
GE-1-01	% of Directory Listing Verification Reports Furnished On-Time		
GE-1-02	% Accuracy of DSR/LSR Inclusion in DLVRs		
GE-1-03	% DLVR Corrections Furnished On Time		
GE-1-04	% Accuracy of DLVR Corrections		
GE-1-05	White Pages Errors & Omissions		
GE-2	Poles, Ducts, Conduit and Rights of Way		
GE-3	Timely and Accurate Provisioning of White Page Directory Listings LSRs and DSRs		
GE-3-01	Completion On Time		
GE-3-02	Accuracy of Processing		

SCORING OF MEASURES

Each measure is evaluated according to one of two standards. For those measures where a Verizon PA retail analog exists, a parity standard is applied. For those measures where retail analogs are not used, an absolute standard is specified as a surrogate, to determine whether Verizon PA is providing non-discriminatory service to CLECs.⁸

MOE Measures

The Telecommunications Act of 1996 requires that Verizon PA provide interconnection “that is at least equal in quality” to that provided to itself, and “nondiscriminatory access” to unbundled elements. Therefore, each month Verizon PA applies statistical tests to Verizon PA and CLEC performance data to develop “modified t statistic” scores (or equivalent permutations) or Fisher’s Exact Test scores for MOE measures, which are then converted into performance scores for each MOE measure, as shown in Table VIII-2 as follows:⁹

Table VIII-2
Conversion of Statistical Score to Performance Score

Statistical Score	Performance Score
$Z \leq -1.645$	-2
$-1.645 < Z \leq -0.8225$	-1
$-0.8225 < Z$	0

For small sample sizes of measures with parity standards, the permutation test is to be applied to obtain the statistical scores, which are then converted into performance scores. (For parity standards, when the number of total CLEC and Verizon PA data points fall under a number ranging from 20 to 36, as described further in a table in PA PAP Appendix D, the sample size is considered “small.”) For small sample sizes of measures with absolute standards, small sample size tables are applied to obtain the performance score. (For absolute standards, if either the CLEC or Verizon PA sample size is less than 30 data points, the sample size is considered “small,” as described further in PA PAP Appendix D.)¹⁰

Thus, for each MOE measure, Verizon PA’s performance is graded as 0, -1, or -2. Each measure with a performance score of -1 in a given month is subject to change, depending on the score for that measure in the next two months. If Verizon PA maintains a performance score of 0 for the next two months, then the score is changed from -1 to 0. A score of -2 in a given month is not subject to change, based on performance in subsequent months.¹¹ Doubling of incentive amounts occurs if performance falls below

⁸ June 2003 PA PAP Page 9

⁹ June 2003 PA PAP Page 10

¹⁰ PA PAP Workshop Materials

¹¹ June 2003 PA PAP Pages 10-11

the scale midpoint for three consecutive months. Through June 2003, MOE doubling has not been triggered in Pennsylvania.¹²

Domain clustering (under the MOE mechanism) is used to provide CLECs with additional protection. If 75% or more of the respective ordering, provisioning, or maintenance repair domain weights are tripped, the higher of the clustering overlay or overall market score is used when determining the market adjustments for Resale, UNE-P, UNE-L, and DSL MOEs. The same rule is applied for the pre-ordering domain, except the percentage is reduced to 66.7%. Additionally, the clustering overlay becomes effective if all pre-ordering response time measures fail at the -2 level, in which case 75% is to be used in the overlay calculations.¹³ Through June 2003, domain clustering has not been triggered in Pennsylvania.

Critical Measures

Similar statistical tests and performance scoring mechanisms described for MOE measures also apply to critical measures. However, when the resulting performance score in any one category falls to -1 or below (sub-standard performance), 50% of the maximum bill credits for that measure are payable to eligible CLECs, which are those CLECs that received sub-standard performance during that month (referred to as the “aggregate rule”). Should any CLEC receive sub-standard performance for two consecutive months, bill credits for that CLEC are implemented for the two-month period, notwithstanding the fact that all CLECs, on average, may have experienced satisfactory performance during the two month period (referred to as the “individual rule”).¹⁴ Application of these rules for a specific CLEC is on an “either/or” basis for a particular month.¹⁵

Incentive amounts begin at 50% of the total and increase to 100% with lower results. Bill credits increase by ten incremental amounts for performance scores between -1 and -2, or Z or t scores between -.08225 and -1.645. Amounts payable for a specific CLEC are to be in direct portion to the amount of service (volume) that the CLEC receives from Verizon PA compared to other CLECs who received sub-standard performance pursuant to the critical measure.¹⁶

Special Provisions

Special provisions provide additional incentives in two ways:¹⁷

- Additional measures with additional incentive amounts
- Additional incentives for existing measures if results fall below lower thresholds.

¹² PA PAP Workshop Materials

¹³ PA PAP Workshop Materials Pages 13-14 and Appendix E

¹⁴ June 2003 PA PAP Pages 14-15

¹⁵ PA PAP Workshop Discussion

¹⁶ June 2003 PA PAP Pages 14-15 and Appendix F

¹⁷ PA PAP Workshop Materials

These metrics fall into the following categories:¹⁸

- UNE flow through (two additional measures evaluated quarterly)
- UNE order confirmation (four existing % on-time measures have additional dollar amounts at risk if a lower benchmark of 90% is not met, where the measures are evaluated monthly)
- Hot Cut loops (two existing provisioning measures have additional dollar amounts at risk if lower thresholds are not met for either % on-time or installation troubles within seven days, and measures are evaluated monthly)
- EDI notifiers (three additional pre-ordering and ordering measures are evaluated monthly)

Bill credits are provided to CLECs using the same methodology as used for critical measures.¹⁹

DOLLARS AT RISK

The maximum dollars at risk for Pennsylvania was \$197,240,000 in April, May, and June of 2003, although broken down differently in June, as shown in Table VIII-3 as follows:²⁰

Table VIII-3
Dollars at Risk

Item	April/May 2003 Dollars at Risk (millions/month)	June2003 Dollars at Risk (millions/month)
Mode of entry	\$50.49	\$50.49
Doubling of MOE	\$50.49	\$50.49
Critical measures	\$54.53	\$66.65
Special provisions		
• Flow through	\$6.73	\$6.73
• Hot cut performance	\$16.15	\$16.15
• EDI	\$12.12	
PAP Total	\$190.51	\$190.51
CCAP	\$6.73	\$6.73
Verizon Total	\$197.24	\$197.24

¹⁸ PA PAP Workshop Materials

¹⁹ PA PAP Workshop Materials

²⁰ April/May PA PAP Page 5 and June PA PAP Page 5

EXCEPTIONS & WAIVERS

Verizon PA may file exception or waiver petitions with the PA PUC to seek having the monthly service quality results modified based on three generic grounds:²¹

- Potential for “clustering” of data (in which events that are included in the performance measures of provisioning and maintenance of telecommunications services are not independent) and the effect that such clustering has on the statistical models used in the PA PAP
- CLEC behavior that influences performance results, such as:
 - Poor order quality, such as missing codes, incorrect codes, or misspelled directory listing
 - Actions that cause an excessive number of missed appointments, such as wrong addresses, wrong due dates, or which offered intervals shorter than the standard interval
 - Actions resulting in excessive multiple dispatch and repeat reports, such as incorrect dispatch information or inadequate testing by a CLEC
 - Inappropriate coding on orders, such as where extended due dates are desired and are not coded as such
 - Delays in rescheduling appointments when Verizon PA has missed an appointment
- Situations beyond Verizon PA’s control that negatively affect its ability to satisfy measures with absolute standards, as they establish the quality of service under normal operating conditions, and do not necessarily establish the level of performance to be achieved during periods of emergency, catastrophe, natural disaster, severe storms, work stoppage, or other events beyond Verizon PA’s control; this process is not available for parity metrics

AUDITS

Annual Reviews

Each year the PA PUC and Verizon PA are required to review the PA PAP to determine whether any additions, modifications, or deletions should be made, such as determining whether:²²

- Measures and weights should be added, modified, or deleted
- Modifications should be made to the distribution of dollars at risk among the five MOE and CM categories

²¹ June 2003 PA PAP Pages 21-22 and Appendix D

²² June 2003 PA PAP Page 24

- Geographic de-averaging should be adopted for reporting metric results
- Clustering and CLEC behavior exceptions (discussed in PA PAP *Appendix D*) should be modified
- Small sample size procedures should be modified
- Methodologies used to calculate bill credits should be modified

All aspects of the PA PAP are subject to review during the annual review process, which may be initiated no more than six months before the anniversary date of the date on which the PA PAP first went into effect (April 1, 2003).²³

Changes to the NY Plan

The PA PAP is based in large measure on the NY PAP; however, changes to the NY PAP do not automatically change the PA PAP. Changes to the PA PAP must be approved by the PA PUC prior to becoming effective. Under the Performance Measure Order II (PMO II), Verizon PA has 10 days after the NY PSC adopts performance assurance plan changes to file proposed revisions to the PA PAP. Interested parties have 15 days to comment on whether the NY changes should be included in the PA PAP.²⁴

However, according to discussions in the PA Carrier Working Group (CWG), in practice, the PA CWG will be aware of and discussing the implications of NY-prompted changes prior to NY PSC action. Further, according to the PA CWG, the short intervals specified by PMO II proved unnecessary and problematic in that they would have required the remedies changes to be evaluated and worked ahead of the associated metrics changes. For two instances in 2003 (January and November), the time intervals were waived based on agreement of all parties, and an alternative to the short intervals is being considered for future filings.²⁵

Once the filings have been made, the provisions of PMO II provide that the PA PUC will adopt or reject changes based on the filings, or refer the matter either to the Office of the Administrative Law Judge (ALJ) for mediation, arbitration, or hearing, or to the PA CWG for a recommendation. If the referral did not result in a consensus agreement suitable for PA PUC adoption, the PA PUC would then resolve the matter.²⁶

Other PA PAP Changes

Verizon PA or any other interested party may, at any time, submit proposed PA PAP changes to the PA PUC for its consideration. If this occurs, Verizon PA and all other interested parties shall have an opportunity to submit comments to the Commission on whether the proposed changes should be included in the PA PAP. Any such changes can be included in the PA PAP only with the Commission's approval.²⁷

²³ June 2003 PA PAP Page 24

²⁴ June 2003 PA PAP Pages 24-25

²⁵ PA PUC Staff Interview

²⁶ June 2003 PA PAP Pages 24-25 and PA PUC Staff Interview

²⁷ June 2003 PA PAP Page 25

Annual Audits

Periodically the PA PUC expects to audit Verizon PA's data and reporting, using either Commission Staff or independent auditors, with the first audit required to begin no earlier than October 1, 2003. It must include an examination of data reliability issues. Subsequent audits are to include an examination of data reliability issues at the Commission's discretion.²⁸ Additionally, the PA PAP provides for the Commission's Bureau of Audits to arrange for an independent analysis, replication, and/or audit of the results of operation for the first three months under the PA PAP.²⁹ This audit report by DCI is the end product of the independent analysis, replication, and/or audit of the April 2003 to June 2003 time period.

For at least the first six months after April 1, 2003, PA PUC staff expects to replicate Verizon PA's performance reports to assure that the report data accurately reflects the service quality being provided to CLEC organizations.³⁰ The PA PUC may elect to continue replication for as long as it deems necessary.³¹

DCI REPLICATION METHODOLOGY

This study looked at the April-June 2003 timeframe. Inclusion of specific metrics in PA PAP results changed from the April-May 2003 time period to June 2003, with some metrics added and some deleted from the PA PAP. Because changes occurred on June 1, 2003 that go beyond the study period, DCI focused on June 2003 for its investigation. DCI conducted various analyses as part of its PA PAP examination, as follows:

1. Input of formulae into the aggregate PA PAP Excel model spreadsheet, linking worksheets/cells to C2C reports, for comparison with final PA PAP reports.
2. Sampling of metrics in the PA PAP Excel model spreadsheet, involving calculations using individual CLEC C2C reports, for comparison with final PA PAP reports.
3. Sampling of metrics in the PA PAP Excel model spreadsheet involving calculations using individual CLEC C2C data mart data directly from the NMP, for comparison with final PA PAP reports.

²⁸ June 2003 PA PAP Page 25

²⁹ June 2003 PA PAP Pages 25-26 and PA PUC Input

³⁰ June 2003 PA PAP Page 25

³¹ June 2003 PA PAP Page 25

B – FINDINGS

The analyses discussed in this chapter were focused solely on PA PAP calculations and reporting, based on the assumption that correct information was included in metrics prior to PA C2C or PA PAP reporting. Any problems or issues that DCI found with regard to improper calculation (including inclusion or exclusion or data) of specific metrics is found elsewhere in this report. Specific results of DCI's PA PAP analyses are included in this section.

1. Lack Of Network Metric Platform (NMP) Or PA PAP Documentation Prevents A Comprehensive Audit Of PA PAP Calculations.

The primary PA PAP documentation is the PA PAP itself, which was provided to DCI during initial workshops.³² (For a detailed discussion of PA PAP documentation, refer to *Chapter VII – Review of Performance Assurance Plan Supporting Documentation.*) Little supporting documentation is available to understand PA PAP processing and reporting from Verizon PA's NMP database, which produces both the PA C2C and PA PAP reports.³³ The only available documentation is that provided by Insightful (an outside vendor) describing various statistical tests used, specifically *Algorithms for Permutation Tests Comparing Two Samples (Public Version), May 8, 2002* (performing permutation tests comparing the “mean” values of two samples) and *Permutation-SAS-Syntax* for continuous, measured variables, plus *Fisher Exact-SAS-Syntax* for counted variables.³⁴

Originally, the New York Public Service Commission (NY PSC) developed the programming for the NY PAP in 2000, which was also the first year in which the NY PAP went into effect. From 2000 to 2003, the NY PSC developed a NY Excel model spreadsheet for use in monitoring NY PAP results. During that period, the NY PSC was responsible for all updates made to the NY PAP and the corresponding Excel model spreadsheet. When Verizon PA centralized all its performance measurement programming into the NMP, Verizon PA Corporate also requested that it take over the PAP programming. (Previously the NY PSC did NY PAP calculations.) Verizon NY's responsibility for calculating the NY PAP results began in 2003. The NY PSC still replicates Verizon PA's produced results, using its NY PAP Excel model spreadsheet, not every month, but on a random basis, to verify the accuracy of Verizon PA's calculated results. If the NY PSC fails to match Verizon PA's results, reconciliation attempts to determine why discrepancies exist.³⁵

³² PA PAP Workshop Materials

³³ June 17, 2003 PAP Domain Workshop/Materials and Interview A-011 (9/24/03 NYC PAP Follow-up Interview)

³⁴ Information Response C-054

³⁵ Interview A-001

Although the NY PAP Excel model spreadsheet became the basis for the PA PAP Excel model spreadsheet when Pennsylvania adopted its PA PAP, to be effective in April 2003, Verizon PA does not currently use the PA Excel model spreadsheet for monitoring Pennsylvania results.³⁶ Verizon PA relies on its NMP for monitoring PA PAP results and the PA PUC retained DCI to conduct this review, as an initial way to monitor results.³⁷ The NY PAP was also adopted in Connecticut, Massachusetts, Rhode Island, Vermont, Maine, New Hampshire, Virginia, Delaware, Maryland, West Virginia, and Washington DC.³⁸

Use of the Excel model spreadsheet does not fully allow the Pennsylvania Commission to calculate bill credits, because manual adjustments to the model are required each month, if criteria in the plan are met. These adjustments generally relate to items that span multiple months, use specialized statistical software external to Excel, or relate to items that the New York Commission elected not to develop. They include but are not limited to:³⁹

- Changing “-1” performance scores to “0” performance scores based on performance in two other months, per the procedures in the PA PAP (Main PA PAP document, *Section II.C.1*, Page 11, also Footnote 5 on Page 11 for the June PA PAP)
 - Changing performance scores on MOE tabs
 - Removing bill credit amounts on the CM tab
- Performing permutation tests as needed (PA PAP *Appendix D*, Page 2)
 - Deciding which metrics qualify for the small sample permutation tests per the criteria in *Appendix D* for counted and measured metrics in the April/May plan, and measured metrics in the June PA PAP
 - Having tests performed using specialized software, and replacing the stat score on the aggregate and / or CLEC specific PA PAP sections with the result of the permutation test
- Determining which, if any, CLECs are eligible for bill credits under the Critical Measures Individual Rule, based on their CLEC specific performance to total amounts, and adding to the market adjustment tab (Main PA PAP document, *Section II.D.2*, Page 15 and *Appendix F*, Page 3)
- Adjusting Network Trouble Report Rate metrics for less than 0.1 % difference exclusion (*Appendix E*, Page 1, Footnote 2 in the April/May PA PAP, not applicable in the June PA PAP, as the MR-2 Measures were removed).

³⁶ PA PAP Workshop Materials and Interview A-011 (9/24/03 NYC PAP Follow-up Interview)

³⁷ Interview A-011

³⁸ PA PAP Workshop Materials

³⁹ Information Response A-048

- Adding weight to the MOE tabs, where necessary for Average Delay Day metrics with “NA”, where missed appointment metrics were 0% (PA PAP *Appendix E*, Page 1, Footnote 1)

Even though DCI has often been told to refer to the PA PAP Excel model spreadsheet for a fuller understanding of how PA PAP remedy payments are calculated, DCI found that an experienced auditor cannot solely use the PA PAP and PA PAP Excel model spreadsheet to replicate Verizon PA results.

2. PA PAP Results Cannot Be Replicated For Aggregate And Individual CLEC Results.

DCI attempted to replicate PA PAP calculations involving aggregate and individual CLEC results, as discussed previously in the *DCI Methodology* section of this chapter. The primary methodology for reviewing the PA PAP was for DCI to attempt to use the Excel model spreadsheet model to replicate Verizon PA results, which is an approach similar to that which the PA PUC or other (e.g. CLEC) outside auditors must follow. The PA PAP Excel model spreadsheet could be a useful tool for monitoring results, but cannot today be used to accurately replicate Verizon PA results, as described in Finding No. 1. Nor can outside auditors replicate results via the NMP, as insufficient documentation exists.

The following paragraphs describe the three analyses DCI performed:

- DCI Analysis No. 1: Aggregate Analysis
- DCI Analysis No. 2: Individual CLEC Analysis (Using the PA PAP Excel Model Spreadsheet)
- DCI Analysis No. 3: Individual CLEC Analysis (Using Data Mart and CMAs)

DCI Analysis No. 1: Aggregate Analyses

In Analysis No. 1 (industry wide) of the DCI Replication Methodology described earlier in this chapter, our results included the following:

- To obtain the same June 2003 PA PAP results as Verizon PA reported, DCI was required, in some situations, to link metrics (found in the PA PAP Excel model spreadsheet and in the final June PA PAP report) without regard to product codes (found in C2C reports) (only descriptions could be used). Specifically, use of product codes in the PA PAP (and PA PAP Excel model spreadsheet) that are different from those in the C2C reports makes it difficult to determine what sub-metrics in C2C reports are to be included in PA PAP sub-metrics. (See Finding 3.) Sections of the Excel model spreadsheet where these problems occurred included:
 - D-UNE Platform
 - E-UNE Loop
 - F-Resale
 - G-DSL

- J-CrMeasr-Collo&Specials
- L-CCAP

- Additionally, in other situations, DCI’s results (for VZ or CLEC performance, VZ or CLEC observations, VZ standard deviation, sampling difference, difference, performance score, weight, weighted score, and domain clustering review columns) still did not agree with final June 2003 PA PAP results unless the following manual changes were made by DCI. (Sections of the PA PAP/C2C reports and the Excel model spreadsheet model where these problems occurred are listed following a brief description of each type of manual change.)
 - In *Appendix D*, Page 1, Footnote 1 specifies that values calculated for a Z statistic or t-statistic that are equal to or greater than 5.0000, will be displayed on monthly reports as 5.0000, and values for a Z statistic or t-statistic that are equal to or less than -5.0000 will be displayed as - 5.0000. These applied to:
 - D-UNE Platform
 - E-UNE Loop

 - In *Appendix E*, Page 1, Footnote 1, when “no activity occurs” in a metric or when there is insufficient sample size for a metric, as specified in *Appendix D*, the performance measure and its weight are to be excluded from performance score. These applied to:
 - G-DSL

 - Sub-metrics with -1 performance score were changed to “zero based”, on recaptures resulting from July and August performance. This applied to:
 - D-UNE Platform
 - E-UNE Loop
 - F-Resale
 - G-DSL

- DCI used a “modified t statistic” for statistical scores, as built into the spreadsheet, rather than permutation testing using specialized software. Refer to Chapter V and Appendix D, Maintenance & Repair Metric Calculations Finding 17 (MR-4-01-2216) and Finding 18 (MR-4-04-2216), for a discussion of Verizon PA’s use of standalone Fisher Exact and permutation tests for statistical scores. Although their use has been accepted by the parties and codified in the C2C Guidelines, DCI considers the standalone Fisher Exact and permutation tests to be overly conservative due to the discrete nature of the data.

