

**Final Report for the Audit of 2005
Qwest's Performance Assurance Plans**

Prepared for:

The Qwest Regional Oversight Committee

By:



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I. Executive Summary

The Qwest Regional Oversight Committee (ROC) chose The Liberty Consulting Group (Liberty) to conduct an audit of Qwest wholesale performance remedy payments and the results of certain Qwest wholesale performance measures for the year 2005 (2005 ROC Audit). All 14 public utility commissions agreed to participate in the 2005 ROC Audit, which was intended as a follow-up to the audits of 2004 Qwest Performance Assurance Plan (QPAP¹) results. There were two 2004 QPAP audits, one (2004 ROC Audit) conducted by Liberty for all Commissions except the Colorado Public Utilities Commission (PUC) and the other (2004 CPAP Audit) conducted by NorthStar/Vantage for the Colorado PUC.

The scope of the 2005 ROC Audit included

- An audit of QPAP payments for all 14 states
- A full audit of five measures:
 - OP-5A
 - MR-7
 - BI-1
 - BI-3A
 - NI-1.
- A partial audit of specific items associated with 29 other measures, related to
 - The status of Qwest's response to findings from the 2004 ROC Audit
 - Requirements of the Colorado PUC for the 2005 ROC Audit based on recommendations from the 2004 CPAP Audit
 - Additional changes that Qwest introduced in its wholesale measures, QPAPs, and systems between the time of the 2004 ROC and CPAP Audits and the end of 2005
 - Specific audit requirements of the Colorado PAP.
- An audit of certain other items not specific to individual measures.

The audit commenced in late April 2007 with initial requests for data from Qwest and a meeting and initial interviews with Qwest and representatives from the ROC Steering Committee held in Denver on May 7 and 8, 2007. Based on this initial information, Liberty developed a work plan for the audit. Liberty revised this work plan based on comments from Qwest and the ROC Steering Committee. The ROC Executive Committee approved the final version of the work plan on August 21, 2007. Data gathering, interviews, and analysis continued throughout the summer of 2007. Representatives of the ROC Steering Committee held regular meetings by teleconference with Qwest and Liberty during the audit (generally weekly at the beginning of the audit and bi-weekly toward the end) to monitor and review the conduct of the audit. Liberty

¹ Qwest calls its performance assurance plans for Colorado and Minnesota "CPAP" and "MPAP," respectively. It calls its plan for the other states the "QPAP." For convenience, when referring to all the performance assurance plans, Liberty will use the term "QPAP."

closed field work and issued a draft final report for comments by the ROC and Qwest on October 31, 2007. Qwest and representatives from the ROC Steering Committee provided comments to Liberty; Liberty updated the draft to address the comments and issued this final report on November 30, 2007.

Liberty obtained information from Qwest through 425 data requests and ten separate interviews with Qwest personnel. Liberty also analyzed performance measurement and QPAP payment data provided by Qwest. As part of this audit, Liberty reviewed Qwest's business processes and systems, and reviewed Qwest's public and internal documentation. Liberty examined the integrity of the data used in the calculations of the five measures subject to the full audit and replicated reported results for these and many of the 29 other measures subject to a partial audit. For the 2005 QPAP payments, Liberty reviewed the QPAP process, replicated the calculated payments, reviewed the payment process, and verified payments made.

During the audit, Liberty notified Qwest and the ROC Steering Committee of possible findings. Liberty issued 15 such preliminary findings during the course of the audit and provided an opportunity for Qwest to respond to them. Based on Qwest's response, Liberty withdrew one of the preliminary findings. Liberty classified the findings according to the nature and severity of the issues involved and used four classification levels defined in Section II.E.

Overall, Liberty found that Qwest produced accurate performance results and penalty payments for the items covered by this audit during 2005. Most of the 14 findings that Liberty identified during the audit were relatively minor. For those that are likely to cause changes in reports or payments, the size and scope of the changes are likely to be relatively small. Qwest agreed with most of the findings and has either taken action or plans to take action to address them. Liberty discusses the findings in detail in Section XII. Not all findings apply to every state participating in the audit. Appendix A lists by state those findings that apply to the state and the status of Qwest's response to the findings.

Liberty identified five findings as Classification 1, findings for which Liberty believes a correction could cause a change in Qwest's reported results or QPAP payments or for which Qwest's practices or methods are clearly inconsistent with the Performance Indicator Definitions (PIDs) or QPAPs. These findings are:

- Qwest did not calculate the interval correctly for MR-7 to identify all lines/circuits that had a repeat trouble report within 30 days. (Finding 8)
- Qwest's implementation of the permutation test Z-score calculations for proportion measures that require a permutation test is not the method specified in the QPAP. (Finding 10)
- Qwest recorded the incorrect Tier 2 payment level for the Enhanced Extended Link- Digital Signaling Level 1 (EEL-DS1) product for MR-7 and MR-8 in Arizona. (Finding 11)
- The data Qwest used to calculate BI-1 results contained duplicate records. (Finding 13)

- The BI-3A results included revenue associated with products and services that Qwest should not include in its measure results. (Finding 14)

Qwest agreed with all five of these findings and has taken steps to address them. Some of the findings affected QPAP payments, sometimes resulting in overpayments and sometimes underpayments, but the overall effect was relatively small. The largest net underpayment was a net \$5,000 underpayment to Arizona associated with Finding 11.

In addition, Liberty identified five findings as Classification 2, findings for which Liberty believes a correction may not change Qwest's reported results or QPAP payments, the magnitude of the change is unknown, or Qwest's practices or methods may be in error or inconsistent with the PID or QPAPs. Liberty identified three findings as Classification 3, findings for which Liberty found a gap or potential flaw in Qwest's methods, procedures, or documentation for which a change could lead to an improvement in the reliability of reported results or QPAP payment. Liberty identified one finding as Classification 4, findings for which there is not a clear inconsistency with Qwest's interpretation of the PID or QPAP, but for which clarification is necessary; or for which Qwest has adopted conventions that are not documented in the PID or QPAPs or has interpreted these documents in ways that Liberty agrees are consistent with the wording but for which other reasonable interpretations are possible. Qwest has taken or has agreed to take action to address all but one of the Classification 2, 3, and 4 findings.

In addition to the findings, Liberty makes one additional recommendation for Qwest and the Commissions' consideration in Section XII. Liberty believes that Qwest's approach is reasonable in this case but believes that further action by Qwest would be helpful. This recommendation is:

- Regarding PO-20 reporting, Qwest still improperly overrides error codes for manual service orders on occasion; however, Liberty found Qwest's performance much improved since the 2004 ROC Audit. Liberty believes that Qwest should continue to self-monitor and evaluate the error code override process and continue to provide feedback to personnel performing overrides. The override activity will continue to be prone to human error and each improper override artificially improves Qwest's PO-20 results.

In its reexamination of the 2004 ROC Audit findings, Liberty determined that Qwest successfully resolved the 17 of the 26 findings that it had addressed by the end of 2005.²

In its investigations related to the Colorado CPUC requirements based on the 2004 CPAP Audit recommendations, Liberty uncovered no remaining problems and considers the issues raised in these recommendations to be resolved.

The remainder of this Final Report is organized as follows. Section II provides background information and a description of the audit approach. Section III describes the systems that Qwest

² The scope of the 2005 ROC Audit was confined to changes made through the end of 2005. Therefore, this audit did not address the current status of the remaining nine findings. The table in Section XII.C below shows the status of these findings as of the end of the 2004 ROC Audit.

uses for performance reporting and QPAP payment calculation. Section IV provides an overview of Liberty's analyses. Sections V through IX provide details of Liberty's analysis of specific measures. Section X provides details of Liberty's analysis of the 2004 QPAP payments. Section XI provides a description of Liberty's analysis of some changes in systems and processes not specific to a single measure or group of measures. Section XII provides details about Liberty's audit findings and recommendations. Finally, the report contains two appendices. Appendix A summarizes by state the applicability and status of each of Liberty's findings. Appendix B provides a glossary of acronyms used in the report.

Liberty appreciated the graciousness and cooperation of Qwest during this audit and found the Qwest personnel to be very knowledgeable and responsive to Liberty's requests. Liberty also appreciated the interest and active involvement of the ROC Steering Committee throughout the audit process.

II. Introduction and Approach

A. Background and Purpose of the Review

The Qwest Regional Oversight Committee (ROC), an organization of the 14 public utility commissions (Commissions) of the states in which QWEST Corporation, Inc. (Qwest) provides local exchange service, chose The Liberty Consulting Group (Liberty) to conduct an audit of Qwest wholesale performance remedy payments and the results of certain Qwest wholesale performance measures for the year 2005 (2005 ROC Audit). A QPAP for each state provides the instructions for remedy payments; Qwest's Service Performance Indicator Definition (PID) document delineates the performance measures on which Qwest reports. All 14 public utility commissions agreed to participate in the 2005 ROC Audit, which was intended as a follow-up to the audits of 2004 QPAP results. There were two 2004 QPAP audits, one (2004 ROC Audit) conducted by Liberty for all Commissions except the Colorado PUC, and the other (2004 CPAP Audit) conducted by NorthStar/Vantage for the Colorado PUC.

During late 2006 and early 2007, Liberty worked with representatives from the 14 Commissions to define scope of this audit, focusing on:

- Specific requirements in the different state QPAPs
- The extent to which the various Qwest wholesale measures have been audited in the past
- Changes that Qwest introduced in its wholesale measures, QPAPs, and systems between the time of the 2004 ROC and CPAP Audits and the end of 2005
- The status of Qwest's response to findings from the 2004 ROC Audit
- Requirements of the Colorado PUC for the 2005 ROC Audit based on recommendations from the 2004 CPAP Audit.³

A final proposed scope was approved by the ROC Steering Committee on April 4, 2007. On June 22, 2007, the Executive Committee accepted the Liberty-Qwest Service Agreement for the execution of the audit and all its exhibits, which included the definition of scope for the audit.

After the approval by the ROC Steering Committee, Liberty began work on the audit, requesting and examining documents and other data from Qwest and conducting interviews of Qwest personnel. Liberty held an initial meeting with Qwest and representatives from the ROC Steering Committee on May 7 and 8, 2007, in Denver, Colorado. At this meeting, Qwest presented an overview of changes made since the 2004 ROC and CPAP Audits to the systems and process it uses to calculate and report the performance measures and to calculate and make the QPAP payments. Qwest also provided information about the five performance measures subject to a full audit in the 2005 ROC Audit. Based on this information and the responses to the initial data requests, Liberty developed an audit work plan. Liberty revised this work plan based on

³ Colorado Public Utilities Commission Order No. C0-1216 in Docket No. 02M-259T, October 10, 2006, Attachment A.

comments from Qwest and the ROC Steering Committee. The ROC Executive Committee approved the final version of the work plan on August 21, 2007.

B. Overview of Qwest's Performance Assurance Plans and Performance Measures

The QPAP is Exhibit K to the Statement of Generally Available Terms and Conditions (SGAT) for Qwest's wholesale local exchange services in each state. There are two basic versions of the QPAP, one used by Colorado and Minnesota and the other used by the remaining 12 ROC states. Even among the states that use the same basic version, the QPAPs differ in detail from state to state. In addition, Qwest implemented revisions to the QPAPs during 2005 in most states.

In all cases, the QPAPs contain a two-tiered, self-executing payment scheme based on an assessment as to whether Qwest provides service to competitive local exchange carriers (CLECs) comparable to that it provides to its own retail customers. This assessment uses the reported results of a set of performance measures and a comparison of those results to those of a defined set of retail analogs or fixed benchmarks, depending on the performance measure. Qwest makes Tier 1 payments to CLECs that elect to "opt in," that is, to participate in the QPAP. Qwest makes Tier 2 payments to the state. Each QPAP identifies the specific performance measures, calculation algorithms, statistical tests, and payment schedules used to determine the Tier 1 and Tier 2 payments.

The PID is Exhibit B to the SGAT and is the same document for all of Qwest's states. PID version 8.1, which was filed in November 2004, was the effective version of the PID for the entire 14-state region during 2005.⁴

The PID categorizes performance measures into ten measurement groups:

- Electronic Gateway Availability (GA)
- Pre-Order/Order (PO)
- Ordering and Provisioning (OP)
- Maintenance and Repair (MR)
- Billing (BI)
- Database Updates (DB)
- Directory Assistance (DA)
- Operator Services (OS)
- Network Performance (NI and NP)

⁴ Response to Data Request #2. As noted in Data Request #115, although Version 8.1 did not take effect until January or February 2005, depending on the state, Qwest applied Version 8.1 to the data retroactively starting with October 2004. Therefore, from the point of view of the final reported results and payments, Version 8.1 applied throughout 2005. Liberty reviewed the two versions and found that the only change between version 8.0 and 8.1 was that the OP-5B measure changed from a diagnostic measure to one with a benchmark standard.

- Collocation (CP).

Within each of these measurement groups there are between 1 and 13 performance measures. The PID identifies each measure by measurement group and specific measurement number. For example, OP-5 is an Ordering and Provisioning measure that reports New Service Quality, or the quality with which Qwest provisions services that are free of CLEC/customer initiated trouble reports. Some measures also have sub-measures designated with a letter and a number. For example, OP-5A measures New Service Installation Quality Reported to Repair, or the percentage of service orders that are free of repair troubles within 30 days of installation completion, and OP-5B measures New Service Provisioning Quality, or the percentage of service orders that are free of provisioning trouble reports during the provisioning process and within 30 days of installation completion. In addition, Qwest reports many of the measures separately by product or product group. For example, Qwest reports OP-5B in over 30 product categories.

For each measure, the PID lists the purpose, provides a description, shows the formula Qwest uses to calculate the measure, states the allowed exclusions of transactions from the measure, and lists the standards against which to compare the measure's results. The PID also describes the reporting period used, the measurement unit (*e.g.*, percentage and time period), the reported comparisons (*e.g.*, CLEC aggregate, specific CLEC, and Qwest retail), the reported levels of disaggregation (*e.g.*, region-wide and state-level), and the reported products.

C. Scope of the Audit

The ROC Steering Committee determined on April 4, 2007, that the following items comprise the scope of the 2005 ROC QPAP Audit:

A. Measures Requiring Full Audit

- 1. OP-5B**
- 2. MR-7**
- 3. BI-1**

The audit of BI-1 also included a review of Change Request UR4639 for BI-1A regarding the Six-Year Retention Project (2004 CPAP Audit Recommendation II-R43).

- 4. BI-3A**
- 5. NI-1**

The audit of NI-1 also included a review of a Regulatory Reporting System (RRS) documentation change (2004 CPAP Audit Recommendation II-R68).

B. Measures Requiring Partial Re-Audit

- 1. PO-1:** Review of Interconnect Mediated Access (IMA) Production Usage Report (IPUR) regarding statistical validation (2004 CPAP Audit Recommendation II-R73)
- 2. PO-2**

- a) Reexamination of 2004 ROC Audit Finding #3
- b) Review of RRS documentation change (2004 CPAP Audit Recommendation II-R58)
- c) Replication of PO-2B (RES2-AGG)
- 3. **PO-4:** Reexamination of 2004 ROC Audit Finding #3
- 4. **PO-5**
 - a) Reexamination of 2004 ROC Audit Finding #3
 - b) Replication of Colorado Performance Assurance Plan (CPAP) Tier 1A sub-measures
- 5. **PO-6:** Reexamination of 2004 ROC Audit Finding #14
- 6. **PO-7:** Reexamination of 2004 ROC Audit Finding #23
- 7. **PO-9B:** Replication of CPAP Tier 1A sub-measures
- 8. **PO-15:** Review of changed code for processing of ZZZ Access Carrier Name Abbreviation (ACNA) code records
- 9. **PO-20**
 - a) Evaluation of implementation of Phases III and IV
 - b) Reexamination of 2004 ROC Audit Findings #9, #11, #19, #21, and #22
- 10. **OP-3**
 - a) Review of changed code for processing of ZZZ ACNA code records
 - b) Reevaluation of 2004 ROC Audit Findings #4 and #7
 - c) Replication of CPAP Tier 1A sub-measures
- 11. **OP-4**
 - a) Review of changed code for processing of ZZZ ACNA code records
 - b) Reevaluation of 2004 ROC Audit Findings #4, #7, and #12
 - c) Replication of CPAP Tier 1A sub-measures
- 12. **OP-5A**
 - a) Reexamination of 2004 ROC Audit Findings #1, #4, #7, and #26
 - b) Replication of CPAP Tier 1A sub-measures
- 13. **OP-6**
 - a) Review of changed code for processing of ZZZ ACNA code records
 - b) Reexamination of 2004 ROC Audit Findings #4 and #7
 - c) Review of handling of service orders missed due to customer action (2004 CPAP Audit Recommendation II-R52)
 - d) Review of RRS documentation change (2004 CPAP Audit Recommendation II-R51)
 - e) Replication of CPAP Tier 1A sub-measures
- 14. **OP-7**
 - a) Review of RRS documentation changes (2004 CPAP Audit Recommendations II-R17)
 - b) Review of published standard (2004 CPAP Audit Recommendations II-R18)
 - c) Replication of CPAP Tier 1A sub-measures
- 15. **OP-8**
 - a) Review of changed code to identify and exclude certain orders (Digital 2-Way Flat Direct Inward Dial (DID) trunks, Centrex-routed to Intercept, Voice Mailbox Only)

- b) Review of changed code to exclude records associated with DMS-10 switches
 - c) Reconciliation of OP-8B&C denominators with that of OP-17 (2004 CPAP Audit Recommendation II-R31)
 - d) Review of RRS documentation change (2004 CPAP Audit Recommendations II-R26 and II-R28)
 - e) Review of status of changes to eliminate CLEC-caused delay exclusion (2004 CPAP Audit Recommendation II-R27)
 - f) Replication of CPAP Tier 1A sub-measures
- 16. OP-13**
- a) Review of RRS documentation changes (2004 CPAP Audit Recommendations II-R20 and II-R22)
 - b) Review of status of changes to exclude requests involving non-standard methodologies (2004 CPAP Audit Recommendation II-R21)
 - c) Replication of CPAP Tier 1A sub-measures
- 17. OP-15**
- a) Review of changed code for processing of ZZZ ACNA code records
 - b) Reevaluation of 2004 ROC Audit Findings #4 and #7
- 18. OP-17**
- a) Review of changed code to exclude records associated with DMS-10 switches
 - b) Review of changed code to identify and exclude certain orders issued to split out DID ranges
 - c) Reconciliation of denominator with those of OP-8B&C (2004 CPAP Audit Recommendation II-R31)
 - d) Validation of “not disconnected in error” exclusions (2004 CPAP Audit Recommendation II-R32)
 - e) Review of RRS documentation changes (2004 CPAP Audit Recommendation II-R33)
 - f) Review of status of changes to address CLEC requests received exactly at 8:00 pm (2004 CPAP Audit Recommendation II-R30)
 - g) Replication of CPAP Tier 1A sub-measures
- 19. MR-3:** Replication of CPAP Tier 1A sub-measures
- 20. MR-5:** Replication of CPAP Tier 1A sub-measures
- 21. MR-6:** Replication of CPAP Tier 1A sub-measures
- 22. MR-8:** Replication of CPAP Tier 1A sub-measures
- 23. MR-11**
- a) Review of programming changes to include escalations
 - b) Review of updated programming to include Loop Service with Number Portability Call Center Tickets
 - c) Review of programming changes to exclude orders with missing call center data
 - d) Review of RRS documentation changes (2004 CPAP Audit Recommendations II-R37, II-R38, and II-R39)
 - e) Review of status of changes to address CLEC requests received exactly at 8:00 pm (2004 CPAP Audit Recommendation II-R30)

- f) Review of status of MR-11B PID title change (2004 CPAP Audit Recommendation II-R34)
- g) Replication of CPAP Tier 1A sub-measures
- 24. BI-4A:** Reexamination of 2004 ROC Audit Finding #10
- 25. NP-1A:** Replication of CPAP Tier 1A sub-measures
- 26. CP-1,2,3, and 4:** Replication of CPAP Tier 1A sub-measures

C. Other Audit Items

- 1. Review of QPAP system changes (15-20 items)
- 2. Reexamination of 2004 ROC Audit Findings #15 and #16 (related to QPAP calculations)
- 3. Review of changes to distinguish QPP from Unbundled Network Element – Platform (UNE-P) (2004 ROC Audit Other Recommendation #2)
- 4. Review of changes to distinguish Commercial Line Sharing from Line Sharing (2004 ROC Audit Other Recommendation #2)
- 5. Review of various RRS system changes (applies to all measures)
- 6. Review of various additional RRS documentation changes (2004 ROC Audit Finding # 18 and Other Recommendation #3)
- 7. Review of reporting of performance results changes in the Summary of Notes (2004 CPAP Audit Recommendations II-R47, R49, R57, R64, and R67)

D. CLEC Input

Liberty requested from 61 CLECs confirmation of the receipt dates and amounts of Tier 1 QPAP payments during 2005. Liberty used the information in its assessment of the QPAP process.