- Other issues or problems included the following:
 - Avoiding use of N/A or blanks in calculations, so as to eliminate “#VALUE!” in spreadsheet cells (presumably this is not a problem in NMP calculations, as it is an Excel feature)
 - One must know that it is necessary to use UNE or Resale (not the weighted average) for Verizon PA (as both are the same and the weighted average do not make sense for particular metrics) in selected situations
 - One must know to use Line Share (not weighted average) for VZ (though Line Share and Line Split are not the same and the weighted average does not make sense for particular metrics)
 - One must know to use UNE (not weighted average) for VZ (though UNE and Resale are not the same and weighted average does not make sense for particular metrics)
 - One must know to use Resale (not the weighted average) for VZ (though UNE and Resale are not the same and the weighted average does not make sense for particular metrics)

These last three situations, in particular, are confusing and need to be explained by Verizon PA. According to Verizon PA, in some of these cases, UNE is not the same as Resale (or vice versa) and Line Share is not the same as Line Split (or vice versa), because one is the subset of the other, making only the comprehensive item appropriate to be used for PA PAP reporting purposes.⁴⁰

In a few cases, even after discussions with Verizon PA staff, DCI was still unable to replicate aggregate CLEC results. They include:

- Regarding OR-1-04-1200 % OT LSRC-No Facilities Ck (Electronic-No FT)-All Specials-UNE/Resale on the J-CrMeasr-Collo&Specials tab of the Excel model spreadsheet; according to Verizon PA staff, too much is currently included in the PA PAP. There is a change control to make changes; however, Verizon PA does not know when it will be implemented.⁴¹ For June 2003 the final PA PAP result was 97.03% for CLEC performance based on 236 CLEC observations.
- The number of PR-6-01-3140 CLEC observations identified by DCI does not agree with PA PAP results. Verizon PA is investigating reasons for this difference.
- Almost all sub-metrics in the Critical Measures (Specials) section of the J-CrMeasr-Collo&Specials report still did not agree with PA PAP results. The differences have not been explained by Verizon PA. This also resulted in dollar differences on the I-CritMeasr report in the Provisioning (Installation Performance #3) and Maintenance (Maintenance Performance #6) in the Specials column. DCI results totaled \$12,259 for this column, while Verizon PA’s results

⁴⁰ Follow-up Discussions with Verizon PA staff following Interview A-011

⁴¹ Follow-up Discussions with Verizon PA staff following Interview A-011

totalled \$5,926. As a result, the Critical Measure Total and Grand Total on the M-MktAdjSum report were off accordingly.

- DCI results of the Resale and DSL sections of the O-MOE Allocation report do not report all CLEC codes and associated lines of service, as Verizon PA provided DCI with only those C2C reports requested by CLEC organizations. If a CLEC does not request a C2C report, then it is not produced by Verizon PA. This prevents an outside auditor from using C2C reports to replicate results. As specifically required in PMO II (Page 78), Verizon PA is required to provide the PA PUC “CLEC-specific data, algorithms, and metric and remedies reports (subject to proprietary designation) as well as aggregate data, algorithms, and metric and remedies reports.” It has not done this. Additionally, other problems with the Excel model spreadsheet (not resolved by Verizon PA) cause DCI’s replication to show improper Market Adjustment and \$/Share values in UNE-P, UNE-Loops, Resale, and DSL sections of this report.

DCI Analysis No. 2: Individual CLEC Analyses (Using the PA PAP Excel Model Spreadsheet)

In DCI Analysis No. 2 (critical measures), DCI chose nine metrics for closer scrutiny as a cross-section of the total set of metrics used in the PA PAP, as listed in Table VIII-4.⁴²

Table VIII-4
Individual CLEC Analysis Sample

Critical Measure #	Category	Metric #	Metric Description
2	UNE-P	OR-4-16-1000	% OT PCN-1 Business Day
3	RESALE	PR-4-04 2100	% Missed Appointment - VZ - Dispatch - POTS
3	DSL	PR-4-04-1341	% Missed Appointment - Dispatch - 2W Digital - UNE/Resale
4	TRUNKS	PR-4-07-3540	% OT Performance - LNP Only
5	UNE	PR-6-02-3520	% Installation Troubles within 7 days - Hot Cut
6	UNE-P	MR-4-08-3144	% OOS > 24 Hours - Platform - Business
6	DSL	MR-5-01-3340	% Repeat Reports within 30 Days - Line Share/Split
7/8	COLLATION	NP-2-01/02	% OT to Request for Collocation - Total
Other	RESOLUTION	OR-10-2-1000	% PON Exceptions Resolved within 10 Business Days

In performing this analysis, DCI attempted to link metrics (found in the PA PAP Excel model spreadsheet and final June PA PAP reports) to the same metrics in June C2C reports. DCI developed a Visual Basic (VB) application to take every individual CLEC C2C report provided and transfer the required data to a single spreadsheet, so we could transform this information into the PA PAP format.⁴³

⁴² Consultant’s Analysis

⁴³ Consultant’s Analysis

In five of the nine sampled metrics, DCI was required to link without regard to product codes (but using descriptions), as illustrated in Table VIII-5.

Table VIII-5
Sample Metrics Requiring Replication Without Regard to Product Code

	Type of Measure	Metric Description	C2C Metric #	PAP Metric #
a	Critical Measure #2	(% OT PCN-1 Business Day	OR-4-16-3000	OR-4-16-1000
b	Critical Measure #3	% Missed Appointment-Dispatch -2W Digital – UNE/Resale	PR-4-04-2341 PR-4-04-3341	PR-4-04-1341
c	Critical Measure #6	% Repeat Reports within 30 Days – Line Share/Split	MR-5-1-3343 MR-5-1-3345	MR-5-01-3340
d	Critical Measure # 7/8	% OT to Request for Collocation – Total	NP-2-01-6701 NP-2-01-6702 NP-2-02-6701 NP-2-02-6702	NP-2-01/02
e	Critical Measure-Other	% PON Exceptions Resolved within 10 Business Days	OR-10-02-2000	OR-10-2-1000

Only in category d) was the calculation the result of a “combination” metric of all product codes. All four of the others (a, b, c, and e) appeared to be the result of the PA PAP metric # not properly representing the C2C metric #. As seen in DCI’s analysis of aggregate PA PAP Excel model spreadsheet sections, the use of non-matching product codes is extensive (not limited to sampled items) and makes it extremely difficult to replicate results.

Several other problems caused DCI’s results to be different from those included in the PA PAP report. These problems included:

- CLEC performance data within the PA PAP report are not necessarily found in a corresponding C2C report. Verizon PA does not produce C2C reports for all CLEC codes, making it impossible for DCI Analysis 2 analyses to agree. When DCI requested a copy of all C2C reports from Verizon PA, we were provided only those reports that Verizon PA generates, which represents only those requested by CLECs. However, because the PA PAP report includes data from all CLECs, some CLEC data included in the PA PAP report will not correspond to a C2C report.
- NMP displays separate and distinct CLEC IDs (including separate IDs for individual CLEC subsidiaries or operating units) in C2C reports, with the possibility of several CLEC IDs per company. In some cases, when a CLEC

company has multiple CLEC codes, Verizon PA combines CLEC codes into one lead CLEC code for reporting on the PA PAP report.

- CLEC performance data within the PA PAP report cannot be found in the individual CLEC PA PAP report. Aggregate CLEC performance data are represented in the PA PAP report only; individual CLEC PA PAP reports contain penalty payment information, not performance data.

Table VIII-6 illustrates DCI’s replication results for OR-4-16-1000 (using OR-4-16-2000 in place of OR-4-16-1000) in the June 2003 PA PAP report.⁴⁴

Table VIII-6
OR-4-16-1000 Critical Measure #2 Individual CLEC Analysis

OR-4-16-1000 % On Time PCN - 1 Bus. Day							2 Mo. Individual Rule						2003 Model
UNE-L	% OT	Orders	Misses	Mkt. Adj.									
Aggregate-	98.696	65,455	854	\$ -									
CLEC Data			Qual'd Misses	\$/miss	Bill Credit	Clec Perf. this month	<prev>m onth	<prev 2> month	Prior Month Paid	Eligible Current Month	Eligible Prior Month		
98.53	746	11	-	-	\$ -	0				no	no		
93.02	43	3	0.85	-	\$ -	-1				no	no		
66.67	12	4	3.40	-	\$ -	-2				no	no		
85.71	7	1	0.65	-	\$ -	-2				no	no		
97.93	242	5	-	-	\$ -	0				no	no		
85.71	7	1	0.65	-	\$ -	-2				no	no		
99.45	6,519	36	-	-	\$ -	0				no	no		
98.40	750	12	-	-	\$ -	0				no	no		
90.58	531	50	23.45	-	\$ -	-1				no	no		
98.97	97	1	-	-	\$ -	0				no	no		
80.00	5	1	0.75	-	\$ -	-2				no	no		
92.61	433	32	10.35	-	\$ -	-1				no	no		
86.22	1,625	224	142.76	-	\$ -	-2				no	no		
99.62	524	2	-	-	\$ -	0				no	no		
95.80	3,096	130	-	-	\$ -	0				no	no		
97.43	584	15	-	-	\$ -	0				no	no		
80.00	10	2	1.50	-	\$ -	-2				no	no		
99.74	756	2	-	-	\$ -	0				no	no		
99.46	46,527	252	-	-	\$ -	0				no	no		
Totals		62,514	784	184.36	-								
PAP		65,455	854										
Difference		2,941	70										

Although aggregate results agree (line at top of table designated with “Aggregate” wording) with the June 2003 PA PAP, individual CLEC results do not agree, including:⁴⁵

- DCI results include CLEC codes that the PA PAP does not include.
- PA PAP includes CLEC codes that DCI results do not include.
- Results vary between PA PAP and DCI for specific CLEC results.

Table VIII-7 illustrates DCI’s replication results for PR-4-04-2100 in the June 2003 PA PAP report.⁴⁶

⁴⁴ Consultant’s Analysis

⁴⁵ Consultant’s Analysis

⁴⁶ Consultant’s Analysis

Table VIII-7
PR-4-04-2100 Critical Measure #3 Individual CLEC Analysis

PR-4-04-2100 Missed Appointments -Dispatch							2003 Model							
Resale	Performance		Appointments		Sampling Stat.		2 Mo. Individual Rule							
	VZ-NY	CLEC	VZ-NY	CLEC	Error	Score	Mkt. Adj.							
Aggregate	16.81	7.25	24,430	331	2.07	5.00	\$ -							
CLEC Data							Qual'd Perf. \$/miss	Bill Credit	Clec Perf this month	<prev> m onth	<prev 2> month	Prior Month Paid	Eligible Current Mo nth	Eligible Prior Month
	16.81	100.00	24,430	1	37.40	-2.22	1.00	-	\$ -	-2			no	no
	16.81	6.25	24,430	32	6.62	1.60	-	-	\$ -	0			no	no
	16.81	0.00	24,430	1	37.40	0.45	-	-	\$ -	0			no	no
	16.81	27.27	24,430	11	11.28	-0.93	3.00	-	\$ -	-1			no	no
	16.81	0.00	24,430	3	21.59	0.78	-	-	\$ -	0			no	no
	16.81	18.18	24,430	11	11.28	-0.12	-	-	\$ -	0			no	no
	16.81	15.79	24,430	19	8.58	0.12	-	-	\$ -	0			no	no
	16.81	4.00	24,430	50	5.29	2.42	-	-	\$ -	0			no	no
	16.81	0.00	24,430	17	9.07	1.85	-	-	\$ -	0			no	no
Totals				<u>145</u>			<u>4.00</u>	<u>\$ -</u>						
PAP				331										
Difference				186										

Although aggregate results agree (line at top of table designated with “Aggregate” wording) with the June 2003 PA PAP, individual CLEC results do not, including:⁴⁷

- DCI results include CLEC codes that the PA PAP does not include.
- PA PAP includes CLEC codes that DCI results do not include.

Specifically, for this sub-metric, all CLECs with activity in C2C reports had numeric codes in DCI’s analysis, while most of those CLECs included in the June 2003 PA PAP report had alphabetic codes. (Tab N-CoCodes) (only one numeric code), while sub-metrics included on other PA PAP report pages sometimes included individual CLEC (alpha or numeric) codes that were not in that summary listing.⁴⁸

Also, the PA PAP Excel model spreadsheet for this sub-metric (like others shown in individual CLEC sections of the PA PAP Excel model spreadsheet) shows VZ-NY at the top of VZ-PA columns, as Verizon PA apparently never changed the heading to VZ-PA for use in Pennsylvania.

Table VIII-8 illustrates DCI’s replication results for PR-4-04-1341 (using PR-4-04-2341 and PR-4-04-3341 in place of PR-4-04-1341 due to inconsistencies in product codes on PA PAP and C2C reports) in the June 2003 PA PAP report.⁴⁹

⁴⁷ Consultant’s Analysis

⁴⁸ Consultant’s Analysis

⁴⁹ Consultant’s Analysis

Table VIII-8
PR-4-04-1341 Critical Measure #3 Individual CLEC Analysis

PR-4-04-1341 Missed Appts - Disp - 2W Digital UNE/Resale								2 Mo. Individual Rule				2003 Model	
DSL	Performance	CLEC	Appointments	Sampling	Stat.	Mkt. Adj.							
Aggregate-	VZ-NY	CLEC	VZ-NY	CLEC	Error	Score							
Aggregate-	4.36	3.921	344	51	3.06	0.44		\$ -					
CLEC Data					Qual'd Perf.	\$/miss	Bill Credit	Clec Perf:	<prev>m	<prev 2>	Prior Month	Eligible	Eligible
								this month	onth	month	Paid	CurrentMo	Prior Month
4.36	50.00		344	2	14.48	-3.15	1.00	-	\$ -	-	-2	no	no
4.36	0.00		344	1	20.45	0.21	0.00	-	\$ -	-	0	no	no
4.36	0.00		344	3	11.84	0.37	0.00	-	\$ -	-	0	no	no
4.36	2.33		344	43	3.30	0.62	0.00	-	\$ -	-	0	no	no
4.36	0.00		344	1	20.45	0.21	0.00	-	\$ -	-	0	no	no
4.36	0.00		344	1	20.45	0.21	0.00	-	\$ -	-	0	no	no
Totals				51			1.00						
PAP				51			1.00						
Difference				0			0.00						

Although aggregate DCI results agree (line at top of table designated with “Aggregate” wording) with the June 2003 PA PAP, individual CLEC results do not agree, including:⁵⁰

- DCI results include CLEC codes that the PA PAP does not include.
- PA PAP results include CLEC codes that DCI results do not include.

Table VIII-9 illustrates DCI’s replication results for PR-4-08-3540 in the June 2003 PA PAP report.⁵¹

Table VIII-9
PR-4-07-3540 Critical Measure #4 Individual CLEC Analysis

PR-4-07-3540 % On Time Performance - LNP								2 Mo. Individual Rule				2003 Model
Trunks	% On Time	Ports.	Missed Ports.	Mkt. Adj.								
Aggregate-	99.039	1,145	11		\$ -							
CLEC Data	99.04			Qualif'd Ports.	\$/miss	Bill Credit	Clec Perf:	<prev>m	<prev 2>	Prior Month	Eligible	Eligible
							this month	onth	month	Paid	Current Month	Prior Month
100.00		6	-	-	-	-	0				no	no
100.00		5	-	-	-	-	0				no	no
100.00		37	-	-	-	-	0				no	no
99.77		431	1	-	-	-	0				no	no
96.49		57	2	-	-	-	0				no	no
100.00		10	-	-	-	-	0				no	no
100.00		2	-	-	-	-	0				no	no
100.00		8	-	-	-	-	0				no	no
100.00		3	-	-	-	-	0				no	no
100.00		30	-	-	-	-	0				no	no
95.56		45	2	-	-	-	0				no	no
100.00		1	-	-	-	-	0				no	no
100.00		14	-	-	-	-	0				no	no
100.00		5	-	-	-	-	0				no	no
99.60		253	1	-	-	-	0				no	no
100.00		1	-	-	-	-	0				no	no
95.89		73	3	-	-	-	0				no	no
93.75		32	2	0.40	-	-	-1				no	no
100.00		14	-	-	-	-	0				no	no
100.00		13	-	-	-	-	0				no	no
Totals		1,040	11	0.40								
PAP		1145	11				0					
Difference		105	-0.00679									

⁵⁰ Consultant’s Analysis

⁵¹ Consultant’s Analysis

Although aggregate DCI results agree (line at top of table designated with “Aggregate” wording) with the June 2003 PA PAP, individual CLEC results do not agree, including:⁵²

- DCI results include CLEC codes that the PA PAP does not include.
- PA PAP results includes CLEC codes that DCI results do not include.
- Results vary between PA PAP and DCI for specific CLEC results.

Table VIII-10 illustrates DCI’s replication results for PR-6-02-3520 in the June 2003 PA PAP report.⁵³

Table VIII-10
PR-6-02-3520 Critical Measure #5 Individual CLEC Analysis

Verizon Pennsylvania			Critical Measure #5				Confidential Report										
PR-9-01-3520% OT Performance - Hot Cut			PR-6-02-3520 % Installation Troubles within 7 days -Hot Cut				2003 Model										
UNE	Appts.	Missed Appts.	% On Time	Installs	Trbls	% Trbls	Mkt. Adj.			2 Mo. Individual Rule							
Aggregate- Individual	878	16	98.18	1,860	24	1.29	\$ -			Clec Part : this month	<prev>mo est	<prev 2> month	Prior Month Paid	Eligible Current Month	Eligible Prior Month		
CLEC Data							Qualified										
							misses	trbls	Total	\$ per miss/trbl	Bill Credit per CLEC						
#DIV/0!				136	-	0.00	-	-	-	-	-	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
#DIV/0!				59	-	0.00	-	-	-	-	-	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
#DIV/0!				285	1	0.37	-	-	-	-	-	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
#DIV/0!				95	1	1.11	-	-	-	-	-	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
#DIV/0!				21	-	0.00	-	-	-	-	-	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
#DIV/0!				22	5	20.66	-	4.11	4.11	-	-	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
#DIV/0!				467	0	0.09	-	-	-	-	-	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
#DIV/0!				4	-	0.00	-	-	-	-	-	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
#DIV/0!				10	-	0.00	-	-	-	-	-	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
#DIV/0!				52	2	3.70	-	0.88	0.88	-	-	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
#DIV/0!				49	2	4.16	-	1.06	1.06	-	-	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
#DIV/0!				63	-	0.00	-	-	-	-	-	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
#DIV/0!				17	-	0.00	-	-	-	-	-	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
#DIV/0!				405	3	0.85	-	-	-	-	-	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
Totals	-	-		1,685	14		0.00	6.05	6.05		0.00						
PAP				1,860	24												
Difference				175	10												

Although aggregate DCI results agree (line at top of table designated with “Aggregate” wording) with the June 2003 PA PAP, individual CLEC results do not, agree, including:⁵⁴

- DCI results include CLEC codes that the PA PAP does not include.
- PA PAP results include CLEC codes that DCI results do not include.
- Results vary between PA PAP and DCI for specific CLEC results.

Because of differing results in the PO-6-02-3520 section, it did not make sense at this time to incorporate PR-9-01-3520 results to complete the calculation for this portion of the report.

Table VIII-11 illustrates DCI’s replication results for MR-4-8-3144 in the June 2003 PA PAP report.⁵⁵

⁵² Consultant’s Analysis
⁵³ Consultant’s Analysis
⁵⁴ Consultant’s Analysis
⁵⁵ Consultant’s Analysis

Table VIII-11
MR-4-8-3144 Critical Measure #6 Individual CLEC Analysis

MR-4-08-3144 Out of Service >24Hrs. - Bus.										2 Mo. Individual Rule						2003 Model
UNE-P	Performance		Appointments		Sampling Error	Stat. Score	Mkt. Adj.			Clec. Perf. this month	<prev>month	<prev 2>month	Prior Month Paid	Eligible Current Month	Eligible Prior Month	
	VZ-NY	CLEC	VZ-NY	CLEC			\$	Bill	Credit							
Aggregate-	16.32	11.58	5,091	751	1.44	3.49	\$	-								
CLEC Data					Qual'd Perf	\$/miss	Bill	Credit								
	16.32	12.71	5,091	118	3.44	1.05	-	-	-	0				no	no	
	16.32	0.00	5,091	16	9.25	1.76	-	-	-	0				no	no	
	16.32	0.00	5,091	8	13.08	1.25	-	-	-	0				no	no	
	16.32	0.00	5,091	3	21.34	0.76	-	-	-	0				no	no	
	16.32	0.00	5,091	5	16.54	0.99	-	-	-	0				no	no	
	16.32	0.00	5,091	1	36.96	0.44	-	-	-	0				no	no	
	16.32	0.00	5,091	10	11.70	1.40	-	-	-	0				no	no	
	16.32	0.00	5,091	6	15.10	1.08	-	-	-	0				no	no	
	16.32	0.00	5,091	1	36.96	0.44	-	-	-	0				no	no	
	16.32	0.00	5,091	1	36.96	0.44	-	-	-	0				no	no	
	16.32	10.31	5,091	97	3.79	1.59	-	-	-	0				no	no	
	16.32	12.26	5,091	310	2.16	1.88	-	-	-	0				no	no	
	16.32	0.00	5,091	3	21.34	0.76	-	-	-	0				no	no	
	16.32	10.00	5,091	10	11.70	0.54	-	-	-	0				no	no	
	16.32		5,091		#DIV/0!	na	-	-	-	0				no	no	
Totals				589			-	-								
PAP				751												
Difference				162			-	-								

Although aggregate DCI results agree (line at top of table designated with “Aggregate” wording) with the June 2003 PA PAP, individual CLEC results do not agree, including:⁵⁶

- DCI results include CLEC codes that the PA PAP does not include.
- PA PAP results include CLEC codes that DCI results do not include.

Table VIII-12 illustrates DCI’s replication results for MR-5-1-3340 (using MR-5-1-3343 and MR-5-1-3345 in place of MR-5-1-3340, due to inconsistencies in product codes on PA PAP and C2C reports) in the June 2003 PA PAP report.⁵⁷

Table VIII-12
MR-5-1-3340 Critical Measure #6 Individual CLEC Analysis

MR-5-01-3340 % Repeat Reports w/in 30 Days -Line Share/Split										2 Mo. Individual Rule						2003 Model
DSL	Performance		Appointments		Sampling Error	Stat. Score	Mkt. Adj.			Clec. Perf. this month	<prev>month	<prev 2>month	Prior Month Paid	Eligible Current Month	Eligible Prior Month	
	VZ-NY	CLEC	VZ-NY	CLEC			\$	Bill	Credit							
Aggregate-	28.25	13.33	354	15	11.87	1.65	\$	-								
CLEC Data	*		*		Qual'd Perf	\$/miss	Bill	Credit								
	28.25	0.00	354	1	45.08	0.63	-	-	-	0				no	no	
	28.25	0.00	354	1	45.08	0.63	-	-	-	0				no	no	
	28.25	18.18	354	11	13.78	0.73	-	-	-	0				no	no	
	28.25	0.00	354	1	45.08	0.63	-	-	-	0				no	no	
Totals				14			-	-								

* Changed field to agree with MR-5-01-3340, not MR-5-01-3342, aggregate

** Added records together to get one OVC item

⁵⁶ Consultant’s Analysis

⁵⁷ Consultant’s Analysis

Aggregate DCI results agree (line at top of table designated with “Aggregate” wording) with the June 2003 PA PAP, as did individual CLEC results; however, Verizon PA results in the PA PAP Excel model spreadsheet needed to be changed, as incorrect cell references were included in the PA PAP Excel model spreadsheet.⁵⁸

Table VIII-13 illustrates DCI’s replication results for NP-2-01/02 (including NP-2-01-6701, NP-2-01-6702, NP-2-02-6701, and NP-2-02-6702) in the June 2003 PA PAP report.⁵⁹

Table VIII-13
NP-2-01/02 Critical Measure 7/8 Individual CLEC Analysis

NP-2-01/2		% OT Response to Request for Collocation - Total					2003 Model					
Collocation		% On Time	Requests	Market Adj.			2 Mo. Individual Rule					
Aggregate-		100	27	\$ -			Clec Perf:	<prev>m	<prev 2>	Prior	Eligible	Eligible
CLEC Data			Missed Responses	Qualified Misses	\$/miss	Bill Credit	this month	onth	month	Month Paid	Current Month	Prior Month
		100	1	-	-	-	0				no	no
		100	1	-	-	-	0				no	no
		100	2	-	-	-	0				no	no
		100	2	-	-	-	0				no	no
		100	1	-	-	-	0				no	no
		100	1	-	-	-	0				no	no
		100	1	-	-	-	0				no	no
		100	6	-	-	-	0				no	no
		100	2	-	-	-	0				no	no
		100	1	-	-	-	0				no	no
				-	-	-	-2				no	no
Totals			18									
PAP			27									
Difference			9									

Although aggregate DCI results agree (line at top of table designated with “Aggregate” wording) with the June 2003 PA PAP results, individual CLEC results do not agree, including:⁶⁰

- DCI results include CLEC codes that the PA PAP does not include.
- PA PAP results include CLEC codes that DCI results do not include.

In reviewing April-June 2003 performance results DCI also found that for sub-metric NP-2-01-6701 one CLEC was not included at all in PA PAP results for June. (Additionally, for other metrics, approximately 25 other instances were found where a particular CLEC code could not be found in the PA PAP reports, which CLECs may be represented by other codes in the PA PAP reports. However; because DCI did not have the appropriate mapping matrix, it was unable to verify if this was the reason.⁶¹ This must be verified by Verizon PA.)

⁵⁸ Consultant’s Analysis

⁵⁹ Consultant’s Analysis

⁶⁰ Consultant’s Analysis

⁶¹ Consultant’s Analysis

Table VIII-14 illustrates DCI’s replication results for OR-10-02-1000 (using OR-10-02-2000 in place of OR-10-02-1000 due to inconsistencies in product codes on PA PAP and C2C reports) in the June 2003 PA PAP report.⁶²

Table VIII-14
OR-10-2-1000 Critical Measure Other Individual CLEC Analysis

OR-10-02-1000% PON Exceptions Resolved w/in 10 Bus Days							2 Mo. Individual Rule					2003 Model
Resolution	% Resolved	Exceptions	Misses	Market Adj.								
Aggregate-	81.839	2109	383.02	\$ 16,029			Clec.Parf	<prev>mo	<prev 2>	Prior	Eligible	Eligible
CLEC Data			Missed Responses	Qualified Misses	\$/miss	Bill Credit	this month	nth	month	Month Paid	Current Month	Prior Month
	100.00	1	0	0.00	-	-	0				no	no
	100.00	5	0	0.00	-	-	0				no	no
	87.97	482	58	54.00	44	2,371	-2				no	no
	100.00	5	0	0.00	-	-	0				no	no
	94.32	88	5	5.00	44	220	-1				no	no
	100.00	97	0	0.00	-	-	0				no	no
	100.00	1	0	0.00	-	-	0				no	no
	77.58	1427	320	306.00	44	13,438	-2				no	no
Totals		2106	383	365.00		16,029						
PAP		2109	383	363.03		16,029						
Difference		3	0	-2		(0)						

Although DCI aggregate results agree (line at top of table designated with “Aggregate” wording) with the June 2003 PA PAP results, individual CLEC results do not, including:⁶³

- DCI results include CLEC codes that the PA PAP does not include.
- PA PAP results includes CLEC codes that DCI results do not include.
- Results vary between PA PAP and DCI for specific CLECs.

DCI Analysis No. 3: Individual CLEC Analyses (Using Data Mart and CMAs)

In DCI’s Analysis No. 3 (special provisions) DCI chose the same nine metrics for closer scrutiny, as a means of using the Verizon PA data mart data to calculate PA PAP results. However, upon examination of the updated, final June CMAs sent Sept. 29, 2003 in response to *Information Request C-044*, DCI found that only four of the selected nine metrics were documented, as follows:⁶⁴

- OR-4-16-1000 (missing)
- PR-4-04-2100 (documented)
- PR-4-04-1341 (missing)
- PR-4-07-3540 (documented)
- PR-6-02-3520 (documented)
- MR-4-08-3144 (missing)

⁶² Consultant’s Analysis

⁶³ Consultant’s Analysis

⁶⁴ Consultant’s Analysis

- MR-5-01-3340 (missing)
- NP-2-01/02 (documented)
- OR-10-2-1000 (missing)

This is the same problem that was previously experienced in DCI Analysis No. 2 with mismatching product codes.

A similar problem exists with regard to CLEC codes. During attempts to replicate June 2003 PA PAP reports, DCI either: (a) found CLEC codes that were not included in the PA PAP reports or; (b) could not find CLEC codes that were in the PA PAP report. According to Verizon PA, these problems were most likely due to the aggregation of CLEC subsidiary codes into lead CLEC IDs. However; it made traceability difficult and, in some cases, impossible, as DCI did not have the appropriate mapping matrix. June 2003 examples where particular problems exist include those listed in Table VIII-15.⁶⁵

Table VIII-15
CLEC Code Problems for June 2003 Replication of Individual CLEC Results

<u>CLEC ID</u>	<u>CLEC Description</u>
	AT&T
	TCG (Teleport)
	FairPoint Communications Corp (fka MJD TeleChoice)
	Adelphia Business Solutions (Hyperion)
	Commonwealth Telecom Services, Inc (CTSI)
	Broadview Networks
	Conestoga Communications, Inc
	ATX Telecommunications Svcs.
	CTC Communications
	Full Service Network
	CAT Communications, Inc
	FiberNet, LLC
	PECO Adelphia Communications
	RCN Telecom Services Inc/RCN Long Distance Co RVP Performance
	MCI Worldcom
	D&E Systems Inc

As previously discussed in DCI Data Analysis 2, one CLEC code did not make it to the PA PAP results for the April-June 2003 period reviewed. (Specifically, in June 2003, NP-2-01-6701 results for that CLEC were not found in PA PAP results.)⁶⁶

Therefore, due to both of these situations, plus the lack of NMP documentation, DCI was unable to programmatically verify calculations using CMAs with NMP data.

⁶⁵ Consultant's Analysis and Verizon PA Input during Working Paper Verification Meetings

⁶⁶ Consultant's Analysis

3. Verizon PA Does Not Use The Same Process For Determining Wholesale Results For PA PAP Purposes As It Does For The Retail Comparatives, When The Retail Comparative For The UNE And Corresponding Resale Product Differs.

The following metrics are included on the DSL tab of the PA PAP Excel model spreadsheet:

- MR-3-01-1341 % Missed repair appointments-Loop-2W Digital-UNE/Resale
- MR-3-02-1341 % Missed repair appointments-CO-2W Digital-UNE Resale
- MR-4-02-1341 Mean time to repair-Loop-2W Digital-UNE/Resale
- MR-4-03-1341 Mean time to repair-CO Trouble-2W Digital-UNE/Resale
- MR-4-04-1341 % Cleared (all troubles) within 24 Hours-2W Digital-UNE/Resale
- MR-4-07-1341 % Out of service > 12 hours-2W Digital-UNE/Resale
- MR-5-01-1341 % Repeat reports within 30 days-2W Digital-UNE/Resale

DCI first questioned the logic of why the retail comparative for the provisioning of a UNE 2-Wire Digital Loop should differ from the maintenance of the same product. (See Chapter III, Finding 2 and the associated recommendation, relating to C2C Guidelines.) In addition to DCI's inability to identify an operational reason explaining the logic for the difference in the retail comparatives between provisioning and repair of the same product, DCI questions the validity of how the PA PAP is administered for these services.

- Verizon PA calculates a weighted average of the UNE and Resale results, as UNE and Resale results are different for the same product. Verizon PA then compares this weighted result against the comparative retail result. Usually the retail comparative is the same, whether the wholesale product is UNE or Resale, but, as identified above, the retail comparative for maintenance of Resale 2-Wire Digital is Retail ISDN where the retail comparative for maintenance of UNE 2-Wire Digital is POTs-Total.
- However, Verizon PA uses no similar process for calculating a weighted average for the comparative retail result. It appears, from DCI's review, that Verizon PA uses only the comparative retail results for UNE (resale) and ignores the Resale comparative. This results in comparing apples to oranges; so, whether or not there is parity of service is not accurately determined; therefore, this process may not result in calculating proper penalty payments.

Regarding these metrics, values for VZ performance and observations on UNE (Maintenance) tab of C2C reports are used based on the following reasoning:⁶⁷

- Retail compare for Resale 2W Digital Services is Retail Integrated Services Digital Network (ISDN) (2W Digital) (as shown on Page 5 of C2C Guidelines in Retail Analog Compare Table).

⁶⁷ October 3, 2003 Conference Call with PA PAP Technical Staff

- Retail compare for UNE 2W Digital Loop is Retail Plain Old Telephone Service (POTS) – Total (All) (also shown on Page 5 of C2C Guidelines in Retail Analog Compare Table).
- Because Retail POTS – Total (All) includes Business (simple) plus Residence (simple) plus ISDN Billing Rate Interface (BRI) (complex), you use the larger of the two for PA PAP purposes.

In response to DCI's inquiry, Verizon PA explained that this issue was never discussed when the NY PAP was re-written by the NY PSC; therefore, the PA PAP contains no specific requirement for weighting the different C2C results. Verizon PA decided to rely on the retail comparative for the UNE result, because it is the larger volume service. In addition, according to Verizon PA, POTS – Total includes ISDN by definition; therefore, weighting performance seems somewhat convoluted, because ISDN would be double counted. Verizon PA agreed to seek a clarification of its interpretation with the NY PSC; however, Verizon PA believes that even if performance were weighted, there would be no change to dollars under the PA PAP as a result of this issue.⁶⁸

⁶⁸ Verizon PA's Response to DR A-069

C – RECOMMENDATIONS

1. Develop Documentation For NMP And PA PAP Excel Model Spreadsheet Calculation And Reporting. (Refer to Findings Nos. 1 and 2)

As discussed fully in *Chapter VII – Review of Performance Assurance Plan Supporting Documentation*, the PA PAP calculation and reporting process, as currently documented by Verizon PA, does not meet the PA PUC’s requirement of transparency. The documentation must be such that it allows all parties to understand the process by which Verizon PA derives correct remedy payments for individual CLECs from the monthly performance metric results. This is required to ensure: 1) that the results of the various remedy calculations are accurate and reflect the actual performance rendered by Verizon PA, 2) parity of service, and 3) openness of the market in Pennsylvania. Documentation of both items must be developed, as discussed in greater detail in *Chapter VII*.

Additionally, Verizon PA should provide a comprehensive list of all possible manual adjustments and a description of all associated procedures (in detailed form) for making these adjustments to the PA PAP Excel model spreadsheet to achieve proper PA PAP results. During this review, in Information Response A-048, Verizon PA provided a brief list of manual adjustments that are generally required to be made to the PA PAP Excel model spreadsheet to replicate PA PAP results. This does not include items, such as MOE doubling, that have not occurred through June 2003 in Pennsylvania. Nor does it include how to calculate monthly CLEC bill credits. Both the comprehensive list of all possible manual adjustments that could be required to the PA PAP Excel model spreadsheet to achieve proper PA PAP results and the corresponding required procedures for making such adjustments will be necessary for outside verification of PA PAP results.

2. Correct The PA PAP And The PA PAP Excel Model Spreadsheet And Develop A PA PAP Report To Assist Outside Auditors In Replicating PA PAP Results. (Refer to Finding No. 2)

To comprehensively audit the PA PAP, not only must additional documentation be developed and provided to the PA PUC, but additional C2C report data must be made available for outside verification. Any problems already identified in the PA PAP should be corrected by Verizon PA in the PA PAP and the PA PAP Excel model spreadsheet. Examples include (but are not limited to):

- Inclusion of correct product codes (or provision of a footnote of codes used, if the PA PAP report includes multiple codes)
- Instructions on proper use of UNE or Resale (not a weighted average) for VZ results

- Instructions on proper use of Line Share or Line Split (not a weighted average) for VZ results
- Other items previously mentioned in Finding No. 2 for which Verizon PA has not explained why DCI was unable to replicate PA PAP results.

Also, a new and separate report should be developed by Verizon PA for outside verification purposes in replicating individual CLEC results on the following report tabs:

- P-CM#2All
- Q1-CM#3UNE-Resale
- Q2-CM#3DSL-Trunks
- Q3-CM#3Spec
- R-CM#4LNP
- S-CM#5Hot Cut
- T-CM#6UNE-P&L T2-CM#6DSL
- T1-CM#6Resale-Trunks
- T3-CM#6Spec
- U-CM#7&8
- V-Resolution

This report should show aggregate metric results and individual metric results (with proper product codes), which show roll-up data to lead CLEC IDs, as well as comprehensive algorithms associated with calculation of metric results. As specifically required in PMO II (Page 78), Verizon PA is required to provide the PA PUC “CLEC-specific data, algorithms, and metric and remedies reports (subject to proprietary designation) as well as aggregate data, algorithms, and metric and remedies reports.” The PA PUC requires more than is currently provided in the PA PAP. Verizon PA should work closely with PA PUC Staff to develop a format that meets PA PUC needs.

3. Re-audit PA PAP Results Periodically At Least Until A Favorable Audit Report Is Attained. (Refer to Findings Nos. 1 and 2)

For at least the first six months after April 1, 2003, PA PUC staff is expected to replicate Verizon PA’s performance reports to assure that the report data accurately reflect the service quality being provided to CLEC organizations. As discussed in various report findings and recommendations of this report Verizon PA must make appropriate changes to documentation, and incorporate modifications to code for producing PA PAP results. Given the problems experienced on this review with replication of PA PAP results, DCI suggests that the PA PUC continue to replicate performance reports until such time that it is satisfied that Verizon PA’s processes and documentation are appropriate. DCI believes that this will not occur until such time as one of the annual audits performed on behalf of the Commission (either by Commission Staff or independent auditors) results in a substantially favorable audit report. To comprehensively perform such replication, Verizon PA must make changes in its processes, systems, and documentation, as discussed elsewhere in this report.

4. Use The Same Method To Determine Both Wholesale And Retail Results For PA PAP Purposes. (Refer to Finding No. 3)

Verizon PA's use of a weighting method to determine wholesale UNE/Resale results for PA PAP purposes while only choosing one or the other of the corresponding retail comparatives results in comparing apples to oranges; so whether or not there is parity of service is not accurately determined; therefore, this process may not result in calculating proper penalty payments.