E. Liberty's Review Methods

In conducting this audit, Liberty drew from its experiences working on similar audits, including the 2004 ROC Audit and its audit of the Qwest performance measures prior to Qwest's Section 271 Application. Liberty obtained information from Qwest through 425 data requests and ten separate interviews with Qwest personnel. Liberty also analyzed performance measurement and QPAP payment data provided by Qwest.

During the audit, Liberty notified Qwest and the ROC Steering Committee of possible findings. Liberty issued 15 such preliminary findings during the course of the audit and provided an opportunity for Qwest to respond to them. Based on Qwest's response, Liberty withdrew one of the preliminary findings. The remaining findings are described in Section XI. As in past audits, Liberty classified findings according to the nature and severity of the issues involved. The following table lists the criteria for classifying the findings that Liberty will use in this audit:

| Classification | Description |
|----------------|-------------|
|----------------|-------------|

| | |
|---|---|
| 1 | <p>Liberty has uncovered an issue with Qwest's methods, procedures, or calculations for which, in Liberty's opinion, either:</p> <ul style="list-style-type: none"> • Correction could cause a change in Qwest's reported results or QPAP payments; or • Qwest's practices or methods are clearly inconsistent with the PID or QPAPs. |
| 2 | <p>Liberty has uncovered an issue with Qwest's methods, procedures, or calculations for which, in Liberty's opinion, either:</p> <ul style="list-style-type: none"> • Correction may not change Qwest's reported results, or QPAP payments or the magnitude of the change is unknown; or • Qwest's practices or methods may be in error or inconsistent with the PID or QPAPs. |
| 3 | <p>Liberty has found a gap or potential flaw in Qwest's methods, procedures, or documentation for which a change could lead to an improvement in the reliability of reported results or QPAP payments.</p> |
| 4 | <p>Liberty has found an issue that, in Liberty's opinion either:</p> <ul style="list-style-type: none"> • Is not a clear inconsistency with Qwest's interpretation of the PID or QPAP but which should be clarified; or • For which Qwest has adopted conventions that are not documented in the PID or QPAPs or has interpreted these documents in ways that Liberty agrees are consistent with the wording but for which other reasonable interpretations are possible. |

F. Overall Conclusions

Overall, Liberty found that Qwest produced accurate performance results and penalty payments for the items covered by this audit during 2005. During the audit, Liberty identified 14 findings. Most of the findings are relatively minor. For those that are likely to cause changes in reports or payments, the size and scope of the changes are likely to be relatively small.

The following table contains Liberty's findings, the classification of each, and the page in this report that discusses the finding.

| | |
|------------|---|
| Finding 1: | Qwest excludes all of a CLEC's daily usage records from BI-1 results when a CLEC provides delivery instructions mid-month, even those records created after the instructions were received. Classification: 2 (Preliminary Finding #2)..... 153 |
| Finding 2: | Qwest's programming for calculating BI-1B results contains logic errors for certain field-value combinations. Classification: 2 (Preliminary Finding #3).... 156 |
| Finding 3: | Qwest did not change the standard from Diagnostic to Parity for the Line Sharing/Splitting product disaggregation for the performance measure OP-6, as required by the CPAP. Classification: 4 (Preliminary Finding #4) 157 |

Finding 4: Qwest does not identify and process exclusions for NI-1C and NI-1D according to the PID. Classification: 2 (Preliminary Finding #5) 158

Finding 5: In calculating MR-7 results, Qwest excluded trouble records reported in MTAS for “invalid CLEC” although the records contained sufficient information to make a valid CLEC identification. Classification: 2 (Preliminary Finding #6) 160

Finding 6: Qwest’s Summary of Notes document does not accurately reflect all 271 performance results changes that occurred during the 2005 reporting year. Classification: 3 (Preliminary Finding #7) 161

Finding 7: The Qwest Summary of Notes documentation appears incomplete for issues that span calendar years. Classification: 3 (Preliminary Finding #8) 162

Finding 8: Qwest does not calculate the interval correctly for MR-7 to identify all lines/circuits that had a repeat trouble report within 30 days. Classification: 1 (Preliminary Finding #9)..... 163

Finding 9: Qwest improperly includes holidays in the elapsed time calculations for BI-1. Classification: 2 (Preliminary Finding #10) 164

Finding 10: Qwest’s implementation of the permutation test Z-scores calculation for proportion measures that require a permutation test is not the method specified in the QPAP. Classification: 1 (Preliminary Finding #11) 165

Finding 11: Qwest recorded the incorrect Tier 2 payment level for the EEL-DS1 product for MR-7 and MR-8 in Arizona. Classification: 1 (Preliminary Finding #12)..... 167

Finding 12: The RRS documentation of Qwest’s processes and methods for calculating its performance measures contained errors, and was not up to date. Classification: 3 (Preliminary Finding #13)..... 168

Finding 13: The data Qwest used to calculate BI-1 results contained duplicate records. Classification: 1 (Preliminary Finding #14) 173

Finding 14: The BI-3A results included revenue associated with products and services that Qwest should not include in its measure results. Classification: 1 (Preliminary Finding #15)..... 174

III. Metric Reporting Systems and Processes

A. Regulatory Reporting System

Qwest uses the Regulatory Reporting System (RRS) to produce the performance measure results reports and calculate QPAP payments. Qwest calculates the QPAP payments using a module of RRS, the Qwest Performance Assurance Reporting System (QPARS). RRS is based on the Statistical Analysis System (SAS) statistical language.

RRS consists of three layers: the Data Layer, the Statistics Layer, and the Presentation Layer.⁵ Qwest uses the Data Layer to gather the data necessary for the measure calculations, to determine reporting dimensions (*e.g.*, CLEC, state, product), to apply authorized data exclusions, to add additional fields to account for measurement business rules (*e.g.*, time intervals and flags to designate whether commitments were met), and to create the baseline data to be used in the calculations. The Data Layer gathers most data from the Performance Analysis System (PANS) and the Corporate Data Warehouse (CDW), although a few measures require data from other sources. The Data Layer also includes “metadata” tables that contain general information necessary in the calculations. For example, in determining the CLEC to which a transaction applies, RRS uses not only fields in the source data that contain CLEC identification codes but also tables that translate these codes into a specification of the CLEC to which they apply. Once Qwest creates records in the data layer as part of the extraction process, it does not delete them from the data in order to apply authorized exclusions in the measure calculations. Instead RRS creates fields with exclusion codes, sometimes called “d_except” fields, which identify records meeting the criteria for the specific exclusions allowed for various measures. However, depending on the situation, Qwest applies some authorized exclusions through excluding data during the extraction of data from PANS to RRS. With the addition of these dimensions, business rules, and d-except fields, Qwest transforms the source data into the “Ad Hoc” data sets, which Qwest uses for the measure calculations. These Ad Hoc files represent a key point in the process, a point at which much of the audit analysis and replication can be performed.⁶

After the Data Layer produces the baseline data, the Statistics Layer applies the business rules for the measure calculations, performs the statistical tests, and leads the data for reporting. The Data Layer pulls the calculation rules out of a metadata table known as the PID Rule table and applies these rules to the Ad Hoc data to set the measure flags. This process results in a new field that determines whether the record applies to the measure and, if so, which value from the record applies. Further processing calculates results and statistics for all measures and dimensional combinations, including statistical comparison tests. Qwest also creates the master data set of summarized data used for measure reporting (also known as the Master Cube) in this layer of processing. QPARS uses these master files to determine PAP payments and to create measure

⁵ Interview #1, May 7-8, 2007.

⁶ Note that the replication from the Ad Hoc file includes any calculations and exclusions Qwest made up to that point in the process and, as a result, replication does not ensure that Qwest calculated the measure correctly. In this report, there are instances when Liberty performed 100 percent of replication successfully, but still found issues in the calculation of the measure.

reports. Qwest refers to the loading of the master data set into the Oracle database, as the “cube load.”

RRS uses the Presentation Layer principally to create the various internal and external measure reports that Qwest publishes. However, some measures require data not available in the source data sets from which RRS pulls data in the Data Layer. In such cases, Qwest uses the Presentation Layer to transmit the measure results through File Transfer Protocol (FTP) or to manually enter results. For example, Qwest sends the IMA Response Time results (PO-1) via FTP to RRS each month. Qwest also uses the Presentation Layer to fulfill CLEC raw data requests, audit data requests, and internal Ad Hoc and analysis requests

With the May 2005 release, Qwest enhanced RRS (RRS Unification) to become a generic metrics calculation system, allowing it to measure other parts of the business (*e.g.*, 272 reporting, retail service quality) in addition to complying with regulatory wholesale performance reporting requirements. The restructuring allows Qwest to make most changes through tables rather than code. The enhancements included:

- A metadata-driven approach: The new statistics engine uses a series of tables to define the dimensions, measures, rules (calculations), and benchmarks for any subject area measured by RRS. Unlike the old reference tables, these tables track effective dates for all activities and provide version control on all changes to the data.
- Standardized dimensional data: Formerly, RRS contained dimensional reference data in a variety of table formats, each of which contained a custom code block to incorporate its data into the system. RRS now has a standardized structure for maintaining the data which allows dimensions to be added without adding code.
- Component-based development: Instead of a single code stream, the RRS statistics engine is now composed of a group of small SAS macros aligned to their function (basic summarization, benchmark application, testing, etc.). The approach makes it easier to enhance the software with new functionality.
- De-normalized output: The old master tables contained a core set of dimensional and statistical information, but were difficult to read without looking up data from several other tables. The new master table contains all information available, from dimension codes to full descriptions and from raw numeric values to report formatted results. This design provides a single location where all needs (scorecards, reports, Ad Hoc requests) can be met without any additional information or interpretation.

As part of the RRS Unification, Qwest performed “before and after” analysis on each 271 data source to ensure the new statistics engine produced the same set of results. Qwest also manually validated reports and other system output. Qwest indicated that when it made the processing change, it found errors in the way it had previously calculated some of the measures. Qwest stated that the errors had “minor impact” on the measure results and that it identified the errors in the 2005 change log.⁷

⁷ Interview #1, May 7-8, 2007.

Qwest has a change management process designed to assure that it only makes authorized changes to RRS. The Regulatory Compliance organization leads a cross-departmental governance team to review and approve changes and Qwest uses an Issue Change Management (ICM) system to track changes. The RRS system is composed of three separate areas: development, test, and production. Qwest has a separate production team responsible for the RRS production system. Qwest only adds approved changes to the RRS production system using version control system.

B. Qwest Performance Assurance Reporting System

Qwest uses QPARS to calculate the QPAP payments. QPARS is based on SAS and UNIX, and uses table-driven processing. Qwest runs QPARS on each state individually. Except for the collocation performance measures, QPARS uses the Master Files created by the RRS Statistics Layer as the input for the calculations it performs. It also uses reference tables in RRS to determine items such as the appropriate benchmarks to use or the CLEC name. QPARS uses certain tables that are specific to the QPAP calculations, such as the payment tables, the critical values in the statistical tests, and the Tier 1 variance tables. QPARS also loads the dates at which each CLEC has opted into the QPAPs from a separate database.

Because of the significant differences between the Colorado and Minnesota QPAPs and those for the rest of the states, Qwest has created two separate models within QPARS. QPARS uses the Z-scores and permutation tests performed within RRS, and determines, based on sample size criteria, which test to use. QPARS also applies the appropriate critical values to determine whether the measure has passed or failed the tests.

The QPARS process begins with the assembly of all the data and tables necessary for the monthly calculations. QPARS then determines which measures to include for each state's QPAP and finds the retail comparatives for these measures.⁸ Next, it finds the benchmarks for each benchmark measure and adjusts the benchmarks for low volumes, as prescribed in the QPAPs. QPARS then determines whether each included parity measure and benchmark measure has passed or failed. If a measure has failed a test, QPARS checks the Tier 2 trigger to determine whether it has been met for the state. In cases of failure, QPARS calculates the payment amounts, based on the state QPAP and the specific measures at issue. The payment amounts can also vary according to both the CLEC volume and the extent of the failure. Finally, QPARS checks for special payments required for low-volume developing markets, prorates payments if the month is the first or last month of a CLEC's participation, and rounds the payments to the nearest dollar.

Occasionally, Qwest uncovers issues, such as a change in PID interpretation, programming errors, or missing source data, that result in system changes that could lead to a significant change in measure results. If Qwest makes such significant system changes, Qwest will rerun the

⁸ Measures that have retail comparatives are called 'parity' measures. Measures that have fixed standards are called 'benchmark' measures.

payment calculations. After a rerun, QPARS compares the before and after results. It calculates interest on the payments if the revised calculation produces a positive difference. Qwest analyzes each change and traces the change back to the change management system.

IV. Overview of Analysis

A. Measures Requiring a Full Audit

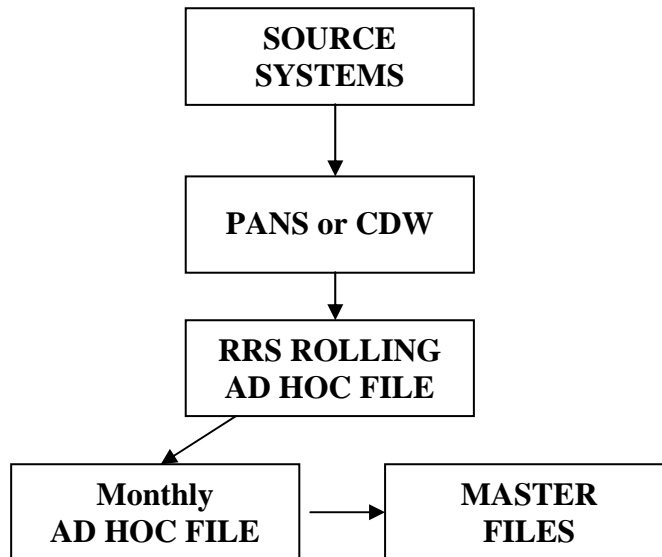
The primary purposes of the full audit of a performance measure were to assess the accuracy of the results Qwest reported during 2005 and, if the measure was included in the QPAPs, to assure that the performance results were therefore properly accounted for in the QPAPs. To address these purposes, Liberty examined the processes Qwest used for calculating the performance measure results, evaluated the completeness and accuracy of the data used in the calculations, and assessed how well Qwest followed the PID in its calculations of the results. Liberty's general approach for its audit of the performance measures was to separate the analysis into two principal parts: i) examination of the validity of the data, and ii) recalculation of a sample of performance results.

As noted in Section I.C., the following measures are subject to a full audit:

- OP-5B: New Service Provisioning Quality
- MR-7: Repair Repeat Report Rate
- BI-1: Time to Provide Recorded Usage Records
- BI-3A: Billing Accuracy – Adjustments for Errors – UNEs and Resale
- NI-1: Trunk Blocking

Data Validation

The diagram below shows the principal data flow for most Qwest performance measures.



Qwest sends most data from its legacy source system to PANS or CDW.⁹ RRS extracts data daily from PANS or CDW to create rolling Ad Hoc files specific to a given measure or group of measures. At the same time, RRS calculates the derived fields or logic flags pertinent to the given measure. In order to calculate performance results, RRS creates from the rolling Ad Hoc files measure-specific monthly Ad Hoc files, containing the data relevant for the reporting month.

Liberty's objective for the data validation of those measures subject to a full audit was i) to ensure the completeness and accuracy of the data Qwest used to generate the reported results and ii) to calculate the QPAP payment requirements associated with the in-scope measures. In its data validation analysis, Liberty had the following general goals:

- Assess whether data collection from the source systems is sufficiently complete and accurate and whether Qwest ultimately inputs data into performance measurement and remedy payment calculations that appropriately follow the PID
- Assess whether Qwest performs data manipulations or calculations accurately and consistently with the PID
- Assess whether Qwest correctly calculates logic variables and derived values from the source data and correctly calculates values that use reference tables
- Assess whether Qwest accurately applies exclusions consistent with the PID and whether data excluded from results are readily identifiable.

In pursuing these goals, Liberty:

- Reviewed the documentation associated with each in-scope performance measure to determine the appropriate data to use in the calculations
- Obtained a high-level, general overview of the business processes and systems that generate the data used for the measure
- Reviewed the flows of data from source systems that directly feed PANS and RRS and from PANS to RRS¹⁰
- Reviewed the programming logic that Qwest uses to calculate the performance results
- Examined a sample of RRS transaction data for each measure, drawn from each of the original three Bell Operating Company Regions served by Qwest¹¹
- Examined the Master Files Qwest uses to calculate QPAP payments.

⁹ In some cases, Qwest pulls data directly into RRS from certain source systems or accepts files sent by FTP for manual measures.

¹⁰ Liberty notes that some of the measures subject to a full audit use data from Ad Hoc files created for other measures. Liberty did not review the logic for creating Ad Hoc files of any measures that was not subject to a full audit. In addition, Liberty did not review such logic if it had already done so as part of the 2004 ROC Audit.

¹¹ The original Bell Operating Company regions are the Eastern Region (former Northwestern Bell), consisting of Iowa, Minnesota, Nebraska, North Dakota, and South Dakota; the Central Region (former Mountain States Telephone), consisting of Arizona, Colorado, most of Idaho, Montana, New Mexico, Utah, and Wyoming; and the Western Region (former Pacific Northwest Bell), consisting of Oregon and Washington, and a portion of Idaho.

Replication

In addition to data validation, Liberty replicated results Qwest reported during 2005 for the measures subject to a full audit. Specifically, Liberty recalculated a sample of CLEC aggregate and individual CLEC results using state-specific data in the monthly Ad Hoc files for a single month to confirm that Qwest calculated them accurately. In most cases, Liberty chose to replicate the data from October 2005. However, in some cases, Liberty used a different month. For example, if Qwest introduced significant changes in the measure after October 2005, Liberty replicated the results for a month after the change was introduced in order to verify that Qwest implemented the change properly.¹² Liberty requested and received the Ad Hoc files and the relevant look-up tables for measures to be replicated for the replication month.¹³ Liberty used these files to complete its replication.

Liberty developed its own code for the replication based on the definition of the measure in the PID and replicated the CLEC aggregate results in all 14 states. Where appropriate, Liberty replicated a sample of the product disaggregations as defined by the PID, along with the retail analog for each wholesale product replicated. Additionally, Liberty replicated CLEC-specific results in each of the states, attempting to use a different CLEC with each state's replication in order to assure broad coverage. Liberty considered the measure result replication successful if Liberty could reproduce, with the available documentation and using reasonable interpretations of that documentation, the state-specific reported metric result in the replication month for the CLEC aggregate and for selected CLECs.

It is important to note that the purpose of the replication analysis is only to verify Qwest's calculations based on the processed data in the Ad Hoc files in which, as noted above, Qwest includes some calculated data and applies some exclusions. Therefore, Liberty's ability to successfully replicate Qwest's reported results does not guarantee the complete accuracy of these results if there are issues with the creation of the Ad Hoc files. Liberty examined the accuracy of the Ad Hoc files themselves through its data validation analysis of the full audit measures.

B. Measures Requiring a Partial Re-Audit

As noted in Section I.C., a number of measures included in the 2005 ROC Audit did not, for various reasons, require a full audit. There were principally three reasons for this:

- The measure was the subject of a recent full audit. However, since the time of that audit, Qwest introduced some changes to its reporting systems and processes that affect how the data were processed for the measure or how the measure is calculated.
- The measure was the subject of a recent full audit. However, that audit resulted in findings in response to which Qwest introduced modifications to its reporting systems and processes before the end of 2005.

¹² Because Qwest implemented some Billing changes in November and December 2005, Liberty performed some of the Billing replication on the November and December 2005 data.

¹³ Responses to Data Requests #175 through #182.

- The measure was specifically identified for audit as part of the audit provisions of the Colorado PAP (CPAP). This included all Tier 1A measures and any other measures contributing to 80 percent of the CPAP payments during 2005.¹⁴ The Staff of the Colorado PUC and the ROC Steering Committee concluded that, unless there were other audit requirements involving these measures, the 2005 ROC Audit would satisfy the CPAP requirement by limiting the audit of these measures to replication of the measure results from the Ad Hoc files, as described above in Section III.A., and replication of payments and verification of their receipt as described in Section IX. Moreover, the ROC Steering Committee also agreed to replicate the measures and the payments and to verify payment receipt in all 14 states.

Liberty performed a targeted audit of all measures requiring a partial re-audit. Given the diverse reasons for the partial re-audits, Liberty employed diverse audit approaches. In Sections IV through VIII, Liberty describes each measure included in the audit, either for a full audit or partial re-audit, outlines the specific audit process for each of these performance measures, and describes the results of its analysis.

C. Other Audit Items

Qwest also introduced some general changes in its reporting systems and process before the end of 2005 that are not specific to a single measure or group of measures but are within the scope of this audit. These include the following:

- QPAP-related items
 - a) Various QPAP system changes introduced since the last audits.
 - b) Status of QPAP-related findings from the 2004 ROC Audit
- Changes related to the introduction of Commercial Agreements
 - a) Changes to distinguish QPP from UNE-P
 - b) Changes to distinguish Commercial Line Sharing from Line Sharing
- Changes related to RRS
 - a) RRS system changes
 - b) RRS documentation findings from the 2004 ROC Audit
- Review of performance results changes in the Summary of Notes

The approach to the QPAP-related items is discussed in Section IX.

Liberty used the targeted examination of the specific measures that are within the scope of this audit (in-scope performance measures) to investigate the other three groups of audit items.

¹⁴ The CPAP Tier 1A measures include PO-5, PO-9B, OP-3, OP-4, OP-5A, OP-5B, OP-6, OP-7, OP-8, OP-13, OP-17, MR-3, MR-5, MR-6, MR-7, MR-8, MR-11, NI-1A, NI-1B, NP-1A, CP-1, CP-2, CP-3, and CP-4. In addition, the BI-1A (UNE-RESAGG), BI-3A (UNE-RESAGG), PO-2B (RES2-AGG) sub-measures also contributed to 80 percent of the CPAP payments during 2005 and thus Liberty will include them in the replication.

Although these items are associated with other measures whose targeted audit is outside the scope of the 2005 ROC Audit, the in-scope measures cover a wide range of measure types. Therefore, Liberty was able to perform a robust audit of these items through an examination limited to the measures that are specifically in scope.

In particular, for the changes related to Qwest's introduction of Commercial Agreements to replace products or unbundled elements that the FCC no longer requires to be provided under Section 251 of the Telecommunication Act, Liberty examined whether Qwest has properly excluded these products or elements from the measure results and QPAP payment calculations for each of the in-scope measures requiring more than replication of results.

Liberty assessed the impact of the RRS changes through the data integrity examination and replication of the in-scope measures. Liberty also reviewed the status of Qwest's responses to the 2004 ROC Audit RRS documentation findings for these measures.¹⁵

The fourth item resulted from 2004 CPAP Audit Recommendations II-R47, R49, R57, R64, and R67. In response to these recommendations, the Colorado PUC determined that "Qwest should populate and maintain a complete report of the changes to performance results in its Summary of Notes."¹⁶ To investigate whether Qwest had complied with the Colorado PUC order, Liberty examined all changes reported in the Summary of Notes for those measures subject to a full audit.¹⁷

¹⁵ Liberty also reexamined the documentation findings from the 2004 ROC Audit associated with the BI-4B sub-measure, which is not an in-scope measure for the 2005 ROC Audit.

¹⁶ Colorado Public Utilities Commission Order No. C0-1216 in Docket No. 02M-259T, October 10, 2006, Attachment A. The Colorado PUC decision regarding the Summary of Notes was related to several 2004 CPAP Audit Recommendations associated with measures (OP-3, OP-4, PO-9B, and MR-3) that are not subject to a full audit in the 2005 ROC Audit. However, the Colorado PUC decision provided a general directive to Qwest to assure complete reporting of changes in performance results. Reviewing the Summary of Notes during 2005 for those measures subject to a full audit allowed Liberty to test Qwest's process for reporting such changes.

¹⁷ Liberty determined that the changes in the Summary of Notes for 2005 associated with the measures subject to a full audit represent about 36 percent of the total and therefore constitute an excellent sample of the changes.

V. Pre-Order/Order (PO)

A. PO-1

1. Background

The PO-1 performance measure evaluates the timeliness of responses to specific preordering/ordering queries for CLECs through the use of Qwest's Operational Support Systems (OSS). CLECs access Qwest's OSS through the IMA- graphical user interface (GUI) and IMA-Electronic Data Interchange (EDI) gateway interfaces. PO-1 measures the time interval between query and response for pre-order/order transactions through the electronic interface. Qwest calculates the measure using a system that simulates the transactions of requesting pre-ordering/ordering information from the underlying existing OSS. Qwest processes these simulated transactions through the operational production interfaces and existing systems in a manner that reflects, in a statistically-valid manner, the transaction response times experienced by CLEC service representatives in the reporting period. The time interval between query and response measures the period from the time the CLEC sends a transaction request via the gateway interface to the time the CLEC receives the transaction response. Qwest defines a query as an individual request for the specified type of information. PO-1C and PO-1D measure other aspects of pre-order response times and are not the focus of this audit.

Qwest reports results on region-wide level, with no state specific results. Qwest reports its results as follows:

- PO-1A: Pre-Order/Order Response Time for IMA-GUI
- PO-1B: Pre-Order/Order Response Time for IMA-EDI

PO-1 lists rejected requests/errors and timed out transactions as the only exclusions. Qwest reports results separately for each of the following transaction types (with benchmarks listed):

- Appointment Scheduling: 10 seconds
- Service Availability Information: 25 seconds
- Facility Availability: 25 seconds
- Street Address Validation: 10 seconds
- Customer Service Records: 12.5 seconds
- Telephone Number: 10 seconds
- Loop Qualification Tools: 20 seconds
- Resale of Qwest Digital Subscriber Line (DSL) Qualification: 20 seconds
- Connecting Facility Assignment: 25 seconds
- Meet Point Inquiry: 30 seconds

The PID version 8.1 provides the following formula for the calculation of the PO-1A and PO-1B performance measure results:

$$\frac{\Sigma[(\text{Query Response Date \& Time}) - (\text{Query Submission Date \& Time})]}{(\text{Number of Queries Submitted in Reporting Period})}$$

The definition of PO-1 did not change during 2005.

The QPAPs of all 14 states includes PO-1.

2. Analysis and Evaluation

The scope of the 2005 ROC Audit required a partial re-audit of PO-1 based on a 2004 CPAP Audit recommendation. Responding to 2004 CPAP Audit Recommendation II-R73,¹⁸ the Colorado PUC decided that the IPUR should be reviewed for statistical validation.¹⁹ Qwest produces the IPUR, a report that reflects the mix of IMA transactions observed in the production environment, on a semi-annual basis. The IMA Response Time Measure (IRTM) process measures, and weights accordingly, every variation of every type of Interconnect Business Activities (IBA) pre-order transaction as reflected in the IPUR i) that occurs at a frequency of equal to or greater than five percent in production and ii) for which the total of "Percentage Observed in Production" values for its pre-order category is greater than 95 percent. Qwest uses the results of IPUR to determine which IMA transaction categories to measure in IRTM. Qwest then weights the resulting IRTM response time measurements for the PO-1 reports based on the IPUR production percentages. Qwest provided the IPUR report for the first half of 2005 that Qwest used for PO-1 reporting from July to December of 2005.²⁰

Liberty examined Qwest's detailed spreadsheets for October 2005 which contained weightings, number of observations, and response times for each variation of IBA pre-order transaction type that had a non-zero script weighting.²¹ Liberty confirmed that Qwest measured the proper IBA transaction types in IRTM simulations based on the IPUR provided. Liberty also confirmed that Qwest used the IPUR report to properly weight the IRTM transaction response times to ensure they reflect the mix of transactions observed in the production environment while calculating PO-1 results for October 2005. Qwest explained that IPUR does not have a relationship to the number of transactions sent to IMA by IRTM but IPUR does determine what subtypes of transactions are needed. Qwest updates the IPUR weightings every six months to ensure that IRTM mirrors actual production usage.²²

Because replication, as defined in Section III.A, is neither necessary nor appropriate for addressing the objectives of the PO-1 partial re-audit, Liberty did not attempt to replicate the PO-1 results.

¹⁸ NorthStar/Vantage's Final Report of Qwest's CPAP 2004 Annual Audit; March 3, 2006.

¹⁹ Colorado PUC Decision No. C06-1216A, Docket No. 02M-259T.

²⁰ Response to Data Request #20.

²¹ Responses to Data Requests #183 and #256.

²² Response to Data Request #275.

B. PO-2

1. Background

The PO-2 performance measure monitors the extent to which Qwest processes CLEC Local Service Requests (LSRs) electronically, focusing on the degree that electronically-transmitted LSRs flow directly to the service order processor without human intervention or without manual retyping. PO-2A, a diagnostic measure, calculates the percentage of all electronic LSRs that flow from the specified electronic gateway interface to the Service Order Processor (SOP) without any human intervention. PO-2B measures the percentage of all flow-through-eligible LSRs that flow from the specified electronic gateway interface to the SOP without any human intervention.

Qwest reports PO-2 separately for the IMA-Guided User Interface (IMA-GUI) (PO-2A-1 and PO-2B-1) and IMA-Electronic Data Interchange (IMA-EDI) (PO-2A-2 and PO-2B-2) interfaces. Qwest reports five product disaggregations for each of these sub-measures:

- Resale (PO-2B only)
- Unbundled Loops
- Local Number Portability
- Unbundled Network Element-Platform (UNE-P) Plain Old Telephone Service (POTS) and UNE-P (Centrex 21)
- Line Sharing.

Qwest reports the Line Sharing disaggregation as a diagnostic measure. The PID lists a standard of 95 percent for the other product types, except Unbundled Loops which has a standard of 85 percent

Version 8.1 of Qwest's 14-State 271 PID lists the following exclusions to PO-2:

- Rejected LSRs and LSRs containing CLEC-caused non-fatal errors
- Non-electronic LSRs (*e.g.*, via fax or courier)
- Records with invalid product codes
- Records missing data essential to the calculation of the measurement per the PID
- Duplicate LSR numbers
- Invalid start/stop dates/times.

The PID version 8.1 provides the following formula for the calculation of the PO-2A performance measure results:

[(Number of Electronic LSRs that pass from the Gateway Interface to the SOP without human intervention) ÷ (Total Number of Electronic LSRs that pass through the Gateway Interface)] x 100

The PID version 8.1 provides the following formula for the calculation of the PO-2B performance measure results:

$$[(\text{Number of flow-through-eligible Electronic LSRs that actually pass from the Gateway Interface to the SOP without human intervention}) \div (\text{Number of flow-through-eligible Electronic LSRs received through the Gateway Interface})] \times 100$$

The definition of PO-2 did not change during 2005.

The Colorado, Minnesota, New Mexico, and Washington QPAPs include PO-2.

2. Analysis and Evaluation

The scope of the 2005 ROC Audit required a partial re-audit of PO-2 based on a 2004 CPAP Audit recommendation, a 2004 ROC Audit finding, and the CPAP audit requirements.

Based on 2004 CPAP Audit Recommendation II-R58,²³ the Colorado PUC asked for a review of Qwest's RRS documentation to verify the correct calculation sequence for PO-2.²⁴ Qwest provided an updated version of RRS Chapter 10 highlighting the changes made.²⁵ Liberty confirmed that Qwest's documentation changes reflect the correct sequence used for the calculations of PO-2.

Liberty's 2004 ROC Audit Finding #3 noted that Qwest excluded LSRs with an "unknown state" from LSRs Rejected (PO-4A and PO-4B), which does not correspond to any valid exclusion documented in the PO-4 PID.²⁶ Because Qwest uses the PO-4 Ad Hoc file for other Pre-Order measures, Qwest's corrective actions for PO-4 also affected PO-2. Liberty reviewed the actions taken by Qwest to reduce the number of "invalid state" exclusions in the PO-4 record processing and ensured that those actions did not adversely affect the PO-2 processing. Qwest's actions dramatically reduced the number of records excluded per month for "invalid state" in PO-2 from an average of 79 for the first four months of 2005 to an average of 2 for the last eight months of 2005.²⁷ The PO-4 section provides more details about Liberty's 2004 ROC Audit Finding #3.

Liberty recalculated Qwest's individual, CLEC aggregate, and retail October 2005 reported results for each state to confirm that Qwest calculated them accurately. Liberty wrote its own code to perform its replication based on its interpretation of the PID. Using this code, Liberty recalculated the results for every disaggregation relevant to the QPAP for the measure PO-2, using the data found in the monthly Ad Hoc file.²⁸ Liberty calculated the numerators, denominators, results, and standard deviations, and compared its recalculated results with those

²³ NorthStar/Vantage's Final Report of Qwest's CPAP 2004 Annual Audit; March 3, 2006.

²⁴ Colorado PUC Decision No. C06-1216A, Docket No. 02M-259T.

²⁵ Response to Data Request #21.

²⁶ Liberty's Final Report on the Audit of Qwest's Performance Assurance Plans, October 28, 2005.

²⁷ Response to Data Request #213.

²⁸ Response to Data Request #179.

reported on Qwest's Summarized Master Table.²⁹ Liberty successfully replicated 100 percent of Qwest's state-specific reported metric results for measure PO-2.

C. PO-4

1. Background

The PO-4 performance measure monitors the extent to which LSRs are rejected as a percentage of all LSRs. Qwest calculates PO-4 to provide information which helps address potential issues that might be raised by the indicator of LSR rejection notice intervals (PO-3). PO-4 includes all LSRs that are rejected or receive a firm order confirmation (FOC) during the reporting period submitted through IMA-GUI (PO-4A), IMA-EDI (PO-4B), or received via facsimile (PO-4C). Standard reasons for rejections include i) missing, incomplete, mismatching, or unintelligible information; ii) duplicate request or LSR/purchase order number (PON); iii) no separate LSR for each account telephone number affected; iv) no valid contract; v) no valid end-user verification; vi) account not working in Qwest territory; vii) service-affecting order pending; viii) request outside established parameters for service; and ix) lack of CLEC response to Qwest question for clarification about the LSR.

PO-4 has no product disaggregations. Qwest further disaggregates PO-4A (IMA-GUI) and PO-4B (IMA-EDI) by reject type, manual reject (*i.e.*, PO-4A-1, PO-4B-1) or auto-reject (*i.e.*, PO-4A-2, PO-4B-2). PO-4C (LSRs received via facsimile) has no further disaggregations because only manual rejects are possible.

Qwest reports PO-4 results for CLEC aggregate and for individual CLECs on a monthly basis. Unlike most measures, Qwest reports PO-4A and PO-4B regionally rather than by state. However, Qwest reports PO-4C both regionally and by state. Qwest reports PO-4 as a diagnostic measure, thus it has no benchmark or parity comparisons.

Version 8.1 of Qwest's 14-State 271 PID lists the following exclusions to PO-4:

- Records with invalid product codes
- Records missing data essential to the calculation of the measurement as defined by the PID
- Duplicate LSR numbers
- Invalid start/stop dates/times.

The PID version 8.1 provides the following formula for the calculation of the PO-4 performance measure results:

²⁹ Response to Data Request #5.

*[(Total number of LSRs rejected via the specified method in the reporting period)
/ (Total of all LSRs that are received via the specified interface that were rejected
or FOC'd in the reporting period)] x 100.*

The definition of PO-4 did not change during 2005.

PO-4 is not included in the QPAP of any state participating in this audit.

2. Analysis and Evaluation

The scope of the 2005 ROC Audit required a partial re-audit of PO-4 based on a 2004 ROC Audit finding. Liberty's 2004 ROC Audit Finding #3 found that Qwest was excluding LSRs with an "unknown state" data entry from LSRs Rejected (PO-4A and PO-4B) which does not correspond to valid exclusions documented in the PO-4 PID.³⁰

As part of the PO-4 LSR record processing, Qwest excludes some records for "missing data essential to the calculation of the measurement per the PID."³¹ Qwest stated that invalid state (exclusion code 2), invalid CLEC ID (exclusion code 31), and missing CLEC ID (exclusion code 32) fall into that category. Qwest disaggregates a majority of its measures, including PO-4C, by state. However, because Qwest only reports PO-4A and PO-4B regionally, it should not require identification of the state for the calculation of the measure. Qwest uses the same code macro to determine an exclusion code 2 (invalid state) for all of its measures, including PO-4.

Qwest listed two circumstances in which an invalid state exclusion can occur: i) when a record contains a state code outside the Qwest 14-state local services operating region, and ii) when a record's state code cannot be determined. Liberty agrees that the former provides a valid reason for exclusion; however, Liberty believes that the latter does not. Often a CLEC using only a Circuit ID or Customer Facility Assignment (CFA) will result in an LSR with a state code that cannot be determined. In such a case, the LSR requires manual updating by a Customer Request Management (CRM) administrator in order to correct the state code.

Qwest provided a reference to ROC Technical Advisory Group (TAG) Workshop documentation that justifies excluding records with state entries from outside Qwest's regional territory. However, because Qwest processed and issued FOCs on many of the LSRs with unknown states and thus would appear to be in-region transactions, it does not seem appropriate to exclude these records from PO-4A and PO-4B, which are reported regionally.

Qwest had 1,406 records with an exclusion code 2 (invalid state) for calendar year 2004 for the PO-4 measure, a very small percentage (approximately 0.05 percent) of the overall volume. Although this had a negligible impact on the 2004 results, the impact could become more significant if changes to programming resulted in a higher number of unknown states.

³⁰ Liberty's Final Report on the Audit of Qwest's Performance Assurance Plans, October 28, 2005.

³¹ 14-State 271 PID Version 8.0.

In response to Liberty's 2004 ROC Audit Finding #3, Qwest indicated that it would take steps to reduce the number of "invalid state" exclusions. Since the 2004 ROC Audit, Qwest re-enforced the documented process to have the CRM administrator correct the state code in the CRM system when appropriate. Qwest also enhanced the CRM code to populate the state field when it is available from other sources.³² Liberty examined Qwest's updated CRM processing code and confirmed that Qwest's enhancements will populate the state field from other appropriate data when it is available.³³ Liberty also verified that Qwest successfully reduced the volume of inappropriate exclusions in the PO-4 calculations. Qwest reduced the number of exclusions per month from an average of 98 for the first four months of 2005 to an average of 10 for the last eight months of 2005.³⁴

PO-2, PO-3, PO-4, and PO-5 all use the same CRM Ad Hoc and code for the determination of state eligibility. Liberty's 2004 ROC Audit Finding #3 was specific to PO-4; however, Qwest's corrective actions extended to the other CRM-related measures. Liberty reviewed the actions taken by Qwest to reduce the number of "invalid state" exclusions in the PO-4 record processing and ensured that those actions did not adversely affect the processing of PO-2, PO-3, or PO-5.