Even though Verizon PA claims that weighting performance would not change the penalty assessments under the PA PAP, as currently determined by Verizon PA, the only way this could be confirmed would be to compare both results on a monthly basis. Therefore, DCI recommends the same method be used to determine both wholesale and retail results for PA PAP purposes. DCI suggests that this is a matter for the PA CWG to consider and resolve, with PA PUC concurrence.

IX – CLEC PENALTY PAYMENT BILLING CREDITS

IX – CLEC PENALTY PAYMENT BILLING CREDITS

A - BACKGROUND

Pennsylvania's original Performance Assurance Plan (PA PAP) went into effect in June 2000. This was the first month in which PA PAP penalties were imposed. This version of the PAP was in effect until March 2003. Although the Pennsylvania measures have evolved over the years, and there have been many revisions, they are not as extensive as the changes that have occurred in the PA PAP from the original version to the April 2003 version, the subject of this review.

Penalty payments were not triggered under the original PA PAP if Verizon PA missed the performance standard for a particular measure for two consecutive months. One of the differences between the old and new plans is that the original plan did not provide for bill credits to Competitive Local Exchange Carriers (CLECs). Penalties were incurred every month under this plan, but instead of bill credits, the penalties were paid by check. Under the new plan, April was the first month for which penalty payments could be due and, therefore, the first month in which bill credits could apply. With the publication of the April 2003 performance results, Verizon PA also produced a preliminary calculation of penalties that were due as a result of Verizon PA's performance for the month. Final results for April 2003 were not determined until late July 2003, when Verizon PA produced June performance results. This delay was apparently due to a measurement that conditionally failed (performance score equals -1) which was converted to a pass (performance score equal to 0) based on achieving parity in two succeeding months. Therefore April results were determined in late July 2003, and the first bill credits were applied to the CLEC bill cycle ending in August 2003. May's penalties will be posted to the September bills and June's will be on the October bills.¹

If a CLEC has a dispute concerning Verizon PA's calculated measure results or penalty payments, the proper procedure is to first go through an informal process of trying to identify the cause of the discrepancy by working with the appropriate Verizon PA personnel. The CLEC has the option to take the issue to the Carrier Working Group (CWG) in order to determine if there is a system-wide problem or the matter is isolated to a single CLEC. The formal dispute resolution process calls for the CLEC to file a complaint with the Pennsylvania Public Utility Commission (PA PUC).

As part of review activities, DCI consultants were charged with determining whether bills to CLECs clearly provide detail of credits resulting from PA PAP remedies, that data and procedures are in place to respond in a timely manner to credit inquiries from CLECs and whether Verizon PA personnel are adequately trained on these procedures.

In conducting its review of the accuracy of CLEC bill credits, DCI determined whether Verizon PA's penalty payments were calculated correctly in compliance with the

¹ Telephone interview with Verizon Technical Staff, July 22, 2003

provisions of the PA PAP. The findings and conclusions from this evaluation are documented in Chapter VIII - Calculation of Performance Assurance Plan Penalty Payments. For the purposes of determining whether CLEC bills clearly provide detail of credits resulting from PA PAP remedies, it was assumed that Verizon PA calculated the penalty payments correctly.

In order to perform the bill credit evaluation, Verizon PA provided DCI with electronic duplicates of the page of every CLEC's Customer Record Information System (CRIS) or Carrier Access Billing System (CABS) bill reflecting the credits for the month of August 2003.² Verizon PA also provided its internal documentation used to post credits to CLEC bills that were due because Verizon PA failed to meet performance standards. In addition, DCI was provided all documentation used by Verizon PA's billing department to properly handle CLEC claims and/or billing inquiries. Specifically, Verizon PA provided the following documentation:

- Claims Receipt and Acknowledgement Process Document, dated September 11, 2003
- List of Contents of internal website used by Verizon PA Service Representatives to process claims
- Wholesale Billing Assurance and Solutions Performance Assurance Plan Adjustment Process Documentation, *A Guide to PAP Penalty Adjustment Procedures*, dated August 14, 2003
- Wholesale Billing Claims Center Methods and Procedure for Wholesale Claims & Inquiry Tracking (WCIT), revised April 28, 2003
- Training Document on WCIT Access
- Documentation detailing steps taken by a Verizon PA Service Representative to properly resolve a CLEC's claim for bill adjustment arising from a Blocking claim³

² Information Response A-058 & A-059

³ Information Response A-026

B - FINDINGS**1. Verizon PA's Bills To CLECs Clearly Provide Details Of Credits Resulting From PAP Remedies.**

Verizon PA's "Guide to PAP Penalty Adjustment Procedures" provides the documentation needed for the Wholesale Collections Organization to utilize the penalty performance spreadsheets in order to apply the calculated credit to the appropriate CLEC account that is to be credited on the next bill statement. DCI reviewed the April credits that were posted to the August bills and determined that these bills provide a clear detail of credits resulting from PAP remedies in a format that can be easily identified and verified by the customer. Specifically, the credits are detailed on the CLEC's CRIS bill as shown on Table IX-1:

Table IX-1
Billing Credit Detail Provided to CLECs

CLEC NAME	CLEC ADDRESS	BILL DATE
ADDITIONAL CREDITS AND CHARGES		DATE
ONE TIME CREDIT FOR		
1	Performance Assurance Credit Resale Critical Measures Month/Year	-x,xxx.xx
2	Performance Assurance Credit Unbundled Network Element (UNE) Critical Measures Month/Year	-xxx.xx
DATE		
ONE TIME CREDIT FOR		
3	Claim #d059342898654	-x.xx
4	UNKNOWN LOCAL SERVICE	-xxx.xx
TOTAL FOR ADDITIONAL CREDITS AND CHARGES		-xx,xxx.xx
If you have a question call toll free 1 888-847-6288		

As shown by the above, credits due to missed performance standards (i.e., 1 and 2) are clearly distinguished by those due to other reasons (i.e., 3 and 4) and the type of penalty payment is clearly noted. In addition, the bill contains a contact number for specific questions regarding the bill credits.⁴

Verizon PA has also recently created a CLEC Notification Letter which the Wholesale Collections Group will be responsible for sending each month to all CLECs that are due a PAP adjustment, in an effort to reduce calls to the Wholesale Help Line. The

⁴ Information Response A-058 & A-059

Notification Letter is also intended to assist the wholesale customer by providing a better understanding of what is appearing on his or her bill. The CLEC Notification Letter contains the following information:

- Date the letter is produced
- CLEC Name
- CLEC's Mailing Address or e-mail Address
- The Billing Authorization Number (BAN)/Billing Telephone Number (BTN) the PA PAP Credit is applied to
- The dollar amount applied
- The month the PA PAP penalty was missed
- Phrase code used

In addition to the contact number shown on the billing statement for questions specifically regarding bill credits, Verizon PA also provides a Help Line for CLECs who have questions concerning metric results and PA PAP adjustments applied to their account. CLECs can make inquiries to the Metrics Accuracy Help Line by e-mail through a website or by calling the Help Line at 800 959-9995. This number is also provided in the CLEC Notification Letter. The Metrics Coordinator documents all incoming inquiries in accordance with Verizon PA's Help Line Methods and Procedures.⁵

2. In Reconciling The Information Found In The CLEC Notification Letter To That Described In Verizon PA's Documentation And That Contained On The CLEC's Bill, DCI Found Some Minor Inconsistencies

DCI requested and received from Verizon PA, copies of all CLEC notification letters sent out for bill credits due from missed performance results for the April 2003 report period. In addition to the number for the Help Line, Verizon PA also provides the following e-mail address in this notification letter for CLECs to address any questions or concerns: WQAT@verizon.com. DCI reviewed these letters for content and consistency with the corresponding billing statements and to be certain all the information listed in Verizon PA's Wholesale Billing Assurance and Solutions Performance Assurance Plan Adjustment Process Documentation, *A Guide to PAP Penalty Adjustment Procedures*, dated August 14, 2003, was contained within the letter. DCI found the letters to contain all the applicable information listed above, except that the CLEC address was not contained within the letter. DCI assumes that the letters supplied in response to its request were all sent via email, since the 33 CLECs that received bill credits did not receive notification letters. A data request was sent to Verizon PA to verify this assumption. In response to this request, DCI learned that Verizon PA considers this notification letter a courtesy provided to the CLECs and only sends one to those that have established a profile with Verizon PA listing an email address. However, Verizon PA is reviewing this process to determine if notification letters should be sent to the CLEC's

⁵ Information Response A-026; See Wholesale Billing Assurance and Solutions Performance Assurance Plan Adjustment Process Documentation, *A Guide to PA PAP Penalty Adjustment Procedures*, dated August 14, 2003

billing address for those who have not provided an email address. Once a decision is made, Verizon PA stated that it will either begin sending notification letters to all CLECs and include the CLEC address, as stated in its documentation, or remove the address as a requirement in its documentation.⁶

In reconciling the information contained in the notification letters with the billing statements, DCI noted some inconsistencies in the phrase code used between the notification letter and the billing statement. Specifically, one letter stated that the credit will be identified on the billing statement by the phrase code “Performance Assurance Credit UNE”, however, the billing statement reflected the credit due to “Performance Assurance Credit Resale Critical Measures”. DCI also noted the reverse situation where the letter stated; the credit will be identified by the phrase code “Performance Assurance Credit Resale”, however, the billing statement showed “Performance Assurance Credit UNE Critical Measures”.

In addition, one letter stated that it was for bill credits due to performance in the state of Virginia rather than Pennsylvania; however, all of the other information in the letter was correct, including the CLEC’s Pennsylvania BAN. Verizon PA personnel informed DCI of this error prior to DCI conducting its reconciliation. Verizon PA also explained in its response that credits were provided to 38 additional CLECs but letters were not disseminated at the time due to a lack of contact information, which has been discussed above. Of these 38 CLECs, DCI found that Verizon PA did in fact issue letters to five.

Finally, DCI identified four other CLECs that did receive bill credits for which Verizon PA did not explain why a letter was not provided.⁷ DCI issued a data request to Verizon PA to determine the reason for these discrepancies. In two of these situations, Verizon PA explained that the letter for the approved credit amount was generated, issued to the customer, and stored on the Lotus Notes database, but an electronic copy of the letter was not available due to an apparent database error that is being addressed by its Information Technology (IT) organization. For another, Verizon PA explained that the contact information had not been loaded into the database to produce the notification letter, therefore, the customer should have been included in the list of the other 38 CLECs, stating that letters were not disseminated for April 2003 due to insufficient customer contact information. Finally, for the fourth customer that received a bill credit but no notification letter, Verizon PA explained that its collections organization was notified by its regulatory group that the customer requested not to receive PA PAP paperwork.⁸ DCI reviewed 80 bill statements and 45 of the corresponding letters, and found only the errors mentioned above. In all cases DCI found that the amount of the credit, the month for which the credit was due and the billing account number to which the credit was to be reflected, were accurate.⁹

⁶ Information Response A-067

⁷ Information Response A-065

⁸ Information Response A-067

⁹ Information Response A-065

3. Verizon PA's Documentation For Handling CLEC Billing Claims Is Sufficiently Detailed And Comprehensive.

Verizon PA has documentation regarding CLEC billing claims and inquiries, as they relate to Blocking, Directory Advertising, Disconnected Line, Duplicate Bills, Incorrect Universal Service Order Code (USOC), Independent Bill, Inquiry, Late Payment Charge, Non Recurring Charge, Non Resellable, Recurring Charge, Resale Discount, Summary Bill Transfer, Tax, Third Party Billing and Unknown Line.¹⁰ DCI sampled Verizon PA's documentation for handling CLEC billing claims by reviewing claims regarding Blocking issues and found them to be detailed and comprehensive. One issue identified was outdated references to Verizon PA's Claims and Adjustments Tracking System (CATS), which has been replaced with the WCIT.¹¹

WCIT was implemented in August 2002, as that is the original issue date of the WCIT Methods and Procedures document, but Verizon PA has not yet updated other supporting documentation.¹² Upon inquiry, Verizon PA informed DCI that WCIT was implemented as a parallel system with CATS for testing purposes in August 2002. The purpose of this was to ensure a seamless transition from CATS to WCIT and allow proper training for Verizon PA representatives in the enhanced claims tracking system, WCIT. However, in December 2002, claims were no longer entered into CATS. Since claims still existed in both CATS and WCIT, files from both systems were incorporated as a single feed to Network Metric Platform (NMP) for metric reporting. Verizon PA explained that effective with the October 2003 data month, Change Control Request (CCR) 10397 initiated a single feed to NMP, thereby eliminating the CATS file. Verizon PA plans to update the documentation to remove references to CATS upon completion of CCR 10397.¹³

DCI found another outdated reference contained within Verizon PA's "Claims Receipt and Acknowledgement Process Document, dated September 11, 2003". This document states that the Verizon PA representative is to return a CLEC's claim or inquiry if it is not sent directly to the Billing Telecom Industry Services Operations Center (TISOC). The Billing TISOC is now referred to as the Wholesale Billing Collection Center (WBCC).

Although Verizon PA's documentation dealing with CLEC billing inquiries does not deal specifically with those regarding credits due to PA PAP penalty payments, it does provide a process for dealing with miscellaneous billing claims or inquiries that are not among the standard reasons described above. This process requires the Verizon PA service representative to submit the issue to the Wholesale Billing & Collections Team Leader to determine whether a new claim type needs to be created in the WCIT. Until a decision is made as to whether a new claim type is warranted, the inquiry is processed in a timely manner, using the MISC reason code.

¹⁰ *Id.* See Claims Receipt and Acknowledgement Process Document, dated September 11, 2003

¹¹ Information Response A-026; See Blocking Claims Documentation

¹² Information Response A-026; See Wholesale Billing Claims Center Methods and Procedures for Wholesale Claims & Inquiry Tracking (WCIT), revised April 28, 2003

¹³ Information Response A-066

The Wholesale Billing & Collections Team Leaders are also responsible for monitoring the MISC claims in the WCIT system.¹⁴ DCI understands that upon Verizon PA's receipt of the first billing claim or inquiry associated with PA PAP penalties or credits, this MISC process will be followed in order to create a new claim type, and the associated documentation for the Verizon PA representative to follow, in order to process the claim. A data request was issued to Verizon PA to inquire as to whether or not Verizon PA has any plans to update the billing dispute reason codes, to include disputes or inquiries due to calculation of PA PAP bill credits. Verizon PA responded that currently it has no plans to add a code for billing disputes or inquiries that are due to the calculation or credit from PA PAP penalties.¹⁵

DCI found Verizon PA's internal documentation supporting its process of applying bill credits to CLEC accounts to be thorough and complete. As DCI reviewed the documentation, each question that arose was clarified or answered upon further reading of the documentation. This is what should be expected of all Verizon PA's C2C and PA PAP documentation and all documentation supporting its performance metrics calculation, reporting or penalty assessment processes.

4. Verizon PA Personnel Are Adequately Trained, And Data And Procedures Are In Place To Respond To CLEC Credit Inquiries In A Timely Manner.

Verizon PA provides sufficient systems, procedures, training, and documentation for its internal organization to properly handle CLEC billing claims and inquiries. Verizon PA utilizes WCIT to track the claims process and help manage inquiries and claims. There is sufficient CLEC billing process documentation to allow Verizon PA's service representatives to properly handle CLEC Billing Claims and inquiries in general. This documentation does not deal specifically with those claims and inquiries regarding adjustments made due to penalty payments. In its discussions with the CLEC community, DCI did not receive any complaints or comments regarding problems with Verizon PA's handling of CLEC billing inquiries. DCI does note, however, that at the time of its review activities, bill adjustments from PA PAP penalty payments were relatively new, and the CLECs have not had much experience dealing with the issue, or opportunities to view billing statements.

5. Verizon PA's Website For CLEC Billing Information Is Outdated And Incomplete

CLECs are responsible to submit inquiries with all the information required by Verizon PA for the various claim types in a standard format, preferably by e-mail. The claim or inquiry will be returned if it is not sent directly to the Billing TISOC email address.¹⁶ With the implementation of WCIT, CLECs also have the ability to enter and

¹⁴ Information Response A-026; *See* Claims Receipt and Acknowledgement Process Document, dated September 11, 2003

¹⁵ Information Response A-064

¹⁶ Information Response A-026; *See* Claims Receipt and Acknowledgement Process Document, dated September 11, 2003

track their inquiries through a web portal.¹⁷ The Claims Acknowledgement Representative, upon receipt of a CLEC claim, verifies that all the required information is enclosed. If a CLEC fails to submit a claim properly, Verizon PA provides a claim submission template, explaining that it would expedite the process if the CLEC submitted all future inquiries using the template. If the information received from the CLEC is insufficient to process the inquiry, Verizon PA sends it back to the CLEC with a letter requesting the CLEC to re-submit the inquiry with the additional information. The letter also includes the standard template for future use in submitting inquiries.¹⁸

DCI submitted a data request to Verizon PA to determine what documentation was provided to CLECs concerning requirements for submitting claims or inquiries, and what notification was provided informing CLECs of their ability to enter and track their own inquiries or claims through WCIT. In response to these requests, Verizon PA provided the following URL that CLECs should access for this type of information: <http://www22.verizon.com/wholesale/local/billing/1,20529,,00.html>

DCI reviewed the content of this website and found it to be helpful but outdated and incomplete. It does contain all the necessary contact information for how and where the CLEC is to submit the claim and states that it must be in the proper format, but there is no template attached similar to that referenced in Verizon PA's internal documentation. The website still references CATS as opposed to WCIT, and there is no information on how the CLEC may enter and track its inquiry through a web portal. Verizon PA also informed DCI that the web portal functionality within the WCIT, system is not a mandatory function for wholesale services in Verizon East (f/Bell Atlantic). This function has been implemented for Verizon West (f/GTE), Wholesale Access Customers in the East, and in Verizon East for internal tracking of wholesale claims.

The web portal function is being introduced to Verizon East Wholesale CLECs for implementation beginning November 15, 2003. Verizon PA provided an industry letter that was sent to CLECs advising them of the transition to the Wholesale Web Portal, and stated that the web portal functionality was also to be discussed at the October 14, 2003 Change Management Session.¹⁹ DCI reviewed this notification letter and found it to contain all the necessary information for a CLEC to successfully handle this transition. This should resolve all the issues DCI identified dealing with CLEC training and notification.

¹⁷ Information Response A-026; *See* Wholesale Billing Claims Center Methods and Procedure for Wholesale Claims & Inquiry Tracking (WCIT), revised April 28, 2003

¹⁸ Information Response A-026; *See* Claims Receipt and Acknowledgement Process Document, dated September 11, 2003

¹⁹ Information Response A-063 and A-064

C - RECOMMENDATIONS

1. Send CLEC Notification Letters Detailing The Credit That Is Due To All CLECs Or, Update Verizon PA's Documentation (Refer to Finding Nos. 1 and 2)

For those CLECs for which Verizon PA claims not to have contact information, Verizon PA should acquire an email address or send the letter to the same address as the billing statement. Verizon PA should ensure that all information is accurate, so as not to create additional confusion to that which the letter was attempting to resolve in the first place. However, DCI finds Verizon PA's billing statements to be clear and concise.

Should Verizon PA decide, and the Commission concur, to only send letters to those CLECs which have provided email addresses, Verizon PA should update its documentation to that effect, notify the CLECs that, in order to be provided with the courtesy of a notification letter, they must provide Verizon PA with email addresses and update their documentation in order to remove the CLEC address as items contained within the letters.