Qwest inadvertently omitted PO-3 from the audit scope of applicable measures associated with Liberty's 2004 ROC Audit Finding #3. The number of LSRs excluded from calculations for PO-3 will not be the same as the count of LSRs excluded from PO-4. However, Qwest's actions have reduced the number of records excluded per month for "invalid state" in PO-3 from an average of 28 for the first four months of 2005 to an average of 8 for the last eight months of 2005.³⁵

Qwest's changes to this measure should not affect the calculation of results from the Ad Hoc files. Furthermore, Liberty successfully replicated the PO-4 results as part of the 2004 ROC Audit. Therefore, Liberty did not replicate PO-4 again as part of the 2005 ROC Audit.

D. PO-5

1. Background

The PO-5 performance measure monitors the timeliness with which Qwest returns FOCs to CLECs in response to LSRs/Access Service Requests (ASRs) received from CLECs, focusing on the degree to which Qwest returns the FOCs within specified intervals. PO-5 includes all LSRs/ASRs submitted through a specified interface or in the specified manner (*i.e.*, facsimile) that receive a FOC during the reporting period.

Qwest reports PO-5 at a statewide level. Qwest disaggregates PO-5 as follows:

- PO-5A-1: FOCs provided for fully electronic LSRs received via IMA-GUI

³² Response to Data Request #12.

³³ Response to Data Request #138.

³⁴ Response to Data Request #11.

³⁵ Response to Data Request #215.

- PO-5A-2: FOCs provided for fully electronic LSRs received via IMA-EDI
- PO-5B-1: FOCs provided for electronic/manual LSRs received via IMA-GUI
- PO-5B-2: FOCs provided for electronic/manual LSRs received via IMA-EDI
- PO-5C: FOCs provided for manual LSRs received via Facsimile.
- PO-5D: FOCs provided for ASRs requesting LIS Trunks.

Qwest further disaggregates each of the PO-5A, PO-5B and PO-5C measurements listed above as follows:

- FOCs provided for Resale services and UNE-P
- FOCs provided for Unbundled Loops and specified Unbundled Network Elements
- FOCs provided for local number portability (LNP).

PO-5 has the following benchmarks: i) PO-5A: 95 percent within 20 minutes, ii) PO-5B: 90 percent within standard FOC intervals, iii) PO-5C: 90 percent within standard FOC intervals, and iv) PO-5D: 85 percent within eight business days.

For PO-5A, Qwest measures the interval between the LSR received date/time (based on scheduled “up” time) and Qwest’s response with a FOC notification (date and time). For PO-5B, 5C, and 5D, Qwest measures the interval between the application date and time and the date and time of Qwest’s response with a FOC notification. “Fully electronic” LSRs are those i) that Qwest receives via IMA-GUI or IMA-EDI, ii) that involve no manual intervention, and iii) for which Qwest provides FOCs mechanically to the CLEC. Qwest defines “electronic/manual” LSRs as those that it receives electronically via IMA-GUI or IMA-EDI which involve manual processing. Qwest only measures ASRs in business days

Version 8.1 of Qwest’s 14-State 271 PID lists the following exclusions to PO-5:

- LSRs/ASRs involving individual case basis (ICB) handling based on quantities of lines, as specified in the “Standards” section below, or service/request types, deemed to be projects.
- Hours on weekends and holidays (except for PO-5A which only excludes hours outside the scheduled up time).
- LSRs with CLEC-requested FOC arrangements different from standard FOC arrangements.
- Records with invalid product codes.
- Records missing data essential to the calculation of the measurement per the PID.
- Duplicate LSR numbers.
- Invalid start/stop dates/times.
- For PO-5D only, records with invalid application or confirmation dates.

The PID version 8.1 provides the following formula for the calculation of the PO-5A performance measure results:

{[Count of LSRs for which the original FOC's "(FOC Notification Date & Time) - (LSR received date/time (based on scheduled up time))" is within 20 minutes] ÷ (Total Number of original FOC Notifications transmitted for the service category in the reporting period)} x 100

The PID version 8.1 provides the following formula for the calculation of the PO-5B performance measure results:

{[Count of LSRs/ASRs for which the original FOC's "(FOC Notification Date & Time) - (Application Date & Time)" is within the intervals specified for the service category involved] ÷ (Total Number of original FOC Notifications transmitted for the service category in the reporting period)} x 100

The definition of PO-5 did not change during 2005.

The QPAPs of all 14 states includes PO-5.

2. Analysis and Evaluation

The scope of the 2005 ROC Audit required a partial re-audit of PO-5 based on a 2004 ROC Audit finding and the CPAP audit requirements.

Liberty's 2004 ROC Audit Finding #3 found that Qwest excluded LSRs with an "unknown state" from LSRs Rejected (PO-4A and PO-4B) which does not correspond to valid exclusions documented in the PO-4 PID.³⁶ Because Qwest uses the PO-4 Ad Hoc file for other Pre-Order measures, Qwest's corrective actions for PO-4 also affect PO-5. Liberty reviewed the actions taken by Qwest to reduce the number of "invalid state" exclusions in the PO-4 record processing and ensured that those actions did not adversely affect the PO-5 processing. Qwest's actions dramatically reduced the number of records excluded per month for "invalid state" in PO-5 from an average of 79 for the first four months of 2005 to an average of 2 for the last eight months of 2005.³⁷ The PO-4 section provides more details about Liberty's 2004 ROC Audit Finding #3.

Liberty recalculated Qwest's individual, CLEC aggregate, and retail October 2005 reported results for each state to confirm that Qwest calculated them accurately. Liberty wrote its own code to perform its replication based on its interpretation of the PID. Using this code, Liberty recalculated the results for every disaggregation relevant to the QPAP for the measure PO-5, using the data found in the monthly Ad Hoc file.³⁸ Liberty calculated the numerators, denominators, results, and standard deviations, and compared its recalculated results with those

³⁶ Liberty's Final Report on the Audit of Qwest's Performance Assurance Plans, October 28, 2005.

³⁷ Response to Data Request #214.

³⁸ Response to Data Request #179.

reported on Qwest's Summarized Master Table.³⁹ Liberty successfully replicated 100 percent of Qwest's state-specific reported metric results for measure PO-5.

E. PO-6

1. Background

The PO-6 measure assesses the timeliness of Qwest's electronic notification to CLECs that provisioning work on all service orders comprising a CLEC LSR have been completed in the SOP and that the service is available to the customer. Qwest reports PO-6A for notices it transmits via the IMA-GUI, and reports PO-6B for notices it transmits via EDI. The PID lists the following exclusions:

- Records with invalid completion dates
- LSRs submitted manually (*e.g.*, via fax)
- ASRs submitted via Exchange Access Control & Tracking (EXACT).

Additionally, because Qwest bases its determination of timeliness on published Gateway Availability hours, the PID indicated that Qwest should exclude system downtime from the calculation.

The PID version 8.1 provides the following formula for PO-6A, Work Completion Timeliness for IMA-GUI:

Σ [(Date and Time Completion Notification made available to CLEC) – (Date and Time the last of the service orders that comprise the CLEC LSR is completed in the Service Order Processor)] / (Number of completion notifications made available in the reporting period).

The formula for PO-6B, Work Completion Timeliness for EDI, has slightly different wording:

Σ [(Date and Time Completion Notification transmitted to CLEC) – (Date and Time the last of the service orders that comprise the CLEC LSR is completed in the Service Order Processor)] / (Number of completion notifications transmitted in the reporting period).

Qwest reports PO-6 on a statewide basis for CLEC aggregate and individual CLECs. PO-6 lists a standard of six hours.

The notes section of the PID defines the time a notice is "made available" via the IMA-GUI as the time Qwest stores a status update related to the completion notice in the IMA Status Updates

³⁹ Response to Data Request #5.

database. At that point, the CLEC can immediately view the notice using the Status Updates window or by using the LSR Notice Inquiry function.

The definition of PO-6 did not change during 2005.

The QPAPs of all 14 states include PO-6.

2. Analysis and Evaluation

The scope of the 2005 ROC Audit required a partial re-audit of PO-6 based on a 2004 ROC Audit finding. Liberty's 2004 ROC Audit Finding #14 found that Qwest did not correctly calculate the Work Completion Notification Timeliness (PO-6) notification interval for orders originating in northern Idaho.⁴⁰

Qwest provisions service orders through three regional SOPs in each of its operating regions. In its Regional Service Order Repository (RSOR), Qwest captures data on orders received by the three SOPs: Regional Service Order Logistics and Reference (RSOLAR), Service Order Processing and Distribution (SOPAD), and Service Order Logistics and Reference (SOLAR). Qwest uses RSOLAR for the western region states of Washington, Oregon, and a small portion of northern Idaho, and records service order completion times in Pacific Time. Qwest uses SOPAD for the central region states of Arizona, Colorado, New Mexico, Montana, Utah, Wyoming, and most of Idaho, and records service order completion times in Mountain Time. Qwest uses SOLAR for the eastern region states of Iowa, Minnesota, North Dakota, South Dakota, and Nebraska, and records service order completion times in Central Time. Qwest uses the same SOP time stamp convention for each order from a state in a given region, regardless of the actual time zones in the state. While events in the SOPs are time-stamped differently depending upon the SOP, Qwest records notifications in Mountain Time, regardless of state.

Before RRS calculates the notification interval, it adjusts the service order completion times for the time zone differences for orders not recorded in Mountain Time. Qwest's program adds an hour to the service order completion time for those orders associated with LSRs recorded in Pacific Time.⁴¹ However, Qwest's program makes this adjustment for Washington and Oregon orders only, and makes no associated change for orders from the small northern portion of Idaho which RSOLAR also records in Pacific Time.

Because Qwest does not make the time zone adjustment in PO-6 for orders from northern Idaho, it calculates notification intervals for orders in this time zone as one hour longer than the actual notification intervals. Qwest acknowledged that it treated orders from northern Idaho as if they were from the central region (and thus in Mountain Time). Qwest investigated the impact of having Idaho orders processed by two different SOPs.⁴² Qwest found that of the 209 LSRs it reported for PO-6A for December 2004, 33 (or 15.8 percent) came from this northern portion of

⁴⁰ Liberty's Final Report on the Audit of Qwest's Performance Assurance Plans, October 28, 2005.

⁴¹ The program subtracts an hour from those orders recorded in Central Time.

⁴² Idaho is unique in that it is served by two different SOPs.

Idaho. Qwest found that of the 897 LSRs it reported for PO-6B for December 2004, 28 (or 3.1 percent) came from this portion of Idaho. As such, Qwest's actual performance for Idaho is slightly better than it reported.⁴³ For example, Qwest reported an average interval of 47 minutes for PO-6A for Idaho in December 2004. Liberty estimated that the average would drop to 37 minutes if Qwest removed the effect of the additional 33 hours of interval time (for the 33 northern Idaho LSRs).

To correct the issue, Qwest introduced a wire center look-up table in its SAS program to identify orders from northern Idaho beginning with the September 2005 data reported in October 2005. The code change identifies the impacted Idaho records and adds one hour to the start time, resulting in Qwest's calculating the intervals correctly using the Pacific time zone, not the Mountain time zone.⁴⁴ Liberty asked the company to provide the new program language and wire center look-up table.⁴⁵ The new program logic assigns a value in a Northern Idaho indicator field based on a comparison of the wire center on the order to the look-up table. The program then correctly adds one hour to the service order completion time for those orders with a "1" in the Northern Idaho indicator field. Liberty believes this change corrects the problem.

Liberty also reviewed the Ad Hoc data file and wire center look-up table that Qwest used to calculate the Idaho results for October 2005, and found that Qwest calculated the intervals correctly.⁴⁶ Liberty noted that two records in the Ad Hoc file had a blank wire center field. Qwest stated that the field remains blank when the system cannot determine the wire center from the central office code of the primary line. Qwest treats such records as not from Northern Idaho for the purposes of calculating intervals.⁴⁷ The records with a blank wire center field represented 0.3 percent of the data. Liberty finds Qwest's treatment of records with a blank field reasonable given the minimal possible effect on results.

Qwest provided a copy of its impact analysis to demonstrate that the impact on results was minimal, and stated that it did not rerun or produce a revised report of results.⁴⁸ Liberty successfully replicated the PO-6 results as part of the 2004 ROC Audit. Liberty is satisfied that Qwest's changes corrected the problem, and believes replication of 2005 results is not necessary to fulfill the goals and requirements of this audit.

⁴³ PO-6 has a standard of six hours. For December 2004, Qwest reported PO-6A results of 47 minutes, and PO-6B results of 1 hour and 45 minutes.

⁴⁴ Response to Data Request #57.

⁴⁵ Responses to Data Requests #315 and #316.

⁴⁶ Data provided in response to Data Request #316.

⁴⁷ Response to Data Request #354.

⁴⁸ Response to Data Request #317.

F. PO-7

1. Background

The PO-7 measure assesses the timeliness with which Qwest either makes electronic billing notifications available or transmits them to CLECs, focusing on the percentage of notifications Qwest makes available (for CLECs) or posts in the billing system (for Qwest retail) within five business days. Qwest reports PO-7A for notices it transmits via the IMA-GUI and reports PO-7B for notices it transmits via EDI. It reports PO-7C as billing system posting completions for retail. The PID lists the following exclusions for all three sub-measures:

- Services that are not billed through Customer Records Information System (CRIS) (*e.g.*, Resale Frame Relay)
- Records with invalid completion dates.

PO-7A and PO-7B have two additional exclusions:

- LSRs submitted manually
- ASRs submitted via EXACT.

The PID version 8.1 provides the following formula for PO-7A, Billing Completion Timeliness for IMA-GUI:

(Number of electronic billing completion notices in the reporting period made available within five business days of posting complete in the SOP) / (Total number of electronic billing completion notices made available during the reporting period).

The formula for PO-7B, Billing Completion Timeliness for EDI, has slightly different wording:

(Number of electronic billing completion notices in the reporting period transmitted within five business days of posting complete in the SOP) / (Total number of electronic billing completion notices transmitted during the reporting period).

The PID version 8.1 provides the following formula for PO-7C, the retail analog for PO-7A and PO-7B:

(Total number of retail service orders posted in the CRIS billing system in the reporting period that were posted within five business days) / (Total number of retail service orders posted in the CRIS billing system in the reporting).

Qwest reports PO-7A and PO-7B on a statewide basis for CLEC aggregate and individual CLECs, and reports PO-7C on a statewide basis for Qwest retail. The standard for PO-7A and PO-7B is parity with PO-7C.

The definition of PO-7 did not change during 2005.

The QPAPs of all 14 states include PO-7.

2. Analysis and Evaluation

The scope of the 2005 ROC Audit required a partial re-audit of PO-7 based on a 2004 ROC Audit finding. Liberty's 2004 ROC Audit Finding #23 found that Qwest did not include all eligible EDI billing notifications in the Billing Completion Notices for IMA-EDI (PO-7B) results.⁴⁹

The PO-7B sub-measure reports billing completeness notification timeliness for service orders associated with LSRs that Qwest receives via EDI. The PID specifies that the sub-measure applies to only those CLECs certified and set up to receive the notices via EDI. According to Qwest, during the December 2004 reporting period, only one CLEC subscribed to receive EDI billing completion notices. Qwest therefore reported state-specific results for only one CLEC, and the aggregate CLEC results for each state were the same as the individual CLEC results.

When Liberty reviewed the December 2004 PO-7 Ad Hoc file that Qwest used to calculate results, Liberty found that Qwest did not include all EDI records associated with the certified CLEC in its results. A large percentage of these EDI records had an exclusion code of 95, which Qwest's RRS program assigns when EDI has no available notification date. For example, of the CLEC's 518 EDI service orders in Arizona, 404 (or 78 percent) had the exclusion code of 95 and Qwest excluded them from its reported results.⁵⁰ Qwest could have inaccurate reported results for the PO-7B sub-measure because it fails to include a large percentage of eligible service orders.

Qwest found that it had an error in the process that merged data from the EDI flat files and files from the SOP. Previously, Qwest determined the notification date of EDI billing notifications reported in PO-7B by matching the notification date in two files: the EDI flat file and the EDI service order (SO) file. In cases where service order file date was properly populated but the date in the EDI flat file was blank, the programming logic considered the record ineligible and assigned an exclusion code of 95. Qwest modified the code to determine notification date using only the date in the SOP file effective with the September 2005 data reported in October 2005.⁵¹

Liberty asked Qwest to provide the new program language.⁵² Liberty reviewed it and found that Qwest had correctly added a logic step to determine the notification date using the date from the SOP file.

⁴⁹ Liberty's Final Report on the Audit of Qwest's Performance Assurance Plans, October 28, 2005.

⁵⁰ Liberty found similar percentages in other states. For example, Qwest excluded 409 of 528 EDI service orders in Minnesota (77 percent), and 431 of 644 EDI service orders in Oregon (67 percent).

⁵¹ Response to Data Request #58.

⁵² Data Request #318.

Liberty also reviewed the Ad Hoc data file that Qwest used to calculate the results for October 2005. Qwest stated that there was only one CLEC that was certified and set up to receive EDI billing completion notifications in October 2006.⁵³ Liberty found that the data, consisting of over 2,000 records, contained no records with an exception code of 95 and all records had a valid notification date. Qwest provided a copy of its impact analysis to demonstrate that the impact on results was minimal, and stated that no results were rerun or reported.⁵⁴

Liberty successfully replicated the PO-7 results as part of the 2004 ROC Audit. Liberty was satisfied that Qwest's changes corrected the problem, and believes replication of 2005 results was not necessary to fulfill the goals and requirements of this audit

G. PO-9B

1. Background

The PO-9 performance measure determines the extent to which Qwest notifies customers in advance of jeopardized due dates when it misses the original due dates. Specifically, Qwest measures the percentage of late orders for which it provides advance jeopardy notification. PO-9 includes all inward orders (*i.e.*, Change, New, and Transfer orders) assigned a due date by Qwest which Qwest completed/closed in the reporting period that missed the original due date. Change (C) order types included in this measurement consist of those C orders representing inward activity. Qwest counts as missed due date orders with jeopardy notifications provided on or after the original due date in the denominator of the formula but not in the numerator.

Qwest reports four product disaggregations:

- PO-9A: Non-Designed Services
- PO-9B: Unbundled Loops (with or without Number Portability)
- PO-9C: LIS Trunks
- PO-9D: UNE-P (POTS).

The PID lists a standard of parity with retail POTS for PO-9A, PO-9B and PO-9C. PO-9C has a standard of parity with Feature Group D (FGD) Services.

Version 8.1 of Qwest's 14-State 271 PID lists the following exclusions to PO-9:

- Orders missed for customer reasons
- Records with invalid product codes
- Records involving official company services
- Records with invalid due dates or application dates
- Records with invalid completion dates

⁵³ Response to Data Request #319.

⁵⁴ Response to Data Request #320 (clarification).

- Records with invalid product codes
- Records missing data essential to the calculation of the measurement per the PID.

The PID version 8.1 provides the following formula for the calculation of the PO-9 performance measure results:

$$\left[\frac{\text{Total missed due date orders completed in the reporting period that received jeopardy notification in advance of original due date}}{\text{Total number of missed due date orders completed in the reporting period}} \right] \times 100$$

The definition of PO-9 did not change during 2005.

The QPAPs of all 14 states include PO-9.

2. Analysis and Evaluation

The scope of the 2005 ROC Audit required a replication of the PO-9B measure results for October 2005. Liberty recalculated Qwest's individual, CLEC aggregate, and retail October 2005 reported results for each state to confirm that Qwest calculated them accurately. Liberty wrote its own code to perform its replication based on its interpretation of the PID. Using this code, Liberty recalculated the results for every disaggregation relevant to the QPAP for the measure PO-9B, using the data found in the monthly Ad Hoc file.⁵⁵ Liberty calculated the numerators, denominators, results, and standard deviations, and compared its recalculated results with those reported on Qwest's Summarized Master Table.⁵⁶ Liberty successfully replicated 100 percent of Qwest's state-specific reported metric results for measure PO-9B.

H. PO-15

1. Background

The PO-15 performance measure evaluates the extent to which Qwest changes due dates on orders. Specifically, Qwest measures the average number of Qwest due date changes per order. PO-15 includes all inward orders (*i.e.*, Change, New, and Transfer order types) for which Qwest has assigned a due date in the reporting period. PO-15 counts all due date changes made for Qwest reasons following assignment of the original due date. PO-15 has no disaggregations.