2. Develop The Same Type Of Documentation For CLEC Claims Or Inquiries From PA PAP Bill Credits, As Verizon PA Uses To Support Blocking Claims. (Refer to Finding No. 3)

The process that would be necessary for a Verizon PA representative to properly handle a CLEC inquiry concerning metrics results or a PA PAP billing adjustment, would be different from any of the processes that Verizon PA presently has documented for billing disputes, claims or inquiries. DCI would expect there to be a large number of CLECs questioning Verizon PA's reported results or penalty payments as a result of the penalties and bill credits, effective as of April 2003, that have now been applied to the August 2003 billing statement. The fact that Verizon PA developed the CLEC notification letter to reduce calls to the CLEC Help Line also supports this assumption. DCI recommends that Verizon PA develop specific documentation detailing the steps to be taken to properly process a CLEC's inquiry regarding metric calculations that result in PA PAP bill credits, instead of processing such claims in an ad hoc manner under the MISC category. In the alternative, DCI recommends that Staff issue a data request to Verizon PA, after allowing a sufficient time to elapse for bill credits to have been in effect, requesting the number of claims or inquiries handled under the MISC category that are associated with performance penalty credits or adjustments. This will provide adequate information for Staff to determine if specific documentation should be developed on handling such claims or inquiries.

3. Update All Verizon PA Documentation To Refer To The Proper Organizations Or Systems. (Refer to Finding No. 3)

Verizon PA should update its documentation to refer to WCIT as opposed to CATS and to the WBCC instead of the Billing TISOC.

4. Update Verizon PA’s Wholesale Website. (Refer to Finding No. 5)

Verizon PA should update its wholesale website to provide more detailed documentation to CLECs describing the proper procedures on where, and how, to submit billing issues. This should include the procedures to follow in order to submit billing inquiries with all the necessary information and in the proper format to expedite the investigation of the claim. This should eliminate the extended time required for Verizon PA to obtain the required information in order to return a CLEC billing claim or inquiry in the format necessary. If Verizon PA were to update its website with the information contained in its notification letter to CLECs titled “CLEC Billing Inquiry Tracking System (CBITS) Retirement Notification, and Transition to Wholesale Web Portal”, it would satisfy this recommendation.

**X – CHANGE MANAGEMENT PROCESS AND DATA
STORAGE REVIEW**

X – CHANGE MANAGEMENT PROCESS AND DATA STORAGE REVIEW

A – BACKGROUND

This chapter addresses two areas - change management and data storage, backup, retrieval, and security. The change management review includes the evaluation of Verizon PA's Performance Assurance Plan (PA PAP) and Metric calculations, Change Management processes and procedures, and whether those processes and procedures conform to reasonable levels of quality and change control management. The evaluation focused on whether the Change Management process being used is sufficient to maintain control of changes to the performance metrics and their subsequent reporting.

The review of data storage, backup, retrieval and security includes the determination as to whether sufficient documentation exists describing the data storage, backup and retrieval process along with Competitive Local Exchange Carrier (CLEC)/user's access and information protection and performance measurement results. The adequacy of individual performance measurement metrics' descriptions documentation is addressed in other areas of the report.

CHANGE MANAGEMENT PROCESSES

The purpose of the Wholesale Performance Assurance Metric Change Management Process is to manage and control changes to the Wholesale metrics, performance reports and metric-related processes. It is intended to provide integrity to the overall Wholesale Performance Measurement System by documenting why, where, how and when a change is made. The purpose of the Change Management process is to ensure that only authorized metric-affecting changes are implemented, and that such changes are in compliance with the appropriate guidelines.

A metric change is any change to a process or system that affects the way a metric is counted, collected or calculated. It can be initiated by a regulatory order, a change in data provider processing, or identification of a programming problem, process improvement or change that affects a metric result.¹ The Change Management Process addressed describes how Verizon PA and Telecommunication Companies ("TCs") will work together to implement changes to Operations Support System (OSS) interfaces, associated business rules and applicable business processes and applies throughout the region encompassing the former Bell Atlantic (now Verizon) states.²

¹ Data Response PM-002.3, Change Management Policies and Procedures.

² Telecommunications Companies (TCs) include Competitive Local Exchange Companies (CLECs), interexchange carriers and other Local Exchange Carriers (LECs) that interface with Verizon.

Change Request Process

Verizon PA tracks modifications to the program software associated with the calculation and reporting of its Wholesale Operations performance and OSS interfaces. Each Change Request (CR), whether it is for a program modification that affects metrics calculation or reporting or is just a change to improve Verizon PA's work processes, is assigned a CR tracking number. If the requested change involves software modifications or is an OSS Interface change, it is also assigned an Initiative Number for Information System tracking purposes. The Change Management process begins with the identification of the CR and encompasses requirement definition, design, development, notification, testing, implementation, and decommissioning of the CR.³

- **Metrics Change Control Database** - The Wholesale Metrics Change Control Database is the tool used by Verizon PA to maintain a controlled repeatable process to manage, track and build an audit trail for all changes to Wholesale Metrics processes and results.
 - All change types are tracked within the same change control database using the same template to create all change control records. The template has a field to specifically identify the change type.⁴
 - The initial database form that identifies the change is the Change Control Identification form (CCI). The database form that documents the approved change request and associated requirements is the Change Control Record (CCR).
 - An approved CCR is required to authorize implementation of any change that fits the criteria of a “metrics change”. Change Control Process Summary:
 - Operational or system changes that improve performance only are not subject to the Change Control Process.
- Change Control Process Summary:
 - **Metric Review Process** - The Regulatory Support Group (RSG), Business Owner and Wholesale Performance Assurance (WPA) Vice president reviews the issue to ensure that it is valid.
 - **Initiate CCR** - Metric change requests are forwarded to the RSG Manager for review. If the request is appropriate, the RSG Manager completes a CCR and submits it for approval.
 - **Approve CCR** - New CCRs are referred for approval to the Vice President, WPA and the Direction, Change Control Process Management.

³ Data Response PM-002-3.

⁴ Data Response A-040.

CCRs that are not approved are either referred back to the RSG for further information, or retracted.

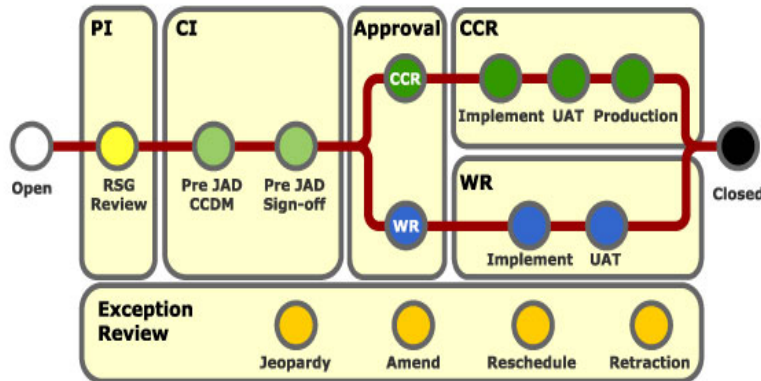
- **Issue CCR** - The Change Control Manager (CCM) issues the approved CCR to the appropriate Data Provider(s) (DPs) within Verizon PA for implementation. This also triggers notification to several other groups such as the Production Team, and Information Technology (IT).
- **CCR Development** - If needed, DP(s) request clarification of CCR requirements. DP(s) assess the CCR requirements to determine the level of effort needed to implement the change and provide a commitment date. The DP commitment date triggers CLEC notification.
- **CCR Implementation** - Data Validator(s) complete the work and generate a test file that validates that the change has been implemented according to the CCR requirements.
- **CCR Validation** - The Business Owner, along with the appropriate RSG director, validates the change which fulfills the CCR requirements. Simultaneously, the DR(s) use the appropriate test file to verify, where applicable, that mappings to the report template are correct. If mapping validation is successful, the DP puts the change into production and provides a production file to the DRs. When the production file is run successfully, the DR signs off that testing is completed.
- **CCR Completion** - The CCM completes the CCR after confirming that all process and CCR requirements have been met. Data that reflects the change may be reported only after this final verification step is completed and the CCR is closed out in the database.

MTACT Flow Diagram (“Subway Chart”)

The flow diagram shown on Table X-1 illustrates the Metric Tracking & Change Tool (MTACT). Each circle on the MTACT Flow Diagram represents a stage in the change control process.⁵

⁵ Data Response A-034.

Table X-1
Metric Tracking & Change Tool (MTACT)



MTACT

MetricTracking & Change Tool

- Up-Front OSS Source System Change Request Process:

When anyone (client organization or Information Technology (IT) organization) requests IT work, an IT initiative is needed. The request is entered through a system called Change Request & Edit Management System (CREMS) that creates the Initiative. The CREMS system has replaced the Change Identification (CID) template. The initiative process in CREMS is now automated and does not require manual work by either the System Analysis & Integration (SAI) or Software Engineering Solutions (SES) organizations to create an initiative.

Once an initiative has been created, the documentation includes a Metrics check list on which all IT groups are to indicate their completion of a metrics impact assessment. If any group indicates that the work required is metric impacting, then the initiative is sent to the Network Metric Platform (NMP) control organization. The NMP works with the WPA organization to create a Change Control Identification (CCI) form. The NMP organization then notifies SAI whether a CCR is required or not.

In an effort to determine the metrics impact and what information the CCI should contain the NMP control organization holds Pre-Joint Application Development (JAD) sessions with WPA prior to writing a CCI. Once the CCI is written then the CCR will be “opened” and grants the approval necessary to authorize the IT organization to do the work requested. The minutes from the pre-JAD review are recorded within the MTACT change control document.⁶

⁶ Data Response A-037.

- **Assessing CREMS** - CREMS allows creation & tracking of Wholesale Services Change Requests/Edit Change Requests, and provides creation of the Initiative in the IT Initiative Database through an automated process. CREMS is used to track, manage & report on Wholesale initiatives (excluding Access Services).
- **Initiative CCR** - The change control process begins with the need for a metric change as documented on a CCI form in the database. Verizon PA personnel involved in metric development or production may initiate a CCI. This includes, but is not limited to the following:
 - Wholesale Metrics Team – Report Production
 - Wholesale Regulatory Support
 - Data Providers (DP)
 - Wholesale Metrics Quality Assurance Team
 - IT
- Certain types of changes must be initiated by the Regulatory Support organization only. These include, but are not limited to:
 - Regulatory Orders
 - Changes to metric definitions
 - Implementation of new metrics
 - Clarification of metric definitions
- **CCR Approval** - RSG Mangers, CCM's and WPA Approvers meet for a final review of a CCR and to make the approval decision. CCR requirements are discussed, and appropriate updates are made to the CCR as needed. The Vice President, WPA and the Director, Change Control Process Management (or a designated approver during their absence) approves a CCR.
- **Issue CCR** -Approved CCRs are issued for implementation after the CCM completes a last review to ensure the CCR is correct and the Notifier information and milestone dates are complete.
- **CCR Development Phase** - Upon receipt of the CCR, the DP reviews the CCR to determine if the CCR requirements or fields on the CCR are correct and complete.
- The DP then assesses the level of effort required to implement the change and determine a commitment date for completion of the work. This must be done in the context of the **CCR Date Due** (found in the *Change Request Information* section of the CCR) and the **DP Response Date** and **Data Validation Date** (found in the *CCR Milestone Dates* section of the CCR). The interim dates correspond to milestone steps within the Change Control Process.

- **CCR Implementation** – The DP implements and tests the change, and provides a validation (test) file with sign-off to the CCM via the Data Validation form. Data Validation must be performed with the previous month’s production data file. The only exception is when the previous month’s data file does not contain the required data or fields to support the change. CCM reviews the validation information for completeness.
- **Metric Business Owner & RSG Director Validation** – The Metric Business Owners are the Verizon PA managers who are responsible and assigned to a specific Domain Performance Assurance Metric. The Business Owners and the RSG for the affected report and jurisdiction review the CCR to validate that the proposed Change fulfills the requirements stated on the CCR.

Change Classifications

There are five types of classification changes that are subject to the MTACT Change Control process. Each change classification also falls into one of three Severity Levels, with different approval levels. The five classifications of changes are:

- Type 1 – Maintenance Change,
- Type 2 – Regulatory Change,
- Type 3 – Industry Guideline Change,
- Type 4 – Verizon PA Originated Change and
- Type 5 – Telecommunications Companies (TC) Originated Change.⁷

- **Type 1 Change (Maintenance)**

A Type 1 change corrects problems in production versions of an OSS interface. Either Verizon PA or the TCs may initiate the CR. Typically, this type of change reflects instances where a technical implementation is faulty or inaccurate, such as to cause incorrect or improperly formatted data. Instances where Verizon PA or TCs misinterpret interface specifications and/or business rules must be addressed on a case-by-case basis. Type 1 changes are processed on an expedited basis. Additionally, once a Type 1 change is identified, the Change Management Team must determine the nature and scope of the problem. Type 1 changes are categorized as follows:

- **Severity 1: Interface Unusable** - Interface discrepancy results in totally unusable interface. TC Orders/Pre-Orders/Maintenance Requests cannot be submitted or will not be accepted by Verizon PA. Manual work-arounds are not feasible. Change is considered essential to continued operation

⁷ Data Response A-011, Document Provided in Domain Workshop May and June, Wholesale Network Services OSS Interface Change Management Process, Version 2.0, December 14, 2000.

- **Severity 2: Interface Affecting** - Orders/Pre-Orders/Maintenance Requests require work-around on the part of Verizon PA or TC(s). Change is considered significant to efficient operations.
- **Severity 3: Process Impacting** - Orders/Pre-Orders/Maintenance Requests can be submitted and will be accepted through normal process/interfaces. Clarification or correction is considered critical to ongoing operations.

- **Type 2 Change (Regulatory)**

Type 2 changes required in order to comply with state or federal law, orders or specific directives by regulatory authorities (such as the Federal Communications Commission), state or federal court orders, or required to meet standards, metrics, or other obligations imposed by, or under agreement with, the FCC or state commissions. Either Verizon PA or, as applicable, the TC may initiate the CR.

- **Type 3 Change (Industry Guidelines)**

Type 3 changes affecting interfaces between the TC's and Verizon PA's operational support systems requested to bring these interfaces in line with agreed upon telecommunications industry guidelines are Type 3 changes. Either Verizon PA or the TC may initiate the Change Request. These are industry guidelines defined by trade groups, such as the Alliance for the Telecommunications Industry Solutions (ATIS). Guidelines of particular relevance are those for OSS interfaces and local services ordering as defined by the Ordering and Billing Forum (OBF), Electronic Data Interchange (EDI) standards defined by the Telecommunications Industry Forum (TCIF), and trouble reporting interfaces defined by the Electronic Commerce Interexchange Committee (ECIC).

- **Type 4 Change (Verizon PA Originated)**

A Type 4 change may be a change affecting the interfaces between the TC's and Verizon PA's OSS. This change type is initiated by Verizon PA and is other than a Type 1, 2 or 3 change. These changes might reflect a business process improvement which Verizon PA is seeking to implement within its own internal OSS. For example, this class of change may, in certain circumstances, affect how the TCs interact with Verizon PA.

- **Type 5 Change (TC Originated)**

A Type 5 change is a change affecting the interfaces between the TC's and Verizon PA's OSS and is initiated by a TC. This change class is other than a Type 1, 2 or 3 change. For example, this change might reflect a business process improvement which the TC is seeking to implement within its own internal OSS

and that implies a change in the way the TC wishes to interact with Verizon PA. Type 5 changes are changes intended to primarily benefit the TCs.

Change Controls

Tracking Mechanism - Prior to June 2003, a LOTUS Notes System was used to track and control changes. As of September 1, 2003, the Change Control Data Base within MTACT is an interactive real-time system that is used in tracking changes to the wholesale metrics. Exhibit X-1 is an example of the computer screen for a single CR.⁸

Change Control Reports and Log Records

- Standard MTACT Change Control Reports - There are currently seven standard control reports that are routinely executed by Verizon PA's Change Control, Regulatory and IT staffs. These are shown on Table X-2 as follows:

Table X-2
Standard MTACT Change Control Reports

Report	Description
Project Management Report	The project management report details the current state of all change requests for a given data month.
Pre-JAD Sign-off Report	The PreJAD sign-off report details change requests that have outstanding PreJAD sign-offs.
Approvals Required Report	This report details change requests that have outstanding approvals.
Executive Summary Report	This report summarizes change requests by executive group (for example FCC-East, NJ, ...).
Executive Detail Report	This report details change requests by different domains/owners in a given region as specified in the Executive Summary Report.
On-Behalf-Of Report	This report highlights all signoffs, confirmations, and approvals performed "On behalf of" another user group for a specified date range.

Source: Data Response A-033.

- **Summary of August Standardized Project Management Report** – Domain (i.e., Pre-Order, Order, Provision, M&R and Billing) information which was extracted from the August 2003 Standard Project Management Report (which was the most current report at the time of DCI's data gathering effort) is listed on Exhibit X-2. As shown on the Exhibit X-2, there were 13 Data Calculation Corrections, 10 Regulatory Orders and 18 Process Improvements, and 31 others, for a total of 72 reports.⁹

⁸ Data Response A-032.

⁹ Source: Data Request A-033 for copies of Standard MTACT System Change Control Reports reviewed from Interview A-008.

Exhibit X – 1

SINGLE CHANGE REQUEST
COMPUTER SCREEN

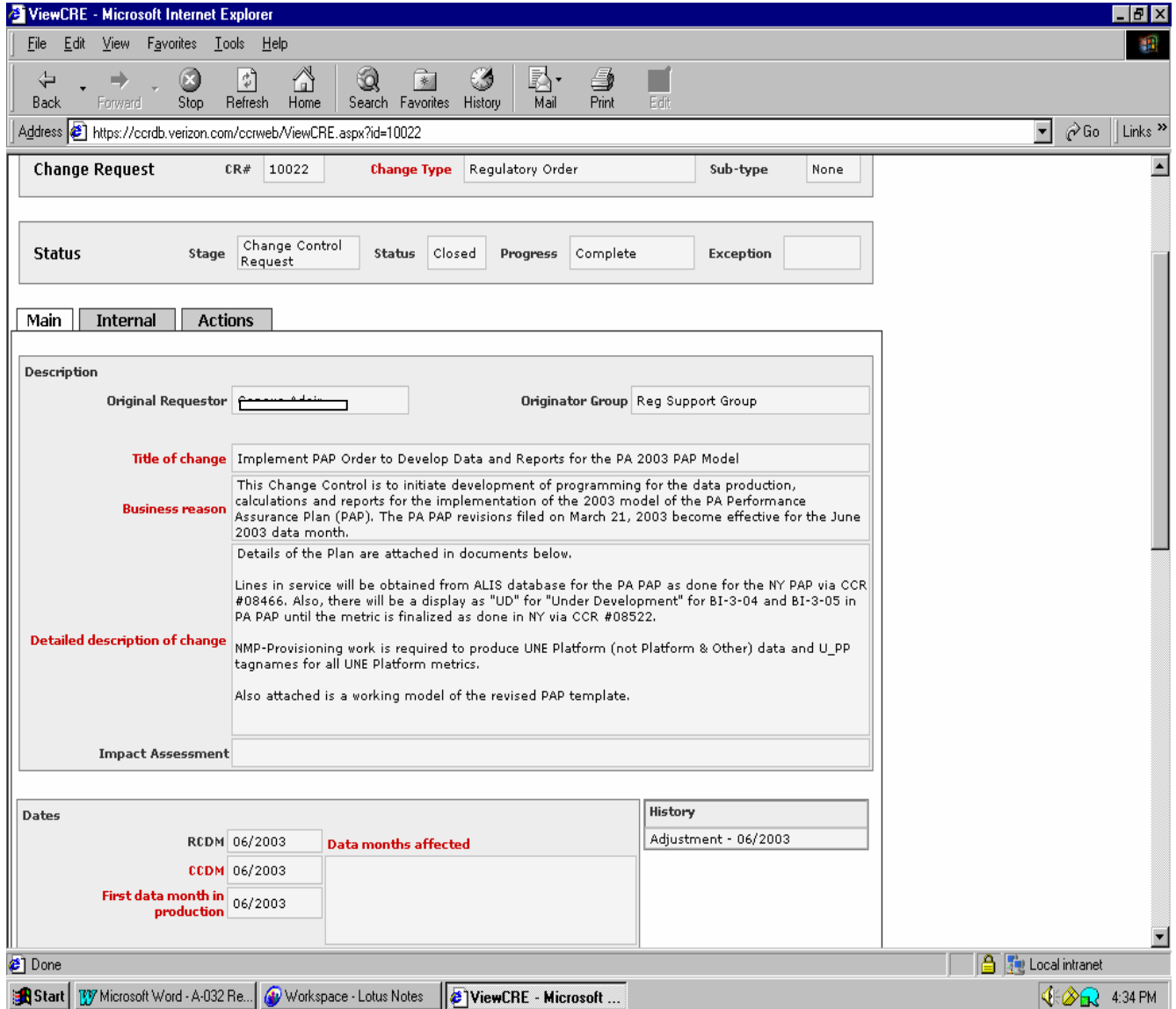


Exhibit X-2

PROJECT MANAGEMENT REPORT – CCDM
AUGUST 2003 – ALL DOMAINS

<u>Domain</u>	<u>Issue Type</u>	<u>Total</u>	<u>Domain</u>	<u>Issue Type</u>	<u>Total</u>
PO	Data Calc Correction	1	BI	Data Calc Correction	0
PO	Regulatory Order	2	BI	Regulatory Order	1
PO	Process Improvement	0	BI	Process Improvement	1
PO	Others	<u>4</u>	BI	Others	<u>3</u>
	Domain Total	7		Domain Total	5
OR	Data Calc Correction	1	NP	Data Calc Correction	1
OR	Regulatory Order	2	NP	Regulatory Order	1
OR	Process Improvement	8	NP	Process Improvement	0
OR	Others	<u>4</u>	NP	Others	<u>2</u>
	Domain Total	15		Domain Total	4
PR	Data Calc Correction	8	GE	Data Calc Correction	0
PR	Regulatory Order	2	GE	Regulatory Order	1
PR	Process Improvement	5	GE	Process Improvement	0
PR	Others	<u>8</u>	GE	Others	0
	Domain Total	23		Domain Total	1
MR	Data Calc Correction	2	OD	Data Calc Correction	0
MR	Regulatory Order	1	OD	Regulatory Order	0
MR	Process Improvement	3	OD	Process Improvement	0
MR	Others	<u>8</u>	OD	Others	<u>1</u>
	Domain Total	14		Domain Total	1
NONE	Data Calc Correction	0	Total- All	Data Calc Correction	13
NONE	Regulatory Order	0	Total- All	Regulatory Order	10
NONE	Process Improvement	1	Total- All	Process Improvement	18
NONE	Others	<u>1</u>	Total- All	Others	<u>31</u>
	Process Total	2	Total- All	Total	72

Source: Data Response A-33.

- **Example of Standardized Project Management Report** – Exhibit X-3 illustrates the August 2003 Project Management Report for which data were summarized above. This report displays all of the issues for the month and the Domain to which they belong.
- **Change Control Log Records** - Shown on Exhibit X – 4 are data extracted from the Change Request Log Record to demonstrate the type of information that is being tracked as part of Verizon PA’s Change Management Control Process. As shown on the Exhibit, the report provides Change Request data, Implementation date, scheduled implementation for open items, justification and jurisdiction, implementation date for open CRs, CR status and justification, and jurisdiction.

Change Control Implementation and Notification

- **June 2003 Change Implementation Activity** - There were 17 change control requests implemented for the month of June 2003, as shown on Table X-3. As of 8/4/03, there are no change control requests under development for the June data month.¹⁰

Table X-3
June 2003 Change Control Requests

Type	# Type	Domain	# Domain
Data Corrections	3	Maintenance	2
		Ordering	1
Process Improvements	12	Billing	2
		Network Performance	2
		Ordering	3
		Pre-Order	3
		Provisioning	1
		Provisioning, Maintenance	1
Regulatory Order	2	Maintenance, Ordering, Pre-Order, Provisioning, Network Performance, Billing	Multi-domain

¹⁰ Data Response A-036.

Exhibit X-3

PROJECT MANAGEMENT REPORT

Project Management Report > CCDM = 08/2003 Geography ALL Execute

Export to CSV Total Change Control Entries Represented: 44

Domain	Issue Type	Potential Issue (PI)		Confirmed Issue (CI)		Amendment		Approval		Implement		UAT		Report Validation		Closed		Domain Totals
		RSG	Doc/Reg	Pre-JAD CCDM	Pre-JAD Signoff	Amend	Amend Confirm	CCR	WR	CCR	WR	CCR	WR	CCR	WR	Comp.	Other	
PO	Data Calc Correction	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	Regulatory Order	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	2
	Process Improvement	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Others	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4
	Total	1	0	4	1	0	0	1	0	0	0	0	0	0	0	0	0	7
OR	Data Calc Correction	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	Regulatory Order	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	2
	Process Improvement	4	0	2	0	0	0	1	0	0	0	0	0	0	0	0	1	8
	Others	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	4
	Total	5	0	6	1	0	0	2	0	0	0	0	0	0	0	0	1	15
PR	Data Calc Correction	2	0	0	0	0	0	3	0	2	0	0	0	0	0	0	1	8
	Regulatory Order	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	2
	Process Improvement	0	0	4	0	0	0	0	0	1	0	0	0	0	0	0	0	5
	Others	1	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	8
	Total	3	0	11	1	0	0	4	0	3	0	0	0	0	0	0	1	23
MR	Data Calc Correction	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2
	Regulatory Order	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	Process Improvement	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0	0	3

Exhibit X-4
Page 1 of 2

CHANGE REQUEST LOG SUMMARY

Change Request Number	Change Request Initiative Number	Change Request Title	Change Req. Type	CR 1st Date	Change Request Imp. Date	CR Scheduled Imp. Date	CR Imp. Status	Change Request Justification	Jurisdiction
1108.4	362387	Flow through Hunting on Partial Migrations - Phase 5	2	9/3/02	4/21/03			OR-5-01/OR-5-03	N & S
1466	363851	Community Choice	2	2/4/03	4/21/03			OR-5-01/OR-5-03	VA
1676	365397	Use of the @ symbol to provide for E-Mail address	2	2/4/03	4/21/03			OR-5-01/OR-5-03	N & S
1857	366822	Process additional NE residence additional lines at Level 5	2	2/4/03	4/21/03			OR-5-01/OR-5-03	N & S
2040.1	368650	Date Due Cutoff Time - Phase 2	2	2/4/03	4/21/03			OR-5-01/OR-5-03	South
2500	375216	Pending LSRs	2	2/4/03	4/21/03			OR-5-01/OR-5-03	N & S
2550	375880	Process for OC4 on Resale and Platform Migrations	2	2/4/03	4/21/03			OR-5-01/OR-5-03	South
2562.3	376027	LSOG 6: Miscellaneous Changes (not covered in other CRs)	3	10/1/02	4/21/03			Industry Standard	N & S
2625	377163	FT MDVW LNP requests which have non engineered centrex phase 4	2	4/1/03	4/21/03			Flow-through Metric OR-5-01/OR-5-03	MD, DC, VA, WV
2642.1	375483	Fictitious Billing Telephone Numbers (fBTN) - Phase 2	2	12/3/02	4/21/03			System Enhancement	MD, DC, VA, WV
2827.2	380857	Platform FX Query-Phase 2	2	3/4/03	4/21/03			Flow through OR-5-01/OR-5-03	South
2833	380872	FT-CLT-fid MDVW-Resale End-User Accounts	2	3/4/03	4/21/03			Flow through OR-5-01/OR-5-03	DC, MD, VA, WV
2834	380873	FT-CLT-fid MDVW-Resale End-User Accounts	2	3/4/03	4/21/03			Flow through OR-5-01/OR-5-03	DC, MD, VA, WV
1472	365405	Revise ISDN Platform Process-SPEC/TOS	2	3/4/03	6/21/03			Remand	N & S
1959.1	368522	Flow-Through Local Package-Phase 2	2	2/5/02	6/21/03			Flow-through	South
2068	369065	Line share Disconnect Notification	5	6/5/01	6/21/03			New functionality	N & S
2259.2	371639	Implement an address validation process (North) & enhance the address validation process (South)	2	3/4/03	6/21/03			Flow through OR-5-01/OR-5-03	N & S
2397	373105	End User UNE Listing Account Structure	4	4/1/03	6/21/03			Enhancement	DC, MD, VA, WV
2498	371305	House & Riser Line Share	2	4/1/03	6/21/03			UNE Remand Order FCC 99-338	North
2513	375306	Call Forward Numbers and FT South	2	3/4/03	6/21/03			Flow through OR-5-01/OR-5-03	South
2545.6	372087	RETAS Screen Design-Phase 6	4	12/4/02	6/21/03			System Enhancement	N & S
2551	375876	Change flow-through to accept the BTN on the loop order	5	6/4/02	6/21/03			Flow through OR-5-01/OR-5-03	South
2554	375858	Host-Remote Loops	2	3/4/03	6/21/03			Merger	South
2600	373630	CLEC to CLEC Migrations and Provider Notifications	2	3/4/03	6/21/03			New functionality: Case 00-C-0188	N & S
2624	377162	Create SUP types 4 & 5	2	3/4/03	6/21/03			New functionality	N & S

Exhibit X-4
Page 2 of 2

Change Request Number	Change Request Initiative Number	Change Request Title	Change Req. Type	CR 1st Date	Change Request Imp. Date	CR Scheduled Imp. Date	CR Imp. Status	Change Request Justification	Jurisdiction
2625	377163	Centrex Eligibility for FT	2	3/4/03	6/21/03			Flow through OR-5-01/OR-5-03	N & S
2634	376795	Change CSS Designed Loop Intervals from 6 to 5 days, North and South	2	3/4/03	6/21/03			System Enhancement: Merger Requirement	N & S
2658	377796	Allow the FID DPA to FT on Line share requests	2	3/4/03	6/21/03			Flow through OR-5-01/OR-5-03	N & S
2670	377892	Standardize IMPCON Field Data	2	3/4/03	6/21/03			Flow through OR-5-01/OR-5-03	South
2694	377048	New Hot Cut Non-Recurring USOCs for the State of Delaware	2	3/4/03	6/21/03			Regulatory	DE
2727	378770	East XDSL Extended LQ-Removal of Historical Data	4	11/5/02				System Enhancement	N & S
2764	379402	Query for Invalid TOS	2	4/1/03	6/21/03			Flow through OR-5-01/OR-5-03	N & S
2787	379688	LMU PAVA Uniformity Enhancements	2	3/4/03	6/21/03			Regulatory: fBA/fGTE Merger	N & S
2795	378408	RSCP - Local Service Freeze Implementation for UNE-P	2	2/4/03	6/21/03			NJ BPU Mandate	NY
2813	378605	Premise Services on ARDU Stand Alone Loop – East	4	3/4/03	6/21/03			New functionality	N & S
2855	381335	New Process to handle Project V	2	4/1/03	6/21/03			Flow through OR-5-01/OR-5-03	N & S
2879	381622	FT of SUP's 1 & 2 when LSR in Jeopardy status	2	4/1/03	6/21/03			Flow through OR-5-01/OR-5-03	N & S
C03-0571	382716	RETAS Screen Enhancements	5	5/6/03	6/21/03			System Enhancement	N & S
C03-0636	382466	Change intervals for Resale POTs and UNE Platform for new RCF and new cut through lines	2	6/3/03	6/21/03			System Enhancement, Metric PR-3-01	N & S
2625	377163	Centrex Eligibility for Flow-through	2	3/4/03	7/19/03			Flow through OR-5-01/OR-5-03	N & S
2695	372640	Line Sharing additional Class of Service Codes	2	2/4/03	7/19/03			NY PSC Mandate	N & S
2828	380769	FT WSOP-V at Level 4	2	3/4/03	7/19/03			Flow through OR-5-01/OR-5-03	South
2397	373105	End User UNE Listing Account Structure	4	4/1/03		8/16/03	Committed	Enhancement	DC, MD, VA, WV
2624	377162	Create of SUP types 4 & 5	2	3/4/03		8/16/03	Committed	Flow through OR-5-01/OR-5-03	N & S
2638	376773	Change NE and NY Hot Cut Intervals to Match South Intervals	4	5/6/03		8/16/03	Committed	System Enhancement: Parity Issue	North
2814	380523	Edit for Bill Section when EATN is required on AB requests	2	3/4/03		8/16/03	Committed	Flow through OR-5-01/OR-5-03	N & S
1710	366831	Expand Parsed CSR functionality to include Complex Listings	5	10/10/00		10/18/03	Committed	Enhancement	N & S
1891.2	367783	Expand Parsed CSR functionality to include Grandfathered Centrx Accounts	5	2/5/01		10/18/03	Committed	Enhancement	N & S
2461	369678	Wireless LNP	2	6/3/03		10/18/03	Committed	FCC Mandate FCC Docket 95-116	N & S
2537	375716	Incomplete Firm Order Confirmations (FOC)	5	6/4/02		10/18/03	Candidate	System Enhancement	N & S
2562	376027	LSOG 6: Miscellaneous Changes	3	6/3/03		10/18/03	Committed	Industry Standard	N & S
2632	374752	Hot Cuts for xDSL Loops	2	6/3/03		10/18/03	Committed	Regulatory Mandate PSC916 -	N & S
2731	378767	Special Characters	5	11/5/02		10/18/03	Committed	Documentation Enhancement	N & S
2735	372847	Establish XML Business Rules for Trouble Administration	3	3/4/03		10/18/03	Candidate	Industry Standard	N & S

- **Pennsylvania CLEC’s MTACT Change Notification** – Listed below are the CLECS that received MTACT change notifications in Pennsylvania as of September 1, 2003:¹¹
 - AT&T
 - Cavalier Telephone
 - CTSI
 - Met-Tel
 - XO Communications
 - COVAD

- **Pennsylvania Commission MTACT Change Notification** - Between August 25, 2003 and September 25, 2003, Verizon PA sent e-mail notifications to the Pennsylvania Commission notifying it of five MTACT Changes. E-mails pertaining to CR Numbers 10370, 10389, 10391, 10392 and 10398 were sent.^{12.}

Training

- IT personnel were trained to support the Change Control Process, along with Change Control personnel, using identical material. A copy of the change control training material for both the previous change control database and the current MTACT database was provided to the Consultants in Verizon PA’s response to data request PM-002.3. The training covered the change control process and the use of the change control database as part of the training material.¹³ Virtually all of the formal training of Change Control and IT personnel working on the Domain Software was conducted in the fall of 2002 prior to the conversion to the MTACT change control process which was not implemented until June 2003.¹⁴

- There are no plans to conduct future formal training sessions because of the limited demand. Future training will consist primarily of new employee’s ability to access the training material on Verizon PA’s intranet.¹⁵

Change Control Tracking System Replacement

CCRs implemented for the April and May data months utilized the Lotus Notes Change Control Database. Beginning with the June data month, the change control tracking process was migrated to the new MTACT system. Although no “Snap-Shot” was taken of the pending changes, included in the old system, to assure that all of the pending

¹¹ Data Response A-056.

¹² Data Response to A-054 which requested recent live examples of Pennsylvania Commission and CLECs MTACT change notifications.

¹³ Data Response A-039.

¹⁴ Interview JWC-001, Executive Director Regulatory Support..

¹⁵ Id.

change documents are included in the replacement system, all pending changes in the old system were successfully migrated to the new system.¹⁶

DATA STORAGE, BACKUP, RETRIEVAL AND SECURITY

The PA PAP is a self-executing remedy plan that is designed to ensure that Verizon PA provides quality service to competing carriers. The Plan has three major components: (1) the metrics used to report performance; (2) the methodology used to determine billing credits and (3) the dollars at risk. The Commission adopted a set of guidelines (Pennsylvania Carrier to Carrier Performance Standards and Reports (“C2C”)) for evaluating, measuring and tracking service performance to ensure parity between Verizon PA’s retail operation and the service it provides to its competitors. Verizon PA is required to report its performance to the Commission, and a PA PAP for each CLEC will be processed on a monthly basis within 30 days of the close of the second month after the month in which the performance is being reviewed.¹⁷

Data Feed and Storage Details

Details for the data feed are defined in version 1.3 of the Software Requirements Specification, NP-2 Source Data Document. (NP2Source_v1.3.doc)

- The NMP Technical Architecture data flow is from the Source, to the Staging Area, to the Data Warehouse and then to the Data Marts, to be used for report generation.
- Network Matrix Platform Source File Processing Standards Design Guidelines, Version 0.2 (Draft).¹⁸ address the following:
 - **Generate daily index file** – At 12:00 midnight the Source File Master Index (IDX) Table is read from the Master data base and a Daily IDX flat file (“DALIDX”) is generated using Structured Query Language (SQL) Plus. The:
 - Flat file is generated daily containing file information for current date.
 - Flat file is based on master file index in the database.
 - Flat file contains a list of all expected files for the current day.
 - **File Hunt** – Each record from the DALIDX file is read and the source file name from the record is picked up and searched for the source directory. If the file is found, the file validation process is triggered.

¹⁶ Interview JWC-008.

¹⁷ Document Provided in Domain Workshop May and June, Performance Assurance Plan, Verizon Pennsylvania Inc., June 1, 2003, Section I, A.2 (e), page 4.

¹⁸ Document Provided in Domain Workshop May and June, Network Metric Platform Infrastructure & Metrics Management Source File Processing Standards, Design Guidelines, Version 0.2 (Draft)

- Hunt for source files in the data directory based on the daily flat file index.
 - Follow validation process for found files.
 - Source dispatcher is notified if a file is not found.
- **File Validation** – Once the file is found it is validated three different ways.
- A time stamp validation is made.
 - If the file is in the file transfer mode (“FTM”) it is not processed
 - The file is checked to determine if it is an “old” file, one that has already been processed.
 - If the file passes the validation test, then it is removed from the current day’s file hunt process. All validated files receive a “.cmp” extension. Every day a file comparison is made.
 - If the file fails the test then the source dispatcher is notified.
- **Archival and Renaming** – Once a file is successfully received and verified, it is archived. The archived file has the current date and time appended to the file name to assure control. The file is then renamed in the NMP format and then moved into the processing directory so that the information can be loaded into the database. The archived version assures data control and back-up of file information.
- Rename and archive files.
 - Place the archive version into the archive directory.
 - Send a copy of the archived file to the process directory for loading into the database.
 - Delete entry from the daily file index so that the same file is not hunted again the same day.
- **General Stats** – A record is made on the files and a status log file is generated. The log file contains the date, the Domain ID, Source file name and the total number of records found.
- **File Hunt Cutoff** – All files to be processed must be transferred by 1:00PM. If any files are missing or have not been processed, notification is sent to the source owners. Any missing files must be loaded manually into the transient tables. Some limited missing data can be appended to the next day’s source data and it can be bulk loaded.
- Stop hunting for files at cutoff time
 - Collect list of files not received for the day from the daily file index
 - Inform source dispatchers about missing files and relevant messages

- **Load Stats** – At the end of the “Hunt” process, the Load Stats process utilizes SQL Loader to load the daily stats log. The log contains information such as file name, file date, number of records received, etc.
- **Data Load** – The data load process is managed by sessions that are built through Infomatica. Each session is associated with a target table in the data warehouse. Each table has one or more source data files. The process contains triggers for selecting data files to assure that the same data are not loaded more than once. The sessions are active from 1:00AM to 1:00PM and run at intervals of two hours.

Data Processing

- **Daily:** On a daily basis, files are received from Customer Business Services / Customer Network Engineering (CBS/CNE) into the NMP. The ‘filtering’ business rules are applied to those data, and the data are viewed and downloaded by the collocation business users. The purpose is to track performance and validate values.
- **Weekly:** On a weekly basis, the data (representing the month-to-date) are run, with both filtering and calculation business rules being applied. The purpose is to give a “Preview Glimpse” or “SnapShot” to the business on what the metric is shaping up to be.
- **Monthly:** On the 6th business day after the last calendar day of the previous month, a monthly file is received and all business rules are applied: filtering, calculation and C2C report formatting. The purpose is to complete the C2C reports
- **Summary of Processing Steps:** For Initial Response Data (Daily/Monthly Feed). These steps are shown in Table X-4, below:

Table X-4
Processing Steps for Initial Response

	Description
Step 1	NMP receives source data feed from CBS/CNE. Additional information provided in the Source Data Document (NP2Source_v1.3.doc).
Step 2	NMP applies “Filtering” Business Rules to filter the initial raw data that was received and prepare that data for metric calculation.
Step 3	NMP applies “Calculation” Business Rules to the filtered data.
Step 4	NMP produces reports/final output.