Version 8.1 of Qwest's 14-State 271 PID lists the following exclusions to PO-15:

- Customer requested due date changes
- Records involving official company services

⁵⁵ Response to Data Request #179.

⁵⁶ Response to Data Request #5.

- Records with invalid due dates or application dates
- Records with invalid product codes
- Records missing data essential to the calculation of the measurement per the PID.

The PID version 8.1 provides the following formula for the calculation of the PO-15 performance measure results:

$$\Sigma(\text{Count of Qwest due date changes on all orders}) \div (\text{Total orders in reporting period})$$

The definition of PO-15 did not change during 2005.

No state QPAPs include the PO-15 measure because the PID designates PO-15 as a diagnostic measure.

2. Analysis and Evaluation

The scope of the 2005 ROC Audit required a partial re-audit of PO-15 based on a change Qwest introduced since the last audit of this measure. Qwest improved its RRS process to identify Coordinated Access records not eligible for PAP reporting.⁵⁷ Qwest explained that Coordinated Access occurs when end-user customers request that their Inter-Exchange Carrier (IXC) facilitate their interLATA service order(s). The IXC acts on behalf of the end-user, who is billed directly by Qwest for the service. Qwest indicated that in its new process it excludes a record from PAP measurement results calculations when it identifies a record with a product code of 'DS0,' 'DS1,' or 'DS3' and an ACNA code of 'ZZZ.'⁵⁸ Qwest retains records that contain an ACNA equal to 'ZZZ' and a product code other than 'DS0,' 'DS1,' or 'DS3' and includes these records in its PAP report measurement results.⁵⁹

Qwest modified its code in the June 2005 release produced in July 2005 to include this method of identifying Coordinated Access orders.⁶⁰ Qwest stated that it did not rerun PO-15 results because "there would have been no material or meaningful impact upon results," noting that PO-15 is a diagnostic measure.⁶¹ Liberty agrees that because PO-15 is a diagnostic measure and not included in any QPAP payment calculation, a rerun is unnecessary to correct payments. Liberty investigated the conditions under which Qwest excludes a record with an ACNA code of 'ZZZ' and verified that the combination of the 'ZZZ' ACNA code and the product codes 'DS0,' 'DS1,' or 'DS3' indicates that the order was for a Coordinated Access service and thus appropriate to exclude. Liberty also reviewed the RRS coding changes implemented by Qwest to identify these records for exclusion from the PO-15 results calculation and verified that these changes are

⁵⁷ This action also impacts Qwest's calculation of the OP-3, OP-4, OP-6, and OP-15 measures.

⁵⁸ Responses to Data Requests #25, #149, and #258.

⁵⁹ Responses to Data Requests #149, #258, and #294.

⁶⁰ Responses to Data Requests #24 and #25.

⁶¹ Qwest comments on Liberty's Draft Final Report.

consistent with the intent to identify and exclude Coordinated Access order activity.⁶² Qwest indicated that because this method for Coordinated Access product identification is not a reportable product or service for PAP reporting, updates to the Pre-Ordering and Ordering and Provisioning sections of its RRS documentation were not required.⁶³

Based on the analysis of Qwest's changes to the PO-15 calculations, Liberty determined that replication of Qwest's results was not warranted.

I. PO-20

1. Background

The PO-20 measure evaluates the degree to which Qwest accurately processes those electronically-submitted CLEC LSRs that Qwest manually processes into Qwest service orders, based on mechanized comparisons of specified LSR-service order fields. The measure focuses on the percentage of manually-processed service orders considered accurate/error-free.

PO-20 includes only service orders created from CLEC LSRs that Qwest i) receives electronically via IMA-GUI or IMA-EDI and ii) manually processes in the creation of service orders, regardless of flow-through eligibility, subject to exclusions specified below.⁶⁴ PO-20 includes only service orders from the product reporting categories of Resale and UNE-P (POTS and Centrex 21) and Unbundled Loops⁶⁵ that request inward line or feature activity (Change, New, and Transfer order types), for which Qwest assigns a due date, and that Qwest completes/closes in the reporting period.

For the PO-20 measure, Qwest classifies an inward line service order as "accurate" and counts it in the numerator when the mechanized comparisons of this measurement determine that the fields specified in the Service Order Fields Evaluated section of the PID are all accurate on the service order. Qwest classifies an inward feature service order as "accurate" if the fields specified in the Service Order Fields Evaluated section of the PID are all accurate on the service order and if no CLEC notifications to the call center have generated call center tickets coded to "LSR/SO mismatch" for that order. Qwest checks for call center tickets for 30 days following the completion data of the service order. Qwest counts service orders as accurate if the contents of the relevant fields, as recorded in the completed service orders involved in provisioning the service, properly match or correspond to the information from the specified fields as provided in the latest version of associated LSRs. Qwest will count service orders generated from LSRs receiving a Provider Initiated Activity (PIA) value as accurate if each and every mismatch has a correct and corresponding PIA value. Qwest does not, however count service orders, including

⁶² Response to Data Request #294.

⁶³ Response to Data Request #25.

⁶⁴ To be included in the measurement, Service Orders created from CLEC LSRs must be received and completed in the same version of IMA-GUI or IMA-EDI.

⁶⁵ Includes Analog and Non-Loaded 2/4 wire, DS1 Capable, DS3 and higher Capable, ADSL Compatible, XDSL-I Capable, and ISDN-BRI Capable.

those otherwise considered accurate under the above-described mechanized field comparison, as accurate if Qwest corrects errors in its service order(s) as a result of contacts received from CLECs no earlier than one business day prior to the original due date.

Qwest began to incorporate the current version of PO-20 into its QPAPs in late 2004. Versions 5.0a through 7.0 of Qwest's 14-State 271 PID did not contain PO-20. Version 8.1 lists the following exclusions to PO-20:

- Service orders that are the subject of call center tickets counted in OP-5B and OP-5T as having new service problems attributed to service order errors
- Cancelled service orders
- Service orders that cannot be matched to a corresponding LSR
- Records missing data essential to the calculation of the measurement per the PID.

The PID version 8.1 provides the following formula for the calculation of the PO-20 results:

$$[(\text{Number of accurate evaluated Service Orders}) / (\text{Number of evaluated Service Orders completed in the reporting period})] \times 100.$$

Qwest implemented PO-20 in phases:

- Phase 0,⁶⁶ the first version of PO-20, used sampling of limited fields. It was available through July 2004 with a benchmark of 97 percent.
- Phase 1⁶⁷ began the mechanized comparison of fields for LSR received via IMA version 15.0 or higher. The PID lists 29 LSR data fields to be evaluated for accuracy. Phase 1 was in effect from August 2004 through November 2004 with a benchmark of 96 percent.
- Phase 2 added more fields for comparison. The PID lists four additional LSR data fields to be evaluated. It was in effect from December 2004 with a benchmark of 95 percent.
- Phases 3 and 4 add still more fields to be evaluated for the 2005 timeframe. The benchmark will remain at 95 percent for Phases 3 and 4.

Qwest reports the results for PO-20 one month in arrears (*i.e.*, results first appear in reports one month later than the results for other measures not reported in arrears) in order to exclude service orders with call center tickets counted in OP-5B and OP-5T (*i.e.*, those with new service problems attributed to service order errors). As such, for example, Qwest reports service orders completed in October 2005 with the November 2005 PO-20 results. Qwest reports results at an individual statewide level for each of the 14 states in the Qwest service area. It also reports results at a regional level. Qwest reports results for CLEC aggregate and individual CLECs.

PO-20 has a standard of 95 percent beginning with the implementation of Phase 3.

⁶⁶ Also referred to in the PID as PO-20(Old).

⁶⁷ Phase 1 consists of all manually-processed qualifying Service Orders per product reporting category from throughout Qwest's 14-state local service region.

The definition of PO-20 did not change during 2005.

During 2005, QPAPs of all states except Minnesota and North Dakota included PO-20.

2. Analysis and Evaluation

The scope of the 2005 ROC Audit required a partial re-audit of PO-20 based on changes due to Qwest's implementation of Phases 3 and 4 for this measure and five 2004 ROC Audit findings. Because of the implementation of Phases 3 and 4 and the many changes to PO-20 since Liberty's 2004 ROC Audit, Liberty replicated PO-20 again in 2005.

Implementation of Phases 3 and 4.

During its 2004 ROC Audit, Liberty performed a full audit on the PO-20 performance measure.⁶⁸ At the time, Qwest had only implemented Phase 1 and Phase 2 as described in the PID definition. Qwest first included Phase 3 in its January 2005 results published in February 2005, and Phase 4 in May 2005 results published in June 2005.⁶⁹ Qwest confirmed that the data flows from the source systems to PANS and from PANS to RRS, which Liberty examined during its 2004 ROC Audit, did not change any time in 2005.⁷⁰

Liberty examined Phase 3 and 4 changes to the process, including the Service Order Validation (SOV) code, and the code used by RRS on a daily basis to extract SOV-based source data from PANS and the data pulled from other sources. Changes to the SOV logic for Phase 3 focused on the addition of a mechanized comparison for the Blocking Type field. Changes to the SOV logic for Phase 4 focused on the addition of a mechanized comparison for the Desired Frame Due Date, Desired Due Date, Listed Telephone Number, Letter Name Placement, and Feature Details fields.⁷¹ Qwest's RRS code logic required minimal changes to accommodate Phase 3 and Phase 4 for PO-20. For each phase, Qwest simply defined the set of SOV error codes to be considered for each record's pass/fail status. Each new phase added more error codes to the calculation.⁷²

For the data integrity review of PO-20 Phase 3 and 4, Liberty focused on the October 2005 PO-20 Ad Hoc file that Qwest used for the calculation of the PO-20 performance measure results.⁷³ Liberty reviewed sample transactions for each of the two product categories reported under this performance measure. Liberty used the Ad Hoc file to draw sample transactions from each of the original three Bell Operating Company Regions served by Qwest. Liberty reviewed the data fields necessary for the calculation of PO-20 results specific to Phase 3 and 4 that RRS adds to the transaction during the creation of the Ad Hoc files. Because the Ad Hoc files contain both original and derived data fields, Liberty used the original data fields in the monthly Ad Hoc files

⁶⁸ Liberty's Final Report on the Audit of Qwest's Performance Assurance Plans, October 28, 2005.

⁶⁹ Response to Data Request #13.

⁷⁰ Response to Data Request #101.

⁷¹ Response to Data Request #216.

⁷² Response to Data Request #217.

⁷³ Responses to Data Requests #218 and #360.

to validate the derived data fields. Liberty validated that Qwest derived the data and information contained in these added fields correctly from the source data. Based on this analysis, Liberty believes Qwest successfully implemented Phase 3 and Phase 4 for PO-20.

2004 ROC Audit Finding #9

Liberty's 2004 ROC Audit Finding #9 found that Qwest did not implement a requirement of the Manual Service Order Accuracy (PO-20) PID that service orders created from CLEC LSRs must be received and completed in the same version of IMA-GUI or IMA-EDI.⁷⁴

Note 1 of the PID for PO-20 states that to be included in the measurement, service orders created from CLEC LSRs must be received and completed in the same version of IMA-GUI and IMA-EDI. Qwest intended Note 1 to be effective for PO-20 Phase 1 and beyond.

Based on a subset of PO-20 data from December 2004, Liberty estimated that approximately four percent of the records should have been excluded from the results. That amount likely varies in other months, particularly when Qwest implements an IMA release during the month.

Qwest implemented a code change to only count orders in PO-20 created from CLEC LSRs received and completed in the same version of IMA-GUI or IMA-EDI. The PO-20 source data provides the IMA versioning information required to identify whether the LSR was received and completed within the same version of IMA-GUI or IMA-EDI. The "PON Version ID" field indicates what version of IMA the CLEC used to submit the original LSR. The "Client Version ID" field indicates either the IMA version of the original LSR or a supplement to the original LSR submitted in the same version or a different version of IMA. The "Current Version ID" field indicates the version of IMA a CLEC uses when the LSR is completed. The new code reviews these three fields and if one of the three fields indicates a different version of IMA, then Qwest excludes the order from the PO-20 results.⁷⁵ Liberty reviewed the coding changes Qwest made to count only those PO-20 orders created from CLEC LSRs that Qwest received and completed in the same version of IMA-GUI or IMA-EDI.⁷⁶ Liberty verified that the changes properly excluded the appropriate records using PO-20 Ad Hoc data.⁷⁷ Liberty also reviewed Qwest's impact analysis to verify that it performed results reposting properly. Qwest's analysis confirmed that the change had minimal impact on results and thus, Qwest made the coding change going forward with no reposting of results necessary.⁷⁸ Liberty believes this finding to be successfully resolved.

⁷⁴ Liberty's Final Report on the Audit of Qwest's Performance Assurance Plans, October 28, 2005.

⁷⁵ Response to Data Request #14.

⁷⁶ Response to Data Request #139.

⁷⁷ Response to Data Request #218.

⁷⁸ Responses to Data Requests #140, #184, and #204.

2004 ROC Audit Finding #11

Liberty's 2004 ROC Audit Finding #11 found that Qwest omitted the UNE-P (Centrex 21) product from the Manual Service Order Accuracy (PO-20) results beginning with the December 2004 reporting month.⁷⁹

The PO-20 PID lists two product reporting categories:

- Resale and UNE-P (POTS and Centrex 21)
- Unbundled Loops (Analog and Non-Loaded 2/4-Wire, DS1 Capable, DS3 and higher Capable, Asynchronous Digital Subscriber Line (ADSL) Compatible, XDSL-I Capable, Integrated Services Digital Network -Basic Rate Interface (ISDN-BRI) Capable).

When implementing the code changes to exclude products included in the QPP commercial agreements (QPP_POTS, QPP_CTX21), Qwest omitted UNE-P (Centrex 21) products not part of the commercial agreements. Qwest should, however, have included these in the Resale and UNE-P (POTS and Centrex 21) reporting category. Liberty noted that Qwest properly included the UNE-P (POTS) product in the results for this reporting category.

In its evaluation of PO-20 data from December 2004, Liberty calculated that Qwest omitted 104 service order records (about one percent) from the regional results, 102 of which would be considered accurate (*i.e.*, counted in the numerator). The majority of the omitted records were concentrated in Minnesota (49) and South Dakota (27). Even if Qwest had included all the records, it would not have affected any state's pass/fail status for the December 2004 reporting month. Liberty believes there may, however, be circumstances in which the effect could be greater in other months or for an individual CLEC.

Qwest agreed with the finding and corrected the code to include the Centrex 21 product in the PO-20 results beginning with the June 2005 data reported in August 2005. Qwest investigated the impacts of the finding for the most recent month of April 2005 and found that it did not warrant a restatement of the PO-20 results.

Qwest implemented a code change to properly include the Centrex 21 product beginning with the July 2005 results reported in August 2005.⁸⁰ Liberty reviewed the coding changes Qwest made to properly include the UNE-P (Centrex 21) product in the PO-20 results.⁸¹ Liberty also verified the changes using PO-20 Ad Hoc data.⁸² Additionally, Liberty reviewed Qwest's impact analysis to verify that it performed results reposting properly. Qwest's analysis confirmed that the difference before the change and after did not meet the threshold to re-run historical data.⁸³ Liberty believes this finding to be successfully resolved.

⁷⁹ Liberty's Final Report on the Audit of Qwest's Performance Assurance Plans, October 28, 2005.

⁸⁰ Response to Data Request #15.

⁸¹ Response to Data Request #141.

⁸² Response to Data Request #218.

⁸³ Response to Data Request #142.

2004 ROC Audit Finding #19

Liberty's 2004 ROC Audit Finding #19 found that the SOV logic allowed some non-inward activity service orders to be included in the calculation of the Manual Service Order Accuracy (PO-20) performance measure.⁸⁴

The PO-20 PID language specifies that Qwest only include service orders with inward line or feature activity (*i.e.*, Change, New, and Transfer orders) in the measurement.

During its review of the December 2004 PO-20 Ad Hoc file, Liberty discovered a service order that Qwest should not have included in PO-20 results because it was not an order for inward activity. According to Qwest's process, partial disconnects often result in a C order when they actually represent retail disconnect activity. In this case, there was a partial conversion of a retail account to wholesale products. The order completed with no SOV-identified mismatches. Qwest included the record as an accurately processed service order, when it should not have included it in the results for PO-20.

SOV reviewed the C order for outward activity due to a flaw in the SOV logic relating to partial conversions in which C and New (N) orders are issued rather than Disconnect (D) and N orders. The existing SOV logic could not determine that the C order reflected outward activity because it contained both change (actually partial disconnect) and transfer activity, criteria that SOV uses to determine inward activity.

Liberty found only one order of this type using a non-random sample of the December 2004 PO-20 Ad Hoc files during its data validation activities. Liberty found this type of order difficult to identify and, consequently, difficult to quantify. Liberty also found the proper removal of these records from the PO-20 measure calculation unlikely to have a significant effect on the results (unless the actual number of records is a significantly higher percentage than the sample showed) because both the numerator and denominator would be affected on a measure that has a high success rate.

Qwest stated that it implemented the final change to the SOV logic to remove the C orders with outward activity from PO-20 on July 9, 2005. Qwest believes that PO-20 data, as of July 11, 2005, should not contain any C orders with only outward activity. Qwest did not rerun prior months' results because the SOV logic changes cannot be applied to service orders that completed before the code updates came into effect. Therefore, a manual review of all C orders to identify those orders that contain only outward activity would be required.⁸⁵

Liberty reviewed the significant coding changes undertaken by Qwest to properly exclude non-inward activity service orders from the PO-20 performance measure results.⁸⁶ Liberty found it technically infeasible to review Qwest service orders in search of this condition.

⁸⁴ Liberty's Final Report on the Audit of Qwest's Performance Assurance Plans, October 28, 2005.

⁸⁵ Response to Data Request #16.

⁸⁶ Response to Data Request #143.

During Qwest's efforts to correct this issue, it discovered that the last piece of SOV logic implementation did not address another scenario. Specifically, for a partial conversion from a POTS line to a Market Expansion Line (MEL), Qwest's SOV logic does not properly exclude activity with Out Telephone Number (OTN) and C and T (transfer) action. When Qwest implemented the last piece of SOV logic, Qwest did not apply it to MEL Universal Service Order Codes (USOCs). As a result, Qwest includes this type of service order in PO-20 results when it should be excluded. Given the low observed volumes and the low risk of significant impact associated with this conversion activity, Qwest believes that further modification of the SOV logic is not warranted nor is it a wise use of resources.⁸⁷ Thus, Qwest currently has no plans to modify SOV logic.⁸⁸ Liberty agrees with Qwest.⁸⁹

2004 ROC Audit Finding #21

Liberty's 2004 ROC Audit Finding #21 found that Qwest personnel improperly issued some SOV error code overrides that may have resulted in the inaccurate reporting of the Manual Service Order Accuracy (PO-20) performance results.⁹⁰

Qwest personnel review the output of the SOV results prior to service order completion and have the opportunity to correct service order errors. Some authorized personnel can issue an error code override due to special circumstances within the order that justify the mismatch identified by the SOV. Qwest implemented this process because it found that the SOV program was not sophisticated enough to handle every situation. Qwest identified a number of situations in which it considers an override justified. If the Qwest personnel override all error codes for an order, it counts as an accurate order for reporting purposes.

During a review of a sample of service orders containing SOV error codes with manual overrides, Qwest and Liberty identified a number of examples of improper error code overrides caused by human error. Qwest improperly counted the service orders as accurate in PO-20 processing. In fact, these were legitimate LSR/SO mismatches that Qwest had not corrected. The reporting software assumes the overrides are correct, and treats the corresponding service orders as accurate in calculating PO-20.

Using the non-random sample of SOV records from Liberty's validation work, there were 35 service order records with error code overrides. Of these, Qwest overrode 26 for legitimate reasons. Additionally, eight orders with nine examples of improper overrides could be classified as human error (one order had two unrelated improper overrides).⁹¹ Orders of this type would degrade Qwest's PO-20 performance if properly counted as misses.

⁸⁷ Response to Preliminary Finding #1,

⁸⁸ Response to Data Request #16.

⁸⁹ Liberty withdrew Preliminary Finding #1, which was related to this issue.

⁹⁰ Liberty's Final Report on the Audit of Qwest's Performance Assurance Plans, October 28, 2005.

⁹¹ One other service order was the subject of an improper override due to a process problem. See Liberty 2004 ROC Audit Finding #20.

In Qwest's December 2004 PO-20 Ad Hoc file, 2.3 percent of the records contained SOV-identified mismatches with error code overrides. Based on the non-random sample reviewed, a significant percentage of these overrides were probably not valid.

Qwest agreed that human error caused the invalid error code overrides, but it believed that the volume of such errors now fell within reasonable and acceptable ranges. Qwest also believed that its error code override processing significantly improved in 2005 because its personnel had more experience with the process and Qwest had implemented quality initiatives. Qwest also reiterated that Liberty did not use a random sample and more analysis was needed to determine the true impact to the PO-20 results. Qwest noted that "[a]t a minimum Qwest performs evaluations on 100% of a day's overrides monthly."⁹² If time permits, Qwest evaluates overrides as often as weekly. Qwest monitors overrides each day in addition to the formal override evaluations with feedback provided to Interconnect Service Center (ISC) supervisors for front-line training and performance improvement purposes.⁹³

Liberty reviewed a sample of manual service orders with SOV error code overrides, including several orders containing error codes from Phase 3 and Phase 4.⁹⁴ Liberty confirmed that the majority of overrides were justified, even though Liberty designed the sample to look at a wide variety of error types. Qwest still improperly overrides error codes on occasion; however, Liberty found Qwest's performance much improved since the 2004 ROC Audit. Qwest provided additional statistics to further demonstrate that its handling of overrides has improved. Qwest's study using October 2005 error override evaluations reflects proper overrides 97 percent of the time⁹⁵ Liberty believes that Qwest should continue to self-monitor and evaluate the error code override process and continue to provide feedback to personnel performing overrides. The override activity will continue to be prone to human error and each improper override artificially improves Qwest's PO-20 results.

2004 ROC Audit Finding #22

Liberty's 2004 ROC Audit Finding #22 found that Qwest software did not properly include all appropriate call center tickets resulting in the inaccurate reporting of the Manual Service Order Accuracy (PO-20) performance results.⁹⁶

Qwest classifies a service order as accurate if SOV determines that all fields are accurate⁹⁷ and if no CLEC notifications to the call center have generated call center tickets coded to LSR/service order mismatch. The Regulatory Reporting software checks any CLEC notification to the Qwest call center that results in the generation of a call center ticket coded to LSR/service order mismatch for matching records in the PO-20 Ad Hoc file. If it identifies a matching service order record within the previous 30 days, Qwest should not count that service order as accurate.

⁹² Response to Data Request #17.

⁹³ Response to Data Request #17.

⁹⁴ Responses to Data Requests #218 and #361

⁹⁵ Responses to Data Requests #17 and #361.

⁹⁶ Liberty's Final Report on the Audit of Qwest's Performance Assurance Plans, October 28, 2005.

⁹⁷ Subject to error code overrides or Provider Initiated Activities (PIAs).

As part of data integrity testing during the 2004 ROC Audit, Liberty reviewed a sample of call center tickets to confirm that Qwest properly included all eligible matching call center tickets in the PO-20 Ad Hoc file. Liberty identified a call center ticket that Qwest improperly omitted. For this particular ticket, the state field was not populated. The service order record that matched the ticket should have been counted as inaccurate in PO-20 reporting. Liberty believes this circumstance to be rare as it found that all other eligible call center tickets provided by Qwest for December 2004 and January 2005 had the state field populated and were properly processed in the December 2004 PO-20 Ad Hoc file.

In response, Qwest stated that it agreed with Liberty's finding. Qwest determined that of the 1,425 eligible call center tickets in 2005, a total of 9 tickets or 0.01 percent had a blank state code. Qwest attributed the blank state code to an invalid telephone number being entered during creation of the call center tickets. Qwest investigated the improperly omitted call center ticket and found the code used to match the call center tickets did not match correctly when the call center ticket state code was blank.

Qwest enhanced the code by merging call center ticket data back with the SOV records to populate the blank state code. According to Qwest, all call center tickets should have a state code and by definition not be excluded from PO-20 as of the August 2005 results reported in September 2005.⁹⁸ Liberty reviewed the coding changes Qwest made to properly include all appropriate call center tickets in PO-20 results.⁹⁹ Liberty verified the changes using PO-20 Ad Hoc data and found that Qwest properly included all call center tickets.¹⁰⁰ Liberty believes this finding to be successfully resolved.

Replication

Liberty recalculated Qwest's individual, CLEC aggregate, and retail October 2005 reported results for each state to confirm that Qwest calculated them accurately. Liberty wrote its own code to perform its replication based on its interpretation of the PID. Using this code, Liberty recalculated the results for every disaggregation relevant to the QPAP for the measure PO-20, using the data found in the monthly Ad Hoc file.¹⁰¹ Liberty calculated the numerators, denominators, results, and, where applicable, standard deviations, and compared its recalculated results with these calculations with those reported on Qwest's Summarized Master Table.¹⁰² Liberty successfully replicated 100 percent of Qwest's state-specific reported metric results for measure PO-20.

⁹⁸ Response to Data Request #18.

⁹⁹ Response to Data Request #144.

¹⁰⁰ Response to Data Request #218.

¹⁰¹ Response to Data Request #218.

¹⁰² Response to Data Request #5.

VI. Ordering and Provisioning (OP)

A. OP-3

1. Background

The OP-3 performance measure evaluates the extent to which Qwest installs services for customers by the scheduled due date by reporting the percentage of orders for which the scheduled due date is met.

OP-3 measures all inward orders (*i.e.*, Change, New, and Transfer order types) that Qwest assigned a due date and completed/closed during the reporting period. Change order types included in this measurement consist of all C orders representing inward activity. OP-3 also includes orders with customer-requested due dates longer than the standard interval. OP-3 counts as met any completion date on or before the Applicable Due Date recorded by Qwest. OP-3 defines the Applicable Due Date as the original due date or, if changed or delayed by the customer, the most recently revised due date. If Qwest changes a due date for Qwest reasons, the Applicable Due Date becomes the customer-initiated due date, if any, that is i) subsequent to the original due date and ii) prior to a Qwest-initiated, changed due date, if any.

Qwest disaggregates OP-3 into the following sub-measures:

- OP-3A: Dispatches within Metropolitan Statistical Areas (MSAs)
- OP-3B: Dispatches outside MSAs
- OP-3C: No Dispatches
- OP-3D: In Interval Zone 1 areas
- OP-3E: In Interval Zone 2 areas.

The OP-3A, OP-3B, and OP-3C sub-measures report on products that have an MSA-type disaggregation. The OP-3D and OP-3E sub-measures report on products that have a Zone-type disaggregation.¹⁰³ The OP-3 sub-measures combined report on over 30 product disaggregations. The PID defines most of the standards as parity with the retail product equivalent but defines some products as having a benchmark standard or as being a diagnostic measure.¹⁰⁴

Qwest reports OP-3 for CLEC aggregate, individual CLECs, and Qwest retail. Qwest reports results at an individual statewide level for each of the 14 states in the Qwest service area, as well as at a regional level reflecting the 14-state aggregate results.

¹⁰³ Qwest disaggregates designed service products by Zone and non-design products by MSA.

¹⁰⁴ Qwest shows seven products as having a benchmark standard: Line Splitting, Line Sharing, Analog Loop, Non-Loaded 2-Wire Loop, xDSL Capable Loop, Loops with Conditioning, and Enhanced Extended Loop (EEL) – DS1. Qwest shows three products as being diagnostic: Loop Splitting, Dark Fiber – Interoffice Facilities (IOF) and Dark Fiber – Loop. Additionally, Qwest has three products that it reports as diagnostic in all states but one, where it is reported as a benchmark standard: Sub-Loop Unbundling (benchmark in Colorado), and EEL-DS0 and EEL- DS3 (benchmark in Minnesota).

Version 8.1 of Qwest's 14-State 271 PID lists the following exclusions for OP-3:

- Disconnect, From, and Record order types
- Due dates missed for standard categories of customer and non-Qwest reasons. The PID defines standard categories of customer reasons as: previous service at the location did not have a customer-requested disconnect order issued, no access to customer premises, and customer hold for payment. Standard categories of non-Qwest reasons are: Weather, Disaster, and Work Stoppage.
- Records involving official company services
- Records with invalid due dates or application dates
- Records with invalid completion dates
- Records with invalid product codes
- Records missing data essential to the calculation of the measurement.

The PID version 8.1 provides the following formula for the calculation of the OP-3 performance measure results:

$$\left[\frac{\text{Total Orders completed in the reporting period on or before the Applicable Due Date}}{\text{Total Orders Completed in the Reporting Period}} \right] \times 100$$

The definition of OP-3 did not change during 2005.

The QPAPs of all 14 states include OP-3.

2. Analysis and Evaluation

The scope of the 2005 ROC Audit required a partial re-audit of OP-3 based on a change Qwest has made since the last audit of this measure, two 2004 ROC Audit findings, and the CPAP audit requirements.

Liberty's 2004 ROC Audit Finding #4 found that Qwest did not include all products that should roll up to the "DS3 and Above" product disaggregation when calculating the OP-5A sub-measure.¹⁰⁵ This finding also affected Qwest's calculation of the OP-3, OP-4, OP-6, and OP-15 measure results. Please refer to the OP-5A section of this document for more details on Liberty's 2004 ROC Audit Finding #4 and its analysis of Qwest's response to the finding.

Liberty's 2004 ROC Audit Finding #7 found that Qwest did not use the correct retail product as the parity standard for the wholesale "Non-Loaded 2-Wire Loop" product disaggregation when calculating the OP-5A sub-measure.¹⁰⁶ This finding also impacted Qwest's results calculation of the OP-3, OP-4, OP-6, and OP-15 measures. Please refer to the OP-5A section of this document

¹⁰⁵ Liberty's Final Report on the Audit of Qwest's Performance Assurance Plans, October 28, 2005.

¹⁰⁶ Liberty's Final Report on the Audit of Qwest's Performance Assurance Plans, October 28, 2005.

for more details on Liberty's 2004 ROC Audit Finding #7 and its analysis of Qwest's response to the finding.

Qwest improved its RRS process to identify Coordinated Access records not eligible for PAP reporting.¹⁰⁷ Qwest explained that Coordinated Access occurs when end-user customers request that their IXC facilitate their interLATA service order(s). The IXC acts on behalf of the end-user, who is billed directly by Qwest for the service. Qwest indicated that in its new process it excludes a record from PAP measurement results calculations when it identifies a record with a product code of 'DS0,' 'DS1,' or 'DS3' and an ACNA code of 'ZZZ.'¹⁰⁸ Qwest retains records that contain an ACNA equal to 'ZZZ' and a product code other than 'DS0,' 'DS1,' or 'DS3' and includes these records in its PAP report measurement results.¹⁰⁹

Qwest modified its code in the June 2005 release produced in July 2005, with a rerun back to December 2004, to include this method of identifying Coordinated Access orders.¹¹⁰ Liberty investigated the conditions under which Qwest excludes a record with an ACNA code of 'ZZZ' and verified that the combination of the 'ZZZ' ACNA code and the product codes 'DS0,' 'DS1,' or 'DS3' indicates that the order was for a Coordinated Access service and thus appropriate to exclude. Liberty also reviewed the RRS coding changes implemented by Qwest to identify these records for exclusion from the OP-3 results calculation and verified that these changes are consistent with the intent to identify and exclude Coordinated Access order activity.¹¹¹ Qwest indicated that because this method for Coordinated Access product identification is not a reportable product or service for PAP reporting, updates to the Pre-Ordering and Ordering and Provisioning sections of its RRS documentation were not required.¹¹²

Liberty recalculated Qwest's individual, CLEC aggregate, and retail October 2005 reported results for each state to confirm that Qwest calculated them accurately. Liberty wrote its own code to perform its replication based on its interpretation of the PID. Using this code, Liberty recalculated the results for every product disaggregation relevant to the QPAP for the measure OP-3, using the data found in the monthly Ad Hoc file.¹¹³ Liberty calculated the numerators, denominators, results, and standard deviations, and compared its recalculated results with these calculations with those reported on Qwest's Summarized Master Table.¹¹⁴ Liberty successfully replicated 100 percent of Qwest's state-specific reported metric results for measure OP-3.

¹⁰⁷ This action also impacts Qwest's calculation of the PO-15, OP-4, OP-6, and OP-15 measures.

¹⁰⁸ Responses to Data Requests #25, #149, and #258.

¹⁰⁹ Responses to Data Requests #149, #258, and #294.

¹¹⁰ Responses to Data Requests #24 and #25.

¹¹¹ Response to Data Request #294.

¹¹² Response to Data Request #25.

¹¹³ Response to Data Request #175.

¹¹⁴ Response to Data Request #5.

B. OP-4

1. Background

The OP-4 performance measure evaluates the timeliness of Qwest's installation of services for customers, focusing on the average time to install service. Qwest measures the average interval in business days between the application date and the completion date for service orders accepted and implemented.

OP-4 measures all inward orders (*i.e.*, Change, New, and Transfer order types) that were assigned a due date by Qwest and completed/closed during the reporting period. Change order types included in this measurement consist of all C orders representing inward activity. Qwest counts intervals for each measured event in whole days.¹¹⁵ The PID defines the Applicable Due Date as the original due date or, if changed or delayed by the customer, the most recently revised due date. If Qwest changes a due date for Qwest reasons, it defines the Applicable Due Date as the customer-initiated due date, if any, that is i) subsequent to the original due date and ii) prior to a Qwest-initiated, changed due date, if any. Qwest calculates time intervals associated with customer-initiated due date changes or delays occurring after the Applicable Due Date by subtracting the latest Qwest-initiated due date, if any, following the Applicable Due Date, from the subsequent customer-initiated due date, if any.

Qwest disaggregates OP-4 into the following sub-measures:

- OP-4A: Dispatches within MSAs
- OP-4B: Dispatches outside MSAs
- OP-4C: No Dispatches
- OP-4D: In Interval Zone 1 areas
- OP-4E: In Interval Zone 2 areas.

The OP-4A, OP-4B, and OP-4C sub-measures report on products that have a MSA-type disaggregation. The OP-4D and OP-4E sub-measures report on products that have a Zone-type disaggregation. The OP-4 sub-measures report on over 30 product disaggregations. The PID specifies most of the standards as parity with the retail product equivalent, but specifies some products with a benchmark standard or as a diagnostic measure.¹¹⁶

¹¹⁵ Qwest defines the application date as day zero and the day following the application date as day one.

¹¹⁶ Qwest shows eight products with a benchmark standard: Analog Loop, Non-Loaded 2-Wire Loop, xDSL Capable Loop, ADSL Qualified Loop, Loops with Conditioning, and EEL-DS1. Qwest shows five products as being diagnostic measures: Loop Splitting, Dark Fiber –IOF, Dark Fiber-Loop, EEL-DS0, and EEL-DS3. Additionally, DS-1 Capable Loops have a parity standard in seven states (Idaho, Iowa, Montana, Nevada, North Dakota, Oregon, and Wyoming) and a benchmark standard in seven other states (Arizona, Colorado, Minnesota, New Mexico, South Dakota, Utah, and Washington). Qwest reports the Sub-Loop Unbundling product as a diagnostic measure in all states except Colorado where the product has a benchmark standard.

Qwest reports OP-4 for CLEC aggregate, individual CLECs, and Qwest retail. Qwest reports results at an individual statewide level for each of the 14 states in the Qwest service area, as well as at a regional level reflecting the 14-state aggregate results.

Versions 8.1 of Qwest's 14-State 271 PID lists the following exclusions for OP-4:

- Orders with customer requested due dates greater than the current standard interval
- Disconnect, From, and Record order types
- Records involving official company services
- Records with invalid due dates or application dates
- Records with invalid completion dates
- Records with invalid product codes
- Records missing data essential to the calculation of the measurement.

The PID version 8.1 provides the following formula for the calculation of the OP-4 performance measure results:

$$\frac{\Sigma[(Order\ Completion\ Date) - (Order\ Application\ Date) - (Time\ interval\ between\ the\ Original\ Due\ Date\ and\ the\ Applicable\ Date) - (Time\ intervals\ associated\ with\ customer-initiated\ due\ date\ changes\ or\ delays\ occurring\ after\ the\ Applicable\ Due\ Date)]}{\div\ Total\ Number\ of\ Orders\ Completed\ in\ the\ reporting\ period}$$

The definition of OP-4 did not change during 2005.

The QPAPs of all 14 states include OP-4.

2. Analysis and Evaluation

The scope of the 2005 ROC Audit required a partial re-audit of OP-4 based on a change Qwest has made since the last audit of this measure, three 2004 ROC Audit findings, and the CPAP audit requirements.

Liberty's 2004 ROC Audit Finding #4 found that Qwest did not include all products that should roll up to the DS3 and Above product disaggregation when calculating the OP-5A sub-measure.¹¹⁷ This finding also affected Qwest's calculation of the OP-3, OP-4, OP-6, and OP-15 measure results. Please refer to the OP-5A section of this document for more details on Liberty's 2004 ROC Audit Finding #4 and its analysis of Qwest's response to the finding.

Liberty's 2004 ROC Audit Finding #7 found that Qwest did not use the correct retail product as the parity standard for the wholesale Non-Loaded 2-Wire Loop product disaggregation when

¹¹⁷ Liberty's Final Report on the Audit of Qwest's Performance Assurance Plans, October 28, 2005.

calculating the OP-5A sub-measure.¹¹⁸ This finding also affected Qwest's calculation of the OP-3, OP-4, OP-6, and OP-15 measure results. Please refer to the OP-5A section of this document for more details on Liberty's 2004 ROC Audit Finding #7 and its analysis of Qwest's response to the finding.

Liberty's 2004 ROC Audit Finding #12 found that Qwest did not input the benchmark for the OP-4A & OP-4B measures for the Line Splitting product.¹¹⁹ As part of its 2004 ROC Audit, Liberty reviewed how Qwest determined the standard used for all measures used in the QPAPs in the May and December 2004 data months. Liberty compared the standard, as defined in the QPAPs and PIDs, with the input file Qwest used for payments. Liberty found that, in December 2004, the penalty input file listed the OP-4 measure for product code "LINE_SPLIT" as a parity measure. However, as specified in the PID for this measure, the Line Splitting product has a benchmark standard of 3.3 days. Qwest corrected the benchmarks for the Line Splitting product in its January 2005 release produced in February 2005. Using the correct benchmark Qwest indicated that it processed an additional payment to one CLEC in Oregon.¹²⁰ Liberty reviewed the updates that Qwest made to the SASQPAP payment file table and verified that the table contained the correct benchmark for the Line Splitting product.¹²¹ Liberty also verified the QPAP recalculations and payment made by Qwest as a result of this change.¹²²

Qwest improved its RRS process to identify Coordinated Access records not eligible for PAP reporting.¹²³ Qwest explained that Coordinated Access occurs when end-user customers request that their IXC facilitate their interLATA service order(s). The IXC acts on behalf of the end-user, who is billed directly by Qwest for the service. Qwest indicated that in its new process it excludes a record from PAP measurement results calculations when it identifies a record with a product code of 'DS0,' 'DS1,' or 'DS3' and an ACNA code of 'ZZZ.'¹²⁴ Qwest retains records that contain an ACNA equal to 'ZZZ' and a product code other than 'DS0,' 'DS1,' or 'DS3' and includes these records in its PAP report measurement results.¹²⁵

Qwest modified its code in the June 2005 release produced in July 2005, with a rerun back to December 2004, to include this method of identifying Coordinated Access orders.¹²⁶ Liberty investigated the conditions under which Qwest excludes a record with an ACNA code of 'ZZZ' and verified that the combination of the 'ZZZ' ACNA code and the product codes 'DS0,' 'DS1,' or 'DS3' indicates that the order was for a Coordinated Access service and thus appropriate to exclude. Liberty also reviewed the RRS coding changes implemented by Qwest to identify these records for exclusion from the OP-4 results calculation and verified that these changes are consistent with the intent to identify and exclude Coordinated Access order activity.¹²⁷ Qwest

¹¹⁸ Liberty's Final Report on the Audit of Qwest's Performance Assurance Plans, October 28, 2005.