- **Summary of Processing Steps:** For Completion Data (Daily/Monthly Feed). These steps are shown on Table X-5 below:

Table X-5
Processing Steps for Completion Data

	Description
Step 1	NMP receives source data feed from CBS/CNE. Additional information provided in the Source Data Document (NP2Source_v1.3.doc).
Step 2	NMP applies “Filtering” Business Rules to filter the initial raw data that was received and prepare that data for metric calculation.
Step 3	NMP applies “Calculation” Business Rules to the filtered data.
Step 4	NMP produces reports/final output.

Data Loads by Metric:

- Reports of Data Loads are produced at the Aggregate and CLEC Specific levels.
- There are three fields for each level of the report; N (Numerator), D (Denominator), and the lack of the N and the D signifies the result (Performance), as shown on Exhibit X-5.

Process Diagram

- The following diagram (Table X-6) outlines the present method of operating process flow utilizing the data stored in the warehouse.

Table X-6
Data Flow Process

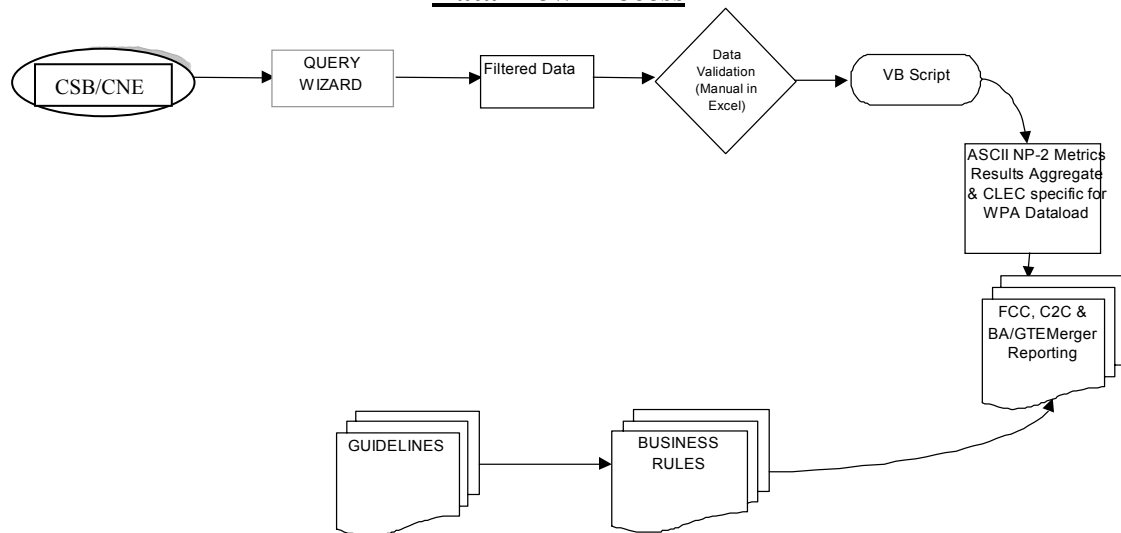


Figure 1 – NP-2 PMO Processing Diagram

DATA LOAD REPORT SAMPLE

Full Metric Number	Metric Type	Product	ASCII Data Load Item/Tag Name
NP-2-01-2000	Numerator	Total	IC %OTRR_PC_N
NP-2-01-2000	Denominator	Total	IC %OTRR_PC_D
NP-2-01-2000	Performance	Total	IC %OTRR_PC
NP-2-01-6701	Numerator	New	IC %OTRR_PC_W_N
NP-2-01-6701	Denominator	New	IC %OTRR_PC_W_D
NP-2-01-6701	Performance	New	IC %OTRR_PC_W
NP-2-01-6702	Numerator	Augment	IC %OTRR_PC_A_N
NP-2-01-6702	Denominator	Augment	IC %OTRR_PC_A_D
NP-2-01-6702	Performance	Augment	IC %OTRR_PC_A
NP-2-02-2000	Numerator	Total	IC %OTRR_VC_N
NP-2-02-2000	Denominator	Total	IC %OTRR_VC_D
NP-2-02-2000	Performance	Total	IC %OTRR_VC
NP-2-02-6701	Numerator	New	IC %OTRR_VC_W_N
NP-2-02-6701	Denominator	New	IC %OTRR_VC_W_D
NP-2-02-6701	Performance	New	IC %OTRR_VC_W
NP-2-02-6702	Numerator	Augment	IC %OTRR_VC_A_N
NP-2-02-6702	Denominator	Augment	IC %OTRR_VC_A_D
NP-2-02-6702	Performance	Augment	IC %OTRR_VC_A
NP-2-03-2000	Numerator	Total	IC AI_PC_N
NP-2-03-2000	Denominator	Total	IC AI_PC_D
NP-2-03-2000	Performance	Total	IC AI_PC
NP-2-03-6701	Numerator	New	IC AI_PC_W_N
NP-2-03-6701	Denominator	New	IC AI_PC_W_D
NP-2-03-6701	Performance	New	IC AI_PC_W
NP-2-03-6702	Numerator	Augment	IC AI_PC_A_N
NP-2-03-6702	Denominator	Augment	IC AI_PC_A_D
NP-2-03-6702	Performance	Augment	IC AI_PC_A
NP-2-03-6711	Numerator	Augment	IC AI_PC_A_76_N
NP-2-03-6711	Denominator	Augment	IC AI_PC_A_76_D
NP-2-03-6711	Performance	Augment	IC AI_PC_A_76
NP-2-03-6712	Numerator	Augment	IC AI_PC_A_45_N
NP-2-03-6712	Denominator	Augment	IC AI_PC_A_45_D
NP-2-03-6712	Performance	Augment	IC AI_PC_A_45
NP-2-04-2000	Numerator	Total	IC AI_VC_N
NP-2-04-2000	Denominator	Total	IC AI_VC_D
NP-2-04-2000	Performance	Total	IC AI_VC
NP-2-04-6701	Numerator	New	IC AI_VC_W_N
NP-2-04-6701	Denominator	New	IC AI_VC_W_D
NP-2-04-6701	Performance	New	IC AI_VC_W
NP-2-04-6702	Numerator	Augment	IC AI_VC_A_N
NP-2-04-6702	Denominator	Augment	IC AI_VC_A_D
NP-2-04-6702	Performance	Augment	IC AI_VC_A
NP-2-05-2000	Numerator	Total	IC %OTPC_N
NP-2-05-2000	Denominator	Total	IC %OTPC_D
NP-2-05-2000	Performance	Total	IC %OTPC
NP-2-05-6701	Numerator	New	IC %OTPC_W_N
NP-2-05-6701	Denominator	New	IC %OTPC_W_D
NP-2-05-6701	Performance	New	IC %OTPC_W
NP-2-05-6702	Numerator	Augment	IC %OTPC_A_N
NP-2-05-6702	Denominator	Augment	IC %OTPC_A_D
NP-2-05-6702	Performance	Augment	IC %OTPC_A
NP-2-05-6711	Numerator	Augment	IC %OTPC_A_76_N

Exhibit X-5
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DATA LOAD REPORT SAMPLE

Full Metric Number	Metric Type	Product	ASCII Data Load Item/Tag Name
NP-2-05-6711	Denominator	Augment	IC %OTPC A 76 D
NP-2-05-6711	Performance	Augment	IC %OTPC A 76
NP-2-05-6712	Numerator	Augment	IC %OTPC A 45 N
NP-2-05-6712	Denominator	Augment	IC %OTPC A 45 D
NP-2-05-6712	Performance	Augment	IC %OTPC A 45
NP-2-06-2000	Numerator	Total	IC %OTVC N
NP-2-06-2000	Denominator	Total	IC %OTVC D
NP-2-06-2000	Performance	Total	IC %OTVC
NP-2-06-6701	Numerator	New	IC %OTVC W N
NP-2-06-6701	Denominator	New	IC %OTVC W D
NP-2-06-6701	Performance	New	IC %OTVC W
NP-2-06-6702	Numerator	Augment	IC %OTVC A N
NP-2-06-6702	Denominator	Augment	IC %OTVC A D
NP-2-06-6702	Performance	Augment	IC %OTVC A
NP-2-07-2000	Numerator	Total	IC AVGDD PC N
NP-2-07-2000	Denominator	Total	IC AVGDD PC D
NP-2-07-2000	Performance	Total	IC AVGDD PC
NP-2-07-6701	Numerator	New	IC AVGDD PC W N
NP-2-07-6701	Denominator	New	IC AVGDD PC W D
NP-2-07-6701	Performance	New	IC AVGDD PC W
NP-2-07-6702	Numerator	Augment	IC AVGDD PC A N
NP-2-07-6702	Denominator	Augment	IC AVGDD PC A D
NP-2-07-6702	Performance	Augment	IC AVGDD PC A
NP-2-08-2000	Numerator	Total	IC AVGDD VC N
NP-2-08-2000	Denominator	Total	IC AVGDD VC D
NP-2-08-2000	Performance	Total	IC AVGDD VC
NP-2-08-6701	Numerator	New	IC AVGDD VC W N
NP-2-08-6701	Denominator	New	IC AVGDD VC W D
NP-2-08-6701	Performance	New	IC AVGDD VC W
NP-2-08-6702	Numerator	Augment	IC AVGDD VC A N
NP-2-08-6702	Denominator	Augment	IC AVGDD VC A D
NP-2-08-6702	Performance	Augment	IC AVGDD VC A

PA PAP METRIC DATA TAGS

Full Metric Number	Metric Type	ASCII Data Load Item/Tag Name
NP-2-00-6801	Numerator	IC %OTRR ALL N
NP-2-00-6801	Denominator	IC %OTRR ALL D
NP-2-00-6801	Performance	IC %OTRR ALL
NP-2-00-6802	Numerator	IC %OT ALL N
NP-2-00-6802	Denominator	IC %OT ALL D
NP-2-00-6802	Performance	IC %OT ALL
NP-2-00-6803	Numerator	IC AVGDD ALL N
NP-2-00-6803	Denominator	IC AVGDD ALL D
NP-2-00-6803	Performance	IC AVGDD ALL

- The FCC, C2C & Bell Atlantic/GTE (BA/GTE) Merger Guidelines drive the definition of the Business Rules, which describe how a metric is to be calculated.
- The CBS-CNE is the Collocation provisioning source system from which all source data are extracted, to produce the NP-2 Metrics results for the Verizon PA East BA footprint.
- For example, the NP-2 Metric development / calculation is currently a multi-step process that requires manual intervention.
- Calculated metric results are sent to Data Load (which will be incorporated into NMP eventually).
- WPA manages Data load and the report production cycle for the FCC, C2C & BA/GTE Merger Reports. The ASCII monthly production file contains all NP-2 metric results.

Back-ups

- There is a monthly “cold back-up” of the information in the data warehouse. There is also a “hot back-up” file that is created weekly as well selective data extractions that are run daily.¹⁹
- Data archiving and retention is critical for ensuring compliance with Condition V of the FCC’s BA-GTE Merger Conditions Consent Decree. The Consent Decree requires Verizon PA to retain all data used in the calculation of the reports required for Condition V for a period of 12 months after the relevant audit period. However, Verizon PA has established a uniform retention period of five years for all data used in the calculation of federal and state local wholesale carrier-to-carrier performance reports.²⁰
- The purpose of the data retention practice is to ensure that any externally filed performance reports may be replicated at any point over a five-year period from when the report was published. Verizon PA’s data and document retention policy specifies that the following information must be retained for five years:²¹
 - OSS Decision Logic – OSS deliver source data to the metrics system that are used to calculate metric results.
 - Detail Data Files – Consist of the raw data that are used to calculate metric results.

¹⁹ Interview No. A-004 and A-005.

²⁰ Verizon’s Data Retention Communication Policy, Shelley Guerard, Vice President – Wholesale Performance Assurance, September 18, 2002, page 1.

²¹ Interview IR No. A-009 Data Request Response.

- Business Rules - Refer to the programming code that is created to extract from the detailed data files the required data to calculate the numerator and denominator for a particular metric, as defined by the effect guidelines. The Business Rules also must include the code to exclude certain data from a particular metric.
- Intermediate Data Files – These are any intermediate files that are generated to accumulate data in the application of the Business Rules.
- Summary Data Files – The Summary file consists of each numerator, denominator and performance results.
- Carrier-to-Carrier Performance Reports – Display the final output of the performance measurement calculations, including the external reports filed displaying Verizon PA’s performance results for each metric.
- Payment Reports – These are the Payment Reports that are filed with the FCC and the underlying calculations that produce the payment.

Data Security²²

- The Primary NMP Production Servers are located at a New York Verizon Data center. Source feeds are sent to Domain Name Server (DNS) Virtual host name assigned to NMP. The Source file management and archival/retention of files is performed on a Unix production server. Therefore, Unix System Services (USS) governs security and data integrity of the files. USS provides implementation and day-to-day support to Verizon PA.
- Disaster Recovery – Equally configured NMP HP Class 5 Servers and IBM Netfinity Servers are dually utilized (dual-booted) for ongoing system testing as well as disaster recovery.
- CLECs have password access to a website which contains the report information that they are authorized to view. However, the CLECs do not have access to the raw data stored in the data warehouse

General

- Two teams within IT, the Development Solutions Team and the Testing Team, are both responsible for change control monitoring of items that affect the Matrix selection process. The Testing Team develops and maintains a monthly package spreadsheet that provides a comparison of Domain Validation and Actual Results. There is a monthly status report of the change validation results.²³

²² Id.

²³ Interview No. A-004 and A-005.

- An IT interactive planning meeting is held once a week. Changes for the Wholesale group are submitted to the NMP Software Change Control Board (SCCB). Interactive functionality changes may include such items as rate element changes, correction of service order selection and the installation of an active voice portal for wholesale. There is a weekly release to the website which contains a log of changes and CLEC releases.²⁴
- The data extraction procedures support the requirement documentation and define how Metric results are calculated. The change requirements are first included in an initial set of “Development Documents” which are subsequently expanded into a set of “Design Documents” which are used by Information System Organization (ISO) for the software revisions.²⁵

²⁴ Id.

²⁵ Id.

B – FINDINGS

1. Procedures Exist For Documenting And Maintaining Changes To The Performance Metrics And Remedies Documentation, And These Conform To Reasonable Levels Of Quality Control As Well As The C2C Guidelines And The PA PAP.

Verizon PA uses a mechanized system to manage its change management processes for changes to the performance metrics as well as system changes that affect the Wholesale Performance Assurance Metric Change Management Process. All change types are tracked in the same change control database, MTACT. Changes are described by the following categories:

- Type 1 – Maintenance
- Type 2 – Regulatory
- Type 3 - Industry Guidelines
- Type 4 - Verizon PA originated
- Type 5 - Telephone Company originated

This system requires multiple levels of authorization and provides a clear trail as a change is introduced and worked through the system. Standard change control reports are produced on a systematic basis and provide management with useful tools to monitor and manage the change management process. Change control logs track all changes as they proceed through the process. The PA PUC receives automatic notification of changes from the time that they are entered in the system until they are completed.

Verizon PA's current MTACT Change Control System and procedures are adequate to meet Verizon PA requirements for tracking and controlling system changes, and related work activities. They ensure that changes required from all sources, including those required by the regulators or industry, via the C2C Guidelines and the PA PAP, are well-planned, properly authorized, managed, and controlled.

2. Sufficient Documentation Exists For Information Storage, Back-Up, Retrieval, User Access And Security Procedures And For The Results Produced For Performance Metrics And Remedies Reporting.

Documentation of the data feed and storage functions for the systems supporting Verizon PA's performance metrics and remedies calculations and reporting are included in several documents. These include the Software Requirements Specification, the NMP Technical Architecture, the Network Matrix Platform Source File Processing Standards, and Design Guidelines. These documents describe data processing steps including data feeds from OSS systems and storage details and locations. Verizon PA's basic documentation for Source File Processing Standards is adequate to meet the requirements of Verizon PA's personnel to understand the operational requirements of the systems. Source File Controls, as described in the Source File Processing Standards Design

Guidelines, provide sufficient direction and documentation to adequately manage the Source File processes.

Data back-up and retention policies are based on ensuring compliance with Condition V of the FCC's BA-GTE Merger Condition Consent Decree. Verizon PA's retention period exceeds requirements mandated by this decree. Data Security is assured through the use of USS. Dual systems are used for ongoing testing and disaster recovery. User access is limited and controlled. CLECs have access to report information they are authorized to view via a password, but not to the raw data files.

3. Verizon PA Does Not Maintain A Current Change Notification Address File

Change Notifications are sent to CLECS and to the Pennsylvania Commission via e-mail notifying them of changes in Verizon PA's metrics calculations, metrics calculation work process, or related OSS system and NMP system. However, a review of e-mail addresses revealed that the e-mail addresses for the Pennsylvania Commission staff members were not current. Therefore, the Pennsylvania Commission staff had not been receiving change notifications since the staff's e-mail addresses changed, approximately one year ago.

4. Verizon PA Does Not Have A Formal Procedure In Place For Periodic Review And Update Of Its Metric Calculation Documentation

There is no formal policy or procedure in place requiring the periodic review and update of Verizon PA's documentation (C2C Metrics Algorithms (CMA) and FACT Table) concerning metric calculations. Data Design documentation control is split across Domains.. Each Domain Manager is responsible for updating the documentation associated with his or her Domain areas. Change Control within the IT organization is based on a LOTUS Notes document procedure, and there is little reliance on paper copies of change verification results.²⁶ DCI is concerned that the potential exists for inconsistent review procedures among Domains.

²⁶ Interview No. A-004 and A-005 and Interview A-009.

C- RECOMMENDATIONS

1. Continue Using Existing Metric Change Process Procedures And Documentation. (Refer to Findings Nos. 1 and 2)

As described in Finding No. 1, Verizon PA's existing MTACT Change Control Systems and Procedures are adequate to meet requirements for Tracking and Controlling system changes. As stated in Finding No. 2, existing documentation satisfies storage and other processing needs, and supports calculation and reporting results. Other than addressing normal system enhancements, or responses to changing requirements, no recommendations for changing metrics change control procedures or documentation are offered.

2. Take Active Steps To Maintain A Current Change Control Notification Contact List. (Refer to Finding No. 3)

Change Notifications must be sent to the correct recipient in order to have any value. Since Verizon PA was using incorrect e-mail addresses for the Pennsylvania Commission staff, the staff was not receiving Change Notifications. The addresses that Verizon PA was using have been incorrect or outdated for quite some time. It is not certain, but it appears that this would not have been corrected if it had not come to light during the course of DCI's review. Verizon PA can not rely on recipients - CLECs and public utility commissions to ensure that their contact address list is up-to-date. Verizon PA should take several active steps to ensure that their contact list is current. Verizon PA should ensure that all recipients know how to report changes in e-mail addresses and to whom these changes should be reported. Furthermore, Verizon PA should periodically, either every quarter or every six months, contact the Change Notification recipients to verify addresses as well as solicit changes, additions, and deletions from this list.

3. Implement A Periodic Review Process For Metric Calculations Documentation. (Refer to Finding No. 4)

Each Domain manager has the responsibility to ensure that the documentation (C2C Metrics Algorithms (CMA) and FACT Table) of the metrics utilized by their Domain are accurate and current. While this responsibility should remain with these Domain managers since they are the closest to the details involved in their metrics, an overall policy should be initiated that requires that the documentation for all of the metrics should be reviewed and updated on a periodic basis. This policy should be overseen by Verizon PA Regulatory Support management who are responsible for the overall reporting of performance metrics to the state utility commissions. In this manner Verizon PA can be more assured that the documentation supporting the performance metrics is, and will continue to be, current and accurate.