¹¹⁹ Liberty's Final Report on the Audit of Qwest's Performance Assurance Plans, October 28, 2005.

¹²⁰ Response to Data Request #28.

¹²¹ Response to Data Request #7.

¹²² Response to Data Request #62.

¹²³ This action also impacts Qwest's calculation of the PO-15, OP-3, OP-6, and OP-15 measures.

¹²⁴ Responses to Data Requests #25, #149, and #258.

¹²⁵ Responses to Data Requests #149, #258, and #294.

¹²⁶ Responses to Data Requests #24 and #25.

¹²⁷ Response to Data Request #294.

indicated that because this method for Coordinated Access product identification is not a reportable product or service for PAP reporting, updates to the Pre-Ordering and Ordering and Provisioning sections of its RRS documentation were not required.¹²⁸

Liberty recalculated Qwest's individual, CLEC aggregate, and retail October 2005 reported results for each state to confirm that Qwest calculated them accurately. Liberty wrote its own code to perform its replication based on its interpretation of the PID. Using this code, Liberty recalculated the results for every product disaggregation relevant to the QPAP for the measure OP-4, using the data found in the monthly Ad Hoc file.¹²⁹ Liberty calculated the numerators, denominators, results, and standard deviations, and compared its recalculated results with these calculations with those reported on Qwest's Summarized Master Table.¹³⁰ Liberty successfully replicated 100 percent of Qwest's state-specific reported metric results for measure OP-4.

C. OP-5A

1. Background

The OP-5 performance measure evaluates the quality of ordering and installing new services (inward line service orders). OP-5 focuses on the percentage of newly-installed service orders free of CLEC/customer-initiated trouble reports during the provisioning process and within 30 calendar days following installation completion. OP-5 also focuses on the quality of Qwest's resolution of such conditions with respect to multiple reports.

OP-5 measures two components of new service provisioning quality (OP-5A and OP-5B) and also reports a combined result (OP-5T), each as a percentage of all inward line service orders completed in the reporting period that are free of CLEC/customer-reported provisioning and repair trouble reports. OP-5 also measures the percentage of all provisioning and repair trouble reports that constitute multiple trouble reports for the affected service orders (OP-5R).

Qwest disaggregates OP-5 into the following sub-measures:

- OP-5A: New Service Installation Quality Reported to Repair
- OP-5B: New Service Provisioning Quality
- OP-5T: New Service Installation Quality Total
- OP-5R: New Service Quality Multiple Report Rate.

OP-5 has over 30 product disaggregations for each sub-measure.

The OP-5A performance measure reports the percentage of inward line service orders that are free of trouble repair reports within 30 calendar days of installation completion. The PID defines

¹²⁸ Response to Data Request #25.

¹²⁹ Response to Data Request #175.

¹³⁰ Response to Data Request #5.

repair trouble reports as CLEC or retail customer notifications to Qwest of an out-of-service or other service affecting condition for which Qwest opens a repair ticket in its maintenance and repair management and tracking operations support systems after service order completion. The PID considers trouble reports received by Qwest prior to service order completion “provisioning trouble reports” and includes them in the OP-5B results. The PID defines inward line service orders as orders for new service installation and change orders for additional lines or circuits. The PID also lists orders for conversion activity (*i.e.*, retail to CLEC, CLEC to CLEC, and the same CLEC converting from one product to another) as inward activity to be included in the calculation for OP-5A.

Version 8.1 of Qwest's 14-state 271 PID lists the following exclusions for OP-5A:

- Repair trouble reports attributable to CLEC or coded to non-Qwest reasons as follows:
 - For products supported by Mechanized Trouble Analysis System (MTAS) repair trouble reports coded to disposition codes¹³¹ for:
 - Customer Action
 - Non-Telco Plant
 - Trouble Beyond the Network Interface
 - Miscellaneous – non-dispatch, non-Qwest (includes Customer Provided Equipment (CPE), Customer Instruction, Carrier, Alternate Provider)
 - Reports from other than CLEC/customer that result in a charge if dispatched.
 - For products supported by Work Force Administration (WFA) repair reports coded to codes for:
 - Carrier Action
 - CPE
 - Commercial power failure
 - Customer requested service order activity
 - Other non-Qwest troubles
 - Repair reports coded to disposition codes for referral to another department (*i.e.*, for non-repair ticket resolutions of non-installation related problems, except cable cuts, which are not excluded).
- Repair trouble reports related to service orders captured as misses under measurements OP-13 (Coordinated Cuts Timeliness) or OP-17 (Local Number Portability Timeliness)
- Subsequent repair trouble reports of any trouble on the installed service before Qwest closed the original repair trouble report

¹³¹ The Qwest technician uses a disposition code when closing a trouble report to specify where in the network the trouble was found or whether the ticket was closed as a test OK, no trouble found.

- Service orders closed in the reporting period with Application Dates earlier than eight months prior to the beginning of the reporting period
- Information tickets generated for internal Qwest system/network monitoring purposes
- Disconnect, From, and Record order types
- Records involving official Qwest company service
- Records missing data essential to the calculation of the measurement as defined by the PID.

The PID version 8.1 provides the following formula for the calculation of the OP-5A results:

$$\frac{\{(Number\ of\ inward\ line\ service\ orders\ completed\ in\ the\ reporting\ period) - (Number\ of\ inward\ line\ service\ orders\ with\ any\ repair\ trouble\ reports)\}}{(Number\ of\ inward\ line\ service\ orders\ completed\ in\ the\ reporting\ period)} \times 100.$$

Qwest reports OP-5A one month in arrears (*i.e.*, results first appear in reports one month later than the results for other OP measures not reported in arrears) to allow for the 30 day period post service order completion to determine whether the line/circuit experienced a trouble report. As such, service orders completed in October 2005 would be reported with the November 2005 OP-5A results.

The report comparisons for OP-5A are CLEC aggregate, CLEC-specific, and Qwest retail. Qwest reports results at an individual statewide level for each of the 14 states in the Qwest service area, as well as at a regional level reflecting the 14-state aggregate results. Qwest disaggregates the OP-5A results by 36 unique product groups. The PID lists the standard for each of these product groups as parity with Qwest retail service.¹³²

The definition of OP-5A did not change during 2005.

The QPAPs of all 14 states include OP-5A

2. Analysis and Evaluation

The scope of the 2005 ROC Audit required a partial re-audit of OP-5A based on four 2004 ROC Audit findings and the CPAP audit requirements.

Liberty's 2004 ROC Audit Finding #1 found that Qwest's process for calculating New Service Installation Quality Reported to Repair (OP-5A) may have ignored troubles on some auxiliary lines.¹³³ Liberty found that Qwest's process for calculating OP-5A involves combining various

¹³² Qwest makes the following exceptions to this standard: Loop Splitting, Sub-Loop Unbundling, Dark Fiber Loop, Dark Fiber IOF, EEL – DS0 level, and EEL above DS1 level. Qwest reports all of these products as diagnostic measures with no performance standard.

¹³³ Liberty's Final Report on the Audit of Qwest's Performance Assurance Plans, October 28, 2005.

input files to obtain all of the data needed to calculate the measure. The PID defines key data used in this measure as i) service orders, used to identify new service installation, and ii) reported troubles within 30 days of service order completion, which must be matched with the lines on these service orders. Because Qwest reports the OP-5 measures one month in arrears, it uses files created the previous month for the calculation of the OP-3, OP-4, and OP-6 measures in order to obtain the service order information. However, because Qwest reports these three measures at a service order level and the OP-5 measures require line or circuit level information, Qwest merges the service order information with files from Work Force Administration - Control (WFA-C) and RSOR to obtain the line/circuit level information associated with each service order.¹³⁴ Qwest uses the WFA-C merge to obtain the design circuit identification associated with each of the designed service orders, and the RSOR merge to match the telephone numbers associated with each of the non-designed service orders. When unable to find a service order match in RSOR and WFA-C, Qwest defaults to the single main telephone number (non-design service) or main circuit ID (designed service) associated with each order. When this occurs, any auxiliary lines or circuits associated with the non-matched service order are ignored. As such, these lines and circuits cannot be matched to any trouble reports within 30 days of the service order completion and Qwest drops them from the calculation. Qwest indicated that starting with the July 2005 release produced in August 2005, Qwest implemented a change in the processing for the OP-5A PID in which RRS pulls six months of line level data to match lines with service order activity thereby improving the line-to-order match rate and reducing the potential for missing troubles on auxiliary lines. Prior to this change, Qwest pulled only two months of line-level data when calculating the OP-5A measure.¹³⁵ Liberty reviewed the code changes made by Qwest to the OP5.SAS file which it uses to pull in the additional months of line level data to identify troubles recorded on auxiliary lines when calculating the OP-5A results.¹³⁶ Liberty also verified that Qwest updated Chapter 18, "Installation Quality," of its RRS documentation to reflect that it now pulls six months worth of line level data for the OP-5 results calculation.¹³⁷ Liberty reviewed Qwest's impact analysis of this change on prior months' OP-5A results and verified that a rerun was not required according to the rerun guidelines.¹³⁸

Liberty's 2004 ROC Audit Finding #4 found that Qwest did not include all products that should roll up to the DS3 and Above product disaggregation when calculating the OP-5A sub-measure.¹³⁹ During its 2004 ROC Audit, Liberty found that Qwest did not include any transactions that had the Optical Capacity Network (OCN) product code in the measurement results calculation. Qwest agreed with this finding and indicated it would implement the programming change to include OCN in the DS3 and Above product category starting with the June 2005 results reported in August 2005. Qwest indicated that in the June 2005 release produced in July 2005, Qwest updated the reference tables to aggregate the OCN products to be included in the DS3 and Above category.¹⁴⁰ Liberty reviewed the Aggregate Table updates made

¹³⁴ For non-design orders, Qwest needs the telephone numbers provisioned with each order. For circuits, Qwest requires all of the designed service circuit IDs provisioned with each designed service order.

¹³⁵ Response to Data Request #33.

¹³⁶ Response to Data Request #156.

¹³⁷ Response to Data Request #33.

¹³⁸ Response to Data Request #197.

¹³⁹ Liberty's Final Report on the Audit of Qwest's Performance Assurance Plans, October 28, 2005.

¹⁴⁰ Response to Data Request #26.

by Qwest and verified that the issue identified in this finding has been resolved by Qwest's updates.¹⁴¹ Liberty also verified that Qwest made the appropriate updates to Chapter 15, "Installation Provisioning," of its RRS documentation to include the OCN products in the DS3 and Above product definition and that Qwest conducted an impact analysis of this change on prior months' OP-5A results and determined that a rerun was not required according to the rerun guidelines.¹⁴²

Liberty's 2004 ROC Audit Finding #7 found that Qwest did not use the correct retail product as the parity standard for the wholesale Non-Loaded 2-Wire Loop product disaggregation when calculating the OP-5A sub-measure.¹⁴³ According to version 8.0 of the PID for the OP-5A sub-measure, the Non-Loaded 2-Wire Loop and the Unbundled ISDN Capable Loop both have the same retail analog as the performance standard (*i.e.*, parity with retail ISDN-BRI). However, while performing its replications of the OP-5A sub-measure for December 2004, Liberty found that Qwest was using the retail results for the ISDN-BRI designed and the ISDN-BRI non-designed products as the retail analog for Non-Loaded 2-Wire Unbundled Loops. Liberty also found that Qwest was using the retail results for only the ISDN-BRI designed product as the retail analog for Unbundled ISDN Capable Loops. Qwest indicated that it changed the retail comparable product for the Non-Loaded 2-Wire Loop product from BRS-DES and BRS-NON to BRS-DES only in the June 2005 release produced in July 2005.¹⁴⁴ Liberty reviewed the Retail Comparable Table used by Qwest to identify the retail analog for a wholesale product and determined that Qwest made the necessary update to this table to identify the correct retail parity standard to the wholesale Non-Loaded 2-Wire Loop product when calculating its results for the OP-5A sub-measure.¹⁴⁵ Liberty also verified that Qwest conducted an impact analysis of this change on prior months' OP-5A results and determined that a rerun was not required according to the rerun guidelines.¹⁴⁶ Because Qwest resolved this issue with a table update that did not require a change to the code logic, the RRS documentation did not require updating.¹⁴⁷

Liberty's 2004 ROC Audit Finding #26 found that Qwest did not include the EEL-DS1 Capable product disaggregation in its QPAP payments for OP-5A.¹⁴⁸ As part of its replication and review of performance measure data for OP-5A, Liberty reviewed the January 2005 Ad Hoc Master Files created by Qwest. Liberty reviewed the records in this file for the OP-5A sub-measure and found that the payment record did not contain the EEL-DS1 Capable product in eight states, although Qwest reported performance results for this product in January 2005.¹⁴⁹ Liberty did find, however, the performance results for all of these product-state combinations in the Ad Hoc Master File. Qwest explained that it had inadvertently not implemented the EEL-DS1 product as specified in the OP-5A PID. Qwest revised its implementation of the product retroactively and

¹⁴¹ Response to Data Request #221.

¹⁴² Responses to Data Requests #26 and #196.

¹⁴³ Liberty's Final Report on the Audit of Qwest's Performance Assurance Plans, October 28, 2005.

¹⁴⁴ Response to Data Request #27.

¹⁴⁵ Response to Data Request #64.

¹⁴⁶ Response to Data Request #196.

¹⁴⁷ Response to Data Request #27.

¹⁴⁸ Liberty's Final Report on the Audit of Qwest's Performance Assurance Plans, October 28, 2005.

¹⁴⁹ The eight states missing the EEL-DS1 product from the payment record were: Arizona, Idaho, Minnesota, Montana, Nebraska, New Mexico, Oregon, and Utah.

made payments to affected CLECs with interest.¹⁵⁰ Qwest reran the period from December 2004 through May 2005, with its May 2005 release and reran the period for December 2003 through November 2004 with its July 2005 release.¹⁵¹ Liberty reviewed the changes that Qwest made to the SASQPAP payment file table to include the EEL-DS1 Capable product in its OP-5A QPAP payment calculations for all 14-states.¹⁵² Liberty also verified Qwest's QPAP payment calculations and that Qwest made the appropriate payments as a result of this change.¹⁵³

Liberty recalculated Qwest's individual, CLEC aggregate, and retail October 2005 reported results for each state to confirm that Qwest calculated them accurately. Liberty wrote its own code to perform its replication based on its interpretation of the PID. Using this code, Liberty recalculated the results for every product disaggregation relevant to the QPAP for the measure OP-5A, using the data found in the monthly Ad Hoc file.¹⁵⁴ Liberty calculated the numerators, denominators, results, and standard deviations, and compared its recalculated results with these calculations with those reported on Qwest's Summarized Master Table.¹⁵⁵ Liberty successfully replicated 100 percent of Qwest's state-specific reported metric results for measure OP-5A.

D. OP-5B

1. Background

OP-5B measures the percentage of inward line service orders free of provisioning trouble reports during the provisioning process and within 30 calendar days of installation completion. The PID defines provisioning trouble reports as CLEC notifications to Qwest of out-of-service or other service affecting conditions that are attributable to provisioning activities, including but not limited to LSR/service order mismatches and conversion outages. For provisioning trouble reports, Qwest creates call center tickets in its call center database. Qwest captures call center tickets closed in the reporting period or the following month for this measurement. Qwest does not count call center tickets closed to network reasons in OP-5B when a repair trouble report for that order is captured in OP-5A.

Qwest reports OP-5B for CLEC aggregate, individual CLECs, and Qwest retail. Qwest reports results at an individual statewide level for each of the 14 states in the Qwest service area, as well as at a regional level reflecting the 14-state aggregate results. Qwest reports OP-5B one month in arrears in order to cover the 30-day period following installation.

Version 8.1 of Qwest's 14-State 271 PID lists the following exclusions for OP-5B:

¹⁵⁰ This issue affected 39 CLECs and the missing Tier 1 payments amounted to over \$58,000. There were also over \$6,000 in missing Tier 2 payments.

¹⁵¹ Response to Data Request #29.

¹⁵² Response to Data Request #7. Qwest indicated in its response to Data Request #29 that because the Minnesota Commission did not approve the PID, MPAP payments do not apply in Minnesota.

¹⁵³ Responses to Data Requests # 7 and #29.

¹⁵⁴ Response to Data Request #175.

¹⁵⁵ Response to Data Request #5.

- Provisioning trouble reports attributable to CLEC or non-Qwest causes.
- Call center tickets relating to activities that occur as part of the normal process of conversion.
- Provisioning trouble reports related to service orders captured as misses under measurements OP-13 (Coordinated Cuts Timeliness) or OP-17 (LNP Timeliness).
- Subsequent provisioning trouble reports of any trouble on the installed service before Qwest has closed the original provisioning trouble report.
- Service orders closed in the reporting period with Application Dates earlier than eight months prior to the beginning of the reporting period.
- Information tickets generated for internal Qwest system/network monitoring purposes.
- Disconnect, From (another form of disconnect), and Record order types. When a CLEC reports out of service or service affecting problems to the call center on conversion and move requests, Qwest includes the resulting call center ticket in the calculation of the numerator in association with the related inward order type even when the call center ticket reflects that the problem was caused by the Disconnect or From order.
- Records involving official Qwest company services.
- Records missing data essential to the calculation of the measurement.

The PID version 8.1 provides the following formula for the calculation of the OP-5B performance measure results:

*(Number of inward line service orders completed in the reporting period –
Number of inward line service orders with any provisioning trouble reports as
specified above) ÷ (Number of inward line service orders completed in the
reporting period) x 100*

The definition of OP-5B did not change during 2005. However, the PID standards changed from diagnostic to a benchmark standard of 96.5 percent for most product categories.¹⁵⁶ Only Frame Relay, Loop Splitting, Sub-Loop Unbundling, and Dark Fiber-Loop remain diagnostic.

The QPAPs of all states except Minnesota and North Dakota include OP-5B.

2. Analysis and Evaluation

OP-5B has never been part of any past QPAP audit, and thus the scope of the 2005 ROC Audit requires a full audit of this measure.

¹⁵⁶ Specifically, this change appeared in version 8.1 of the PID. The PID version 8.0 listed this sub-measure as diagnostic.

The data for the OP-5B performance measure comes from two legacy support systems, the SOP and the Virtual Call Center Database (VCCD). Service order data associated with provisioning activity originates from Qwest's SOP. The service order data then flows from the SOP to Qwest's RSOR, an intermediate database for the collection and storage of provisioning data. From RSOR the transaction-level service order data flow into PANS, which stores the data for three years. RRS pulls the data needed for the calculation of the measure's denominator from PANS.¹⁵⁷ Qwest service delivery coordinators (SDCs) in the Customer Service Inquiry and Education Center (CSIE) located in Minneapolis, Minnesota create the provisioning trouble tickets used for the calculation of the numerator of the OP-5B measures.¹⁵⁸ The CSIE creates a call center trouble ticket whenever a wholesale customer contacts the center with a service issue. Qwest records all contacts with the CSIE on a call center ticket regardless of the reason for the contact (e.g., trouble on a line, order status inquiry, repeat trouble on a line, etc.).¹⁵⁹ Qwest's CSIE SDCs use the VCCD to create and store the call center trouble reports used to calculate the OP-5B measure. The VCCD has five years of trouble ticket data stored in its database. Unlike the provisioning order data, Qwest does not use PANS to obtain the trouble ticket data from the VCCD; the data flows directly from the VCCD to RRS for use in the performance measure calculation. Qwest pulls the entire VCCD database into RRS daily excluding only those records with a CLEC ID of Q99.¹⁶⁰ Qwest uses a code of Q99 on its CSIE tickets to identify a contact made to the CSIE by a Qwest employee for order status or order error resolution.¹⁶¹ Qwest uses the "created date and time" and the "updated date and time" fields to ensure that it does not pull duplicate records into RRS. Qwest only pulls those records in which these two fields contain an equal value representing original records into RRS from VCCD.¹⁶² Qwest subsequently compares the provisioning trouble reports pulled into RRS to the RSOR order data to identify the provisioning trouble ticket-to-service order match by using the service order number and state ID fields. If unable to find a match using these two fields, Qwest uses the service order field only to find a match.¹⁶³

Data Validation

As part of its 2004 ROC Audit, Liberty examined the data flow of the service order data from RSOR through PANS to RRS. Qwest has confirmed that it did not make any changes to the data flows from the source systems to PANS or from PANS to RRS in 2005 for any of the OP measures.¹⁶⁴ Therefore, Liberty did not reexamine this process or programming code during its 2005 audit. To evaluate the integrity of the data flow from the VCCD to RRS, Liberty examined the process and programming code used by Qwest to extract this source system data. Liberty also reviewed and analyzed the quality processes Qwest had in place to assure that all of the VCCD data needed for the calculation of OP-5B has been received by RRS.¹⁶⁵

¹⁵⁷ Interview #1, May 8, 2007.