XI – CLEC DATA RECONCILIATION

XI – CLEC DATA RECONCILIATION

A. - BACKGROUND

DCI's review of Verizon PA Performance Metrics included evaluations of Verizon PA's data extraction and performance measurement calculation processes. (See Chapter VI) However, a complete review must also include an independent verification of the completeness and accuracy of the data collected by Verizon PA to calculate its monthly performance measurements. To this end, as part of review activities, DCI independently observed and collected performance data with the Verizon PA performance data used for metric calculations.

DCI requested participating Pennsylvania Competitive Local Exchange Carriers (CLECs) for comparison to provide independently gathered performance data relating to ordering, provisioning, and maintenance and repair activities for April 2003. Participation by Pennsylvania CLECs is discussed in this Chapter. Generally, CLECs collect data from their own order/trouble tracking systems, gateway systems, customer service representatives, and notifications received from Incumbent Local Exchange Carriers (ILECs). Compiled, this information describes the ordering and provisioning of a local service request, and if necessary, maintenance and repair of an established service from a CLEC's perspective. Using this CLEC-gathered data, DCI attempted to verify that each order or trouble included in the CLEC data was included in the Verizon PA data, in order to assess the completeness of the Verizon PA data. In addition, DCI compared the following data elements in the CLEC and Verizon PA data, to determine if Verizon PA's data accurately reflect performance observed by CLECs:

CLEC Recorded Data Element	Verizon Data Element
Local Service Request (LSR) Sent Date	LSR Receipt Date
Firm Order Confirmation (or just Confirmation) (FOC) Receipt Date	Confirmation Notification Date
CLEC Desired Due Date	CLEC Desired Due Date
Due Date on FOC	Due Date Sent Back
Work Completion Date	Work Completion Date
Provisioning Completion Notification (PCN) Receipt Date	Service Order Processor (SOP) Notification Date
Billing Completion Notification (BCN) Receipt Date	Customer Record Information System (CRIS) Notification Date
Trouble Create Date	Trouble Create Date
Trouble Closed Date	Trouble Closed Date

ESTABLISHING CLEC PARTICIPATION

As noted above, DCI actively sought the participation and input of CLECs operating in Pennsylvania as part of the Review. Participation and input was received to varying degrees as described below. The strategy taken by the DCI review team was one which solicited general and specific comments from the CLECs conducting business in the state of Pennsylvania. DCI also sought and received data from CLECs which were used for metric verification purposes. The expected outcome was to create a collaborative effort that strengthens the process and findings. The DCI review team, working with the PA PUC Staff, participated in the monthly PA Carrier Working Group (CWG) conference calls to establish the CLEC review team relationship. In the May meeting, DCI requested a list of participants willing to work with the review team with problem resolutions and data comparisons. Following that meeting, DCI issued an e-mail invitation to participate to all members of the committee.

The responses indicated varying degrees of willingness and ability to cooperate with the DCI review. Only two Pennsylvania CLECs, AT&T and Met-Tel, provided DCI with performance data for reconciliation purposes.

CLEC PARTICIPATION RESULTS

During the course of the review, DCI sent requests to the CLEC volunteers for data and subsequent clarification. CLEC providers responded with detailed information supporting the review. The following table describes the information provided by the participants:

CLEC Name	Information Provided
AT&T	AT&T provided order records and PONs processed during the study period. The report provided data pertaining to the orders and the notifiers or reject/jeopardys supplied by Verizon PA. In addition to Local Service Requests (LSRs), AT&T provided trouble tickets and their associated information for the study period.
Met-Tel	Met-Tel provided a file containing a copy of its 2003 tracking log which lists the system release items (except for the Error Message CRs). A file containing a copy of the VZ Change Management Prioritization Rules and ordering information for the review time frame including the associated Verizon PA data was included.
Covad	A site visit was made to a Covad provisioning center in Herdon VA and performance information pertaining to order processing. Comparative data were not provided.
Curry Communications	Individual history on multiple ticket closures was provided.
MCI	Interviews with Order Correction and Jeopardy Center personnel were conducted. Comparative data were not provided.

The following sections focus on AT&T and Met-Tel, the organizations which provided comparative data.

AT&T DATA RECONCILIATION

AT&T provided DCI with a sample of its Pennsylvania ordering data for the months of April and May 2003. DCI did not oversee this sampling; therefore, can make no definitive inferences about the magnitude of the potential effect of discrepancies found between AT&T's and Verizon PA's data for the sampled orders, or on Verizon PA's reported performance results for AT&T's entire ordering volume.

AT&T File Review

AT&T provided DCI with several text files containing ordering data and Electronic Data Interchange (EDI) notifications. DCI analyzed AT&T's summary file. The AT&T summary file included the Purchase Order Number (PON), version¹, request type, activity code, the LSR sent date, the desired due date, the Work Force Administration (WFA)² completion date as transmitted in the Provisioning Completion Notification (PCN), and the PCN transmission date for each record.

For each unique PON and Version in the AT&T data, DCI determined whether or not there was a corresponding record included in the Verizon PA FACT Table. DCI's initial analysis determined that there were significant differences between the AT&T LSR "sent time" and the Verizon PA LSR "receipt time". DCI requested verification of the LSR "sent times" from AT&T. AT&T responded that it had incorrectly provided DCI its ordering system's "sent times" rather than its gateway's "sent times". DCI also requested that AT&T provide additional summarized data for reconciliation purposes, specifically the FOC "receipt time". AT&T provided DCI the requested data. DCI's analysis of these data follows.

Ordering Analysis

To determine the completeness of the Verizon PA Ordering Data Mart, DCI compared AT&T data to Verizon PA data, to verify that each Firm Order Confirmation (FOC) record provided by AT&T had a corresponding FOC record in the Verizon PA Ordering Data Mart. DCI found that 94.4% of the AT&T FOCs had a corresponding FOC record in the Verizon PA Ordering Data Mart. For the remaining AT&T FOCs, there were no corresponding records in the Verizon PA data.

To independently assess the accuracy of Verizon PA's performance data, DCI compared the data values for several fields in the AT&T data with the corresponding fields in the Verizon PA Ordering Data Mart. DCI found that for the matching FOC records, the

¹ Version – an order may be modified and resubmitted using the same PON. To keep unique track of each submission separately, the Version identifier of the order is used together with the PON.

² WFA keeps track of when the work on an order has been completed.

AT&T LSR “sent time” was within five minutes of the Verizon PA LSR “receipt time” in all cases.

In the analysis of the AT&T FOC receipt date versus the Verizon PA confirmation notification date, DCI excluded from consideration five AT&T records due to insufficient data (i.e., missing data field values) and nine records in which the event recorded by AT&T as a FOC was actually a reject. In 82.5% of the remaining cases, the AT&T FOC “receipt time” was within five minutes of the Verizon PA “notification time”; 83.3% were within 10 minutes; 86.9% were within 30 minutes; and 90.6% were within one hour. DCI found that 4.4% of the AT&T FOCs were recorded as received at least two hours after the Verizon PA Data Mart indicates they were sent – the largest difference being 11:23 (hh:mm). In three cases, the AT&T FOC “receipt time” preceded the Verizon PA FOC time by 00:01, 19:39, and 19:50 (hh:mm).

DCI compared the due date on the FOC as recorded by AT&T with the due date on the FOC, as reflected in the Verizon PA Ordering Data Mart. In all cases, the AT&T recorded due date matched the due date in the Verizon PA Ordering Data Mart. Similarly, the desired due date recorded by AT&T matched the CLEC desired due date recorded in the Verizon PA Ordering Data Mart in all instances

DCI also compared the AT&T PCN receipt date with the Verizon PA SOP notification date in the ordering data mart, and found 99.1% of the AT&T PCNs were received the same day as indicated in the Verizon PA ordering data mart. Specifically, 88.7% were received within five minutes of the Verizon PA SOP notification time; 90.1% within 10 minutes; 92.4% within 30 minutes; 94.9% within one hour; and 98.2% within two hours. In less than one percent of the cases, the PCN was received by AT&T between two and eight hours after the SOP notification time, but on the next day.³

In less than two tenths of one percent of the cases, AT&T data indicated it received multiple PCNs. DCI investigated these orders and determined that the first PCN had been sent on the date indicated by the Verizon PA Ordering Data Mart. However, DCI’s review identified inconsistencies in the notification “on-time indicators” in the Data Mart. For example, in one case the Ordering Data Mart indicates the work completion and SOP notification occurred on April 17, 2003, and the CRIS (notification was sent on April 28, 2003. The AT&T data indicate a PCN received on April 17, 2003 and April 28, 2003. However, the SOP notification “on-time indicator” for this order is set to no, while the CRIS notification “on-time indicator” is set to yes. DCI does not understand why the SOP notification was considered late, as it was sent on the day of the work completion; while the CRIS notification, sent seven business days later, was considered on time. At least four one hundredths of one percent of the orders exhibited similar inconsistencies, as detailed in Exception Request (ER) D-039.

DCI compared the work completion date as recorded by AT&T from the PCN with the work completion date reflected in the Verizon PA Ordering Data Mart and found that the

³ While some of these percentages may seem small, they are based on a significant number of orders (in the hundreds or thousands).

two dates agreed more than 99.9% of the time. There were less than four one hundredths of one percent of instances in which the Verizon PA Ordering Data Mart work completion date was one day after the AT&T completion date as recorded on the PCN.

Maintenance and Repair Analysis

AT&T also provided DCI with data relating to Maintenance and Repair (M&R) trouble tickets created through electronic bonding in April 2003. For each record, the AT&T file included the circuit number on which the trouble occurred, the trouble create date, the trouble closed date, and a trouble clearance summary. Similar to the ordering data, DCI reconciled this data with the appropriate Verizon PA Maintenance and Repair Data Mart to assess the completeness and accuracy of the Verizon PA data.

To determine the completeness of the Verizon PA data, DCI compared each trouble report provided by AT&T with the Verizon PA M&R Data Mart to verify whether or not the trouble was included. However, unlike Ordering and Provisioning, in which a PON and a Version enables a match of the same event across data sources, there is no such field within the realm of M&R. Although it is possible to match records on the basis of the circuit ID or telephone number, this method presents problems when more than one trouble occurs on the same line within a few days, or even on the same day. As a result, an exact match trouble for trouble was not possible in all cases. Therefore, DCI's analysis represents its best effort at matching troubles on the same line.

Of the troubles AT&T provided DCI for analysis, DCI was unable to match 23.1% of them to a trouble found in the Verizon PA M&R Data Mart. DCI issued DR D-021 detailing these troubles. Verizon PA indicated that for several of these troubles, the AT&T data contained the billing telephone number instead of the actual line on which the trouble was reported. Therefore, DCI was unable to match the trouble in the AT&T data to the correct trouble in the Verizon PA M&R Data Mart. In addition, from the data in Verizon PA's response, DCI determined that 12.5 percent of the troubles were actually on lines in service in Delaware. Of the remaining 3.6% of troubles, Verizon PA's response indicated that these troubles were included in the M&R Data Mart, but were included in other reporting months based on the "trouble closed" dates.

DCI was able to definitively match 8.4% of the AT&T troubles to troubles in the Verizon PA M&R Data Mart. In these cases, the circuit ID, the AT&T "trouble create" and Verizon PA "received date", and the AT&T and Verizon PA "trouble closed" dates matched exactly. For an additional 46.6% of the AT&T troubles, DCI was able to match the circuit ID and "trouble create" date to the Verizon PA Data Mart; however, the Verizon PA "trouble closed" date was, on average, 1.84 days earlier than the AT&T "trouble closed" date. Of the remaining 21.9% of the AT&T troubles; although the circuit ID matched a trouble in the Verizon PA data, the AT&T "trouble create" date was on average 1.25 days earlier than the Verizon PA "trouble received" date. Of these same cases, 17.4% of the AT&T and Verizon PA "trouble closed" dates matched. In the remaining cases, the Verizon PA "trouble closed" date was, on average, 2.13 days earlier than the AT&T "trouble closed" date.

Met-Tel DATA RECONCILIATION

Met-Tel also provided DCI with performance data for reconciliation. Specifically, Met-Tel provided ordering data for April 2003. The Met-Tel data file included the PON, Version, LSR Sent Date, FOC Received Date, Reject Date, Work Completion Date, PCN Received Date, and Billing Completion Notification (BCN) Received Date for each record.

For each unique PON and version in the Met-Tel data, DCI determined whether or not a corresponding record was included in the Verizon PA Ordering Data Mart. DCI found that for each record in the Met-Tel data, there was a corresponding record in the Verizon PA Ordering Data Mart. Of the FOCs in the Met-Tel data, the LSR “sent time” was within one minute of the Verizon PA LSR “receipt time” in 99.3% of the cases. For the remaining seven tenths of one percent of FOCs, the Met-Tel “sent time” was one, four, and 31 minutes before the Verizon PA “receipt time”. Based on discussions with Met-Tel, this time difference is likely attributable to network congestion on Verizon PA’s part.

DCI’s comparison of the Met-Tel FOC, PCN, and BCN “received dates” with the Verizon PA FOC, PCN, and BCN “sent dates” does not represent a reconciliation of CLEC observed and Verizon PA reported data, because Met-Tel’s received timestamps for these data elements were not independently generated. The “received dates” recorded by Met-Tel are actually the Verizon PA encryption time of the notifications, which, according to Met-Tel, is done immediately before transmission. According to Met-Tel, the Verizon PA encryption time is included in the header of Verizon PA notifications. Met-Tel performed a review of the encryption times versus the actual notification receipt times and found they were substantially the same in nearly all cases. Therefore, Met-Tel uses the Verizon PA encryption time to avoid disputes with Verizon PA over the accuracy of its timestamp.

For each Met-Tel reported FOC during the time period analyzed, the Verizon PA Ordering Data Mart reflected a transmission of a confirmation notification for the same PON and Version. DCI’s analysis found that in 92.6% of the FOCs, the Met-Tel FOC time matched the Verizon PA confirmation time exactly. In the remaining 7.4% of FOCs, the Met-Tel FOC time preceded the Verizon PA confirmation time by an average of 3.78 minutes. This difference in time is likely due to a delay between the encryption and transmission of the FOC. DCI notes that Verizon PA correctly uses the FOC transmission time instead of the encryption time.

As stated above, Met-Tel provided DCI with data detailing the PCNs it received during April 2003. Met-Tel also provided DCI the Work Completion Date recorded on the PCN. DCI found that the Verizon PA Ordering Data Mart included corresponding SOP notifications for all of the Met-Tel provided PCNs. As with the FOCs, Met-Tel used the Verizon PA encryption time as its PCN received date. In all but one case, the Met-Tel PCN received time matched the Verizon PA SOP notification time exactly. In the one case of a disagreement, the Met-Tel PCN “received date” was over two months later than

indicated by the Verizon PA ordering data mart. However, Met-Tel’s response to DCI’s request to verify the PCN “receipt date” indicated that it had received the original PCN at the time indicated in Verizon PA’s data.

DCI’s analysis of the Met-Tel and Verizon PA work completion dates showed agreement in all but two cases. In each of these cases, the Verizon PA work completion date was later than the work completion date indicated by Met-Tel. In addition, the Verizon PA SOP “notification” date was after the Verizon PA “work completion” date in the Ordering Data Mart. DCI issued DR D-021 to Verizon PA detailing these discrepancies. Verizon PA’s response indicated that it was uncertain as to what caused the SOP notification to be sent prior to the work completion date indicated in the Ordering Data Mart, but noted that there was manual intervention by a service representative around the time of the notification, and that this was likely the cause.⁴

For each BCN reported by Met-Tel, the Verizon PA Ordering Data Mart also reflected the transmission of a CRIS “completion” notification. In all but two cases, the Met-Tel BCN “received time” matched the CRIS “notification time” exactly. In these two cases, the Verizon PA CRIS “notification time” was before the Met-Tel recorded BCN “received time”. One of these orders was discussed in ER D-039.

⁴ DCI issued ER D-039 detailing the potentially impacted metrics as a result of these errors.

B – FINDINGS

1. It Is Extremely Difficult For CLECs To Accurately Reconcile Their Maintenance And Repair Data With That Reported By Verizon PA.

The difficulties in reconciliation of M&R data are due to a number of factors involving the manner in which orders are identified and tracked in separate systems. For example, there is no unique trouble identifier in Verizon PA performance data that allows an exact match of trouble for trouble by a CLEC. This is aggravated when multiple troubles occur on the same line within a few days, or on the same day. AT&T data included a unique trouble ticket number for each trouble, but the trouble ticket number field was not populated in the Verizon PA M&R Data Mart. DCI requested that Verizon PA explain why the trouble ticket number was not included in the data mart⁵. Verizon PA's response indicated that Loop Maintenance Operations System (LMOS) eliminates the trouble ticket number when it closes the trouble. Thus, the trouble ticket number needed for CLEC use or for independent verification can not be passed to NMP.

2. DCI's Analysis Results Are Not Supported By Verizon PA's Stated Practice For Closing Trouble Tickets.

During interviews with Verizon PA personnel responsible for the Maintenance and Repair performance measurements, DCI was informed that Verizon PA attempted to contact the CLEC before closing a trouble. Verizon PA also indicated that if it were unable to contact the CLEC, it left a message notifying the CLEC that it intended to close the trouble. However, of the troubles found in both the CLEC and Verizon PA data, 84.1% disagree on the trouble closed date. DCI finds this to be an extremely high rate of disagreement, given the steps Verizon PA states that it takes to ensure that parties agree to the closure date of trouble tickets.

3. Work Close Outs Are Occasionally Recorded Later Than the Issuance Of Provisioning Completion Notifications To CLECs.

DCI discovered sufficient instances of Provisioning "completion notifications" that were transmitted to the CLECs prior to the work completion date, as indicated by the Ordering Data Mart to be of concern. Verizon PA indicated that this was likely due to the influence of manual intervention. In the event that work has actually been completed when the PCN is generated, training and/or controls are not in place to prevent the work completion date from being populated with an incorrect date.

⁵ DCI issued Data Request DR D-021 for AT&T trouble reconciliation of Verizon PA data mart.

C – RECOMMENDATIONS

1. Use A Unique Trouble Identifier Which Remains With The Trouble Ticket For Trouble Report Identification. (Refer to Finding 1)

Despite the system limitation where LMOS drops the trouble ticket number when it closes the trouble, Verizon PA should use a unique trouble identifier that can be distributed to the CLEC upon opening a trouble ticket, which remains with the trouble ticket throughout Verizon PA's data extraction process. The addition of such a data element will enable CLECs to reconcile their own Maintenance and Repair data with the raw performance data provided by Verizon PA on a monthly basis, if they so desire.

2. Adjust The Trouble Closing Process, To Prevent Discrepancies In The Trouble Ticket Closing Time. (Refer To Finding 2)

Trouble ticket clear and close times have an obvious and critical impact on related metrics, payments and customer satisfaction. CLECs must be able to rely on trouble "close times" for customer service and tracking. DCI found an unacceptable level of trouble tickets with errors, or which otherwise did not agree on closing times. Verizon PA should perform necessary internal reviews to prevent process breakdowns that result in CLEC not being notified of the actual trouble closed date.

3. Conduct Additional Training And/Or Install Controls To Prevent The Manual Generation Of A PCN Prior To Work Being Complete. (Refer To Finding 3)

Verizon PA should perform a proactive analysis to determine what factors can lead to the manual generation of PCN's before the work on the order had been completed. Based on the results of that analysis, Verizon PA needs to determine and implement the necessary steps to ensure that project completion notices are not sent out prior to the work actually being complete. These steps should include training personnel who manually handle the generation of PCNs, associated supervisory review, and modifying computer systems to perform an automated check of whether or not the work has been done prior to allowing the generation of a PCN.