¹⁵⁸ For disaster recovery purposes, Qwest also has two other call centers capable of creating call center trouble reports should the Minneapolis, Minnesota center be off-line for any reason.

¹⁵⁹ Response to Data Request #91.

¹⁶⁰ Interview #4, May 22, 2007 and response to Data Request #323.

¹⁶¹ Response to Data Request #167.

¹⁶² Response to Data Request #171.

¹⁶³ Responses to Data Requests #96 and #327.

¹⁶⁴ Response to Data Request #102.

¹⁶⁵ Interview # 4, May 22, 2007 and response to Data Request #419.

For the data integrity review, Liberty focused primarily on the monthly “locked” OP50 Ad Hoc file created in RRS for the calculation of the OP-5B sub-measure.¹⁶⁶ Liberty reviewed Qwest’s code and process used for the creation of this monthly Ad Hoc file by pulling in the data from the files created in RRS from the VCCD source data.¹⁶⁷ When creating a ticket in VCCD, Qwest’s SDCs are required to populate the ticket with details associated with the reason for the call from the CLEC. The SDCs record these details in two key fields known as “Reason” and “Sub-Reason” using a drop down menu. When closing the ticket, the SDC uses another drop down menu, which provides selection choices based on the values populated in the “Reason” and “Sub-Reason” fields, to populate the “Product Reason” and the “Product Sub-Reason” fields.¹⁶⁸ Qwest identifies VCCD trouble reports that qualify for inclusion in the OP-5B results by the values that the SDCs have populated in these “Product Reason” and the “Product Sub-Reason” when the ticket is closed. Only those tickets with a product reason code of “Typing Error” or “Out of Service” qualify for inclusion in the OP-5B results calculation.¹⁶⁹ Qwest’s internal process of conducting a sample review of each SDC’s trouble tickets monthly validates that the SDCs code tickets correctly.¹⁷⁰ After reviewing the SAS programming with Qwest, Liberty was satisfied that Qwest’s process for the creation of the OP50 Ad Hoc file by pulling provisioning trouble reports from VCCD was adequate to ensure that it retrieved all the relevant data for the calculation of the OP-5B sub-measure, and that this data did not change during the process.¹⁷¹ Liberty also verified that Qwest’s process excludes transactions from the OP-5B performance results calculation according to the PID business rules.¹⁷²

Liberty reviewed the data fields needed for the calculation of the OP-5B results that RRS adds to the transaction during the creation of the Ad Hoc files. Because the Ad Hoc files contain both original and derived data fields, Liberty used the original data fields in the monthly Ad Hoc files to validate the derived data fields. Liberty validated that Qwest correctly derives the data contained in these added fields from the source data and from Qwest reference tables, where appropriate. Liberty also verified that Qwest maintains the data integrity through the data flow process (*i.e.*, data values are not changed or dropped). The critical derived field values verified by Liberty include:

- CALLMTCH – Qwest sets this flag set whenever a call center ticket matches a service order.
- FIRSTORD – Qwest uses this flag to identify original orders to be counted for the OP-5B measure.
- OP5B_NUM – Qwest sets this flag to indicate whether a record should be counted in the numerator or the OP-5B results calculation.
- WFACMTCH – Qwest uses this flag to indicate that a trouble report was also recorded in WFA

¹⁶⁶ Response to Data Request #175.

¹⁶⁷ Response to Data Request #166.

¹⁶⁸ Response to Data Request #416.

¹⁶⁹ Response to Data Request #168.

¹⁷⁰ Response to Data Request #419.

¹⁷¹ Interview #4, May 22, 2007.

¹⁷² Interview #8, July 19, 2007.

- MTASMTCH – Qwest uses this flag to indicate that a trouble report was also recorded in MTAS.

Qwest calculates a variety of exclusion codes in RRS that it uses to exclude specific orders from the OP-5B sub-measure calculation. Qwest only includes those records with an exclusion code of “0” in the report results. The following table lists the exclusion codes that apply to the OP-5B sub-measure and that can be found in the OP5O Ad Hoc file in RSS:

| Exclusion Code | Exclusion Type |
|-----------------------|--|
| 44 | Order application date is more than 8 months prior to the beginning of the reporting period. |
| 109 | Trouble report received before order application date |
| 110 | Trouble report is received over 30 days after the order completion date |
| 113 | Order was counted as a miss for OP-17 |
| 114 | Order was counted as a miss for OP-13 |

Qwest uses these exclusion codes to identify records that it will not count toward the calculation of the OP-5B performance and payment results. Qwest excludes any service order record assigned one of these exclusion codes from the results calculation for the OP-5B sub-measure. Additionally, for the records found in the October 2005 Ad Hoc files that contained one of these exclusion codes, Liberty verified that Qwest set the exclusion code properly based on a review of the original source data.¹⁷³ Liberty reviewed the logic used by Qwest to set the exclusion codes in the RRS program and was satisfied that Qwest set the exclusion codes in accordance with the PID.

The key data fields in the OP5O Ad Hoc file used for the calculation of the OP-5B sub-measure are: state, exclusion code, CLEC ID, product ID, the first order flag, the call center ticket flag, the MTAS ticket flag, and the WFA ticket flag. Liberty examined the method that Qwest uses to populate these fields and to calculate the OP-5B measurement results. To calculate the denominator of the OP-5B sub-measure, Qwest counts the number of inward service order records that contain an exclusion code of “0” and a first order value of “1.” Qwest determines the numerator for the OP-5B sub-measure by subtracting from the denominator all records, not excluded based on the list of exclusions provided above, with provisioning trouble reports attributed to Qwest based on the “product reason” and “product sub-reason” codes assigned to the ticket. Qwest performs this calculation at both a state and CLEC-specific level. Liberty concluded that Qwest’s method for calculation of the OP-5B sub-measure conforms to the PID requirement.

Liberty reviewed all system changes implemented by Qwest that resulted in a rerun of the previously reported OP-5B results during 2005. The objective of this review was to verify that the system changes implemented by Qwest conform to the PID business rules. According to the *Summary of Notes for Qwest Regional Performance Results Reports* published on its web site,

¹⁷³ The exclusion codes that Liberty was able to verify with the November data included all the exclusion codes shown on the table except code 109, for which there were no records. Ad Hoc files were provide by Qwest in response to Data Request #175.

Qwest implemented three system changes that required a rerun of OP-5B results originally published in 2005 between January 2005 and January 2006. However, Liberty found that there were actually five system changes implemented by Qwest during 2005 that required a rerun of the previously reported OP-5B results.¹⁷⁴ Liberty found that Qwest's Summary of Notes documentation did not accurately reflect all PAP performance results changes that occurred during the 2005 reporting year.¹⁷⁵ Liberty addresses this issue in more detail in the Findings and Recommendations section. Liberty verified that the RRS coding associated with all five of these changes complied with the PID requirements.

Liberty focused its data review on the October 2005 OP50 Ad Hoc file. Liberty reviewed wholesale transactions from this file using a random sample of approximately 9,000 transactions of diverse product disaggregations drawn from each of the fourteen states in the Qwest service area. Liberty also took selective samples of the records in these files that contained an exception value other than "0" to verify that Qwest was setting these exception codes correctly. These transactions contained both original and derived data fields. In order to substantiate the accuracy of the programming logic it examined earlier, Liberty reviewed each of the critical data fields needed for the calculation of the OP-5B measure results, both derived and original, to verify that Qwest was calculating the fields based on the source data and, when appropriate, a look-up table. Liberty also verified that Qwest was properly identifying QPP products based on the October 2005 Commercial Contracts Database.¹⁷⁶ In addition to the critical data field values, Liberty also focused this portion of its review on the exclusion codes derived by Qwest in the OP50 Ad Hoc file. Liberty found that Qwest was calculating all the critical data fields properly. Liberty also found that Qwest was deriving the exclusion codes accurately.

Liberty also reviewed the OP-5B Master File created by Qwest. This Master File provides a summary at the reporting level (*i.e.*, state, product) of the transaction-level data from the Ad Hoc files which Qwest used for performance measure reporting and for the calculation of QPAP payments. Liberty reviewed the records found in these files to ensure that Qwest summarized them from the Ad Hoc file records. Liberty found that the Master File and payment input records accurately captured the CLEC aggregate results that Qwest reported. The records also matched the results that Liberty recalculated in each state.

Replication

Liberty recalculated Qwest's individual, CLEC aggregate, and retail October 2005 reported results for each state to confirm that Qwest calculated them accurately. Liberty wrote its own code to perform its replication based on its interpretation of the PID. Using this code, Liberty recalculated the results for every product disaggregation relevant to the QPAP for the measure OP-5B, using the data found in the monthly Ad Hoc file.¹⁷⁷ Liberty calculated the numerators, denominators, results, and standard deviation, and compared its recalculated results with these

¹⁷⁴ Supplemental response to Data Request #23 and responses to Data Requests #297 and #331.

¹⁷⁵ Liberty Finding 6.

¹⁷⁶ Responses to Data Requests #100 and #175.

¹⁷⁷ Response to Data Request #175.

calculations with those reported on Qwest's Summarized Master Table.¹⁷⁸ Liberty successfully replicated 100 percent of Qwest's state-specific reported metric results for measure OP-5B.

E. OP-6

1. Background

The OP-6 performance measure evaluates the extent Qwest is late in installing services for customers, focusing on the average number of days that Qwest completes late orders beyond the committed due date.

Change order types for additional lines consist of C orders representing inward activity. The PID defines the Applicable Due Date as the original due date or, if changed or delayed by the customer, the most recently revised due date. If Qwest changes a due date for Qwest reasons, the PID defines the Applicable Due Date as the customer-initiated due date, if any, that is i) subsequent to the original due date and ii) prior to a Qwest-initiated, changed due date, if any. Qwest calculates time intervals associated with customer-initiated due date changes or delays occurring after the Applicable Due Date by subtracting the latest Qwest-initiated due date (if any) following the Applicable Due Date, from the subsequent customer-initiated due date, if any.

OP-6A measures the average number of business days that service is delayed beyond the Applicable Due Date for non-facility reasons attributed to Qwest. OP-6A includes all inward orders (*i.e.*, Change, New, and Transfer order types) that Qwest completed/closed during the reporting period after the Applicable Due Date recorded by Qwest, due to *non-facility* reasons.

OP-6B measures the average number of business days that service is delayed beyond the Applicable Due Date for facility reasons attributed to Qwest. OP-6B includes all inward orders (*i.e.*, Change, New, and Transfer order types) that Qwest completed/closed during the reporting period after the original Due Date recorded by Qwest, due to *facility* reasons.

Qwest further disaggregates OP-6 as follows:

- OP-6A-1 and OP-6B-1: Dispatches within MSAs
- OP-6A-2 and OP-6B-2: Dispatches outside MSAs
- OP-6A-3 and OP-6B-3: No Dispatches
- OP-6A-4 and OP-6B-4: In Interval Zone 1 areas
- OP-6A-5 and OP-6B-5: In Interval Zone 2 areas.

The OP-6A-1, OP-6B-1, OP-6A-2, OP-6B-2, OP-6A-3, and OP-6B-3 sub-measures report on products that have a MSA-type disaggregation. The OP-6A-4, OP-6B-4, OP-6A-5, and OP-6B-5 sub-measures report on products that have a Zone-type disaggregation. The OP-6 sub-measures

¹⁷⁸ Response to Data Request #5.

report on over 30 product disaggregations. The PID specifies most of the standards as parity with the retail product equivalent but specifies some products as diagnostic.¹⁷⁹

Qwest reports OP-6 for CLEC aggregate, CLEC-specific, and Qwest retail. Qwest reports results at an individual statewide level for each of the 14 states in the Qwest service area, as well as at a regional level reflecting the 14-state aggregate results.

Version 8.1 of Qwest's 14-State 271 PID lists the following exclusions for OP-6:

- Orders affected only by delays that are solely for customer and/or CLEC reasons
- Disconnect, From, and Record order types
- Records involving official company services
- Records with invalid due dates or application dates
- Records with invalid completion dates
- Records with invalid product codes
- Records missing data essential to the calculation of the measurement.

The PID version 8.1 provides the following formula for the calculation of the OP-6 performance measure results:

$$\frac{\sum[(\text{Actual Completion Date of late order}) - (\text{Applicable Due Date of late order}) - (\text{Time intervals associated with customer-initiated due date changes or delays occurring after the Applicable Due Date})]}{(\text{Total Number of Late Orders for non-facility reasons completed in the reporting period})}$$

The definition of OP-6 did not change during 2005.

The QPAPs of all 14 states include OP-6.

2. Analysis and Evaluation

The scope of the 2005 ROC Audit required a partial re-audit of OP-6 based on a change Qwest made since the last audit of this measure, two 2004 CPAP Audit recommendations, two 2004 ROC Audit findings, and the CPAP audit requirements.

Liberty's 2004 ROC Audit Finding #4 found that Qwest did not include all products that should roll up to the DS3 and Above product disaggregation when calculating the OP-5A measure.¹⁸⁰ This finding also affected Qwest's calculation of the OP-3, OP-4, OP-6, and OP-15 measure results. Please refer to the OP-5A section of this document for more details on Liberty's 2004 ROC Audit Finding #4 and its analysis of Qwest's response to the finding.

¹⁷⁹ Unbundled Sub-Loop, Dark Fiber-IOF, Dark Fiber-Loop, EEL-DS0 and EEL-DS3 are all diagnostic products.

¹⁸⁰ Liberty's Final Report on the Audit of Qwest's Performance Assurance Plans, October 28, 2005.

Liberty's 2004 ROC Audit Finding #7 found that Qwest did not use the correct retail product as the parity standard for the wholesale Non-Loaded 2-Wire Loop product disaggregation when calculating the OP-5A measure.¹⁸¹ This finding also affected Qwest's calculation of the OP-3, OP-4, OP-6, and OP-15 measure results. Please refer to the OP-5A section of this document for more details on Liberty's 2004 ROC Audit Finding #7 and its analysis of Qwest's response to the finding.

Qwest improved its RRS process to identify Coordinated Access records not eligible for PAP reporting.¹⁸² Qwest explained that Coordinated Access occurs when end-user customers request that their IXC facilitate their interLATA service order(s). The IXC acts on behalf of the end-user, who is billed directly by Qwest for the service. Qwest indicated that in its new process it excludes a record from PAP measurement results calculations when it identifies a record with a product code of 'DS0,' 'DS1,' or 'DS3' and an ACNA code of 'ZZZ.'¹⁸³ Qwest retains records that contain an ACNA equal to 'ZZZ' and a product code other than 'DS0,' 'DS1,' or 'DS3' and includes these records in its PAP report measurement results.¹⁸⁴

Qwest modified its code in the June 2005 release produced in July 2005, with a rerun back to December 2004, to include this method of identifying Coordinated Access orders.¹⁸⁵ Liberty investigated the conditions under which Qwest excludes a record with an ACNA code of 'ZZZ' and verified that the combination of the 'ZZZ' ACNA code and the product codes 'DS0,' 'DS1,' or 'DS3' indicates that the order was for a Coordinated Access service and thus appropriate to exclude. Liberty also reviewed the RRS coding changes implemented by Qwest to identify these records for exclusion from the PO-6 results calculation and verified that these changes are consistent with the intent to identify and exclude Coordinated Access order activity.¹⁸⁶ Qwest indicated that because this method for Coordinated Access product identification is not a reportable product or service for PAP reporting, updates to the Pre-Ordering and Ordering and Provisioning sections of its RRS documentation were not required.¹⁸⁷

2004 CPAP Audit Recommendation II-R52 recommended that Qwest correct the handling of service orders missed due to customer actions when calculating the OP-6 PID results.¹⁸⁸ Due to the disagreement between Qwest and NorthStar/Vantage on the interpretation of the PID language, Liberty determined that Qwest took no action based on this recommendation.¹⁸⁹ After researching the PID language in dispute, Liberty found that it agrees with Qwest on this issue. Qwest's process for calculating the OP-6 results excludes orders delayed solely as a result of a CLEC or customer-caused delay. Additionally, Qwest does not include orders delayed because of both a Qwest-caused delay and a customer/CLEC-caused delay in the OP-6 results calculation. For those orders that contain multiple delay reason codes, Qwest correctly subtracts

¹⁸¹ Liberty's Final Report on the Audit of Qwest's Performance Assurance Plans, October 28, 2005.

¹⁸² This action also impacts Qwest's calculation of the PO-15, OP-3, OP-4, and OP-15 measures.

¹⁸³ Responses to Data Requests #25, #149, and #258.

¹⁸⁴ Responses to Data Requests #149, #258, and #294.

¹⁸⁵ Responses to Data Requests #24 and #25.

¹⁸⁶ Response to Data Request #294.

¹⁸⁷ Response to Data Request #25.

¹⁸⁸ NorthStar/Vantage's Final Report of Qwest's CPAP 2004 Annual Audit; March 3, 2006.

¹⁸⁹ Response to Data Request #150.

the time intervals associated with the customer/CLEC caused delay from the numerator of the results calculation.¹⁹⁰ Qwest's process for calculating the OP-6 results conforms to the OP-6 PID language. The PID specifies that the only orders Qwest should exclude completely from the OP-6 results are "[o]rders affected only by delays *that are solely for customer and/or CLEC reasons*" [emphasis added]. For orders that involve both customer/CLEC and Qwest caused delays, the PID formula for the numerator of the results calculation states, "[(Actual Completion Date of late order for non-facilities reasons) minus (Applicable Due Date of late order) minus (*Time intervals associated with customer-initiated due date changes or delays occurring after the Applicable Due Date*)]" [emphasis added]. Liberty also verified that Qwest's RRS Chapter 15, "Installation Provisioning," documentation accurately documents this calculation method.¹⁹¹ Liberty believes that Qwest was correct not to take any action on this recommendation.

Based on the 2004 CPAP Audit Recommendation II-R51,¹⁹² the Colorado PUC determined that Qwest's RRS documentation must be updated to properly reflect how Qwest derives the date-related Ad Hoc field to calculate the OP-6 measure.¹⁹³ Liberty obtained a copy of Qwest's updated RRS Chapter 15, "Installation Provisioning," documentation and confirmed that Qwest made the recommended documentation changes to describe how it derives the "OP6" field.¹⁹⁴

Liberty recalculated Qwest's individual, CLEC aggregate, and retail October 2005 reported results for each state to confirm that Qwest calculated them accurately. Liberty wrote its own code to perform its replication based on its interpretation of the PID. Using this code, Liberty recalculated the results for every product disaggregation relevant to the QPAP for the measure OP-6, using the data found in the monthly Ad Hoc file.¹⁹⁵ Liberty calculated the numerators, denominators, results, and standard deviations, and compared its recalculated results with these calculations with those reported on Qwest's Summarized Master Table.¹⁹⁶ Liberty successfully replicated 100 percent of Qwest's state-specific reported metric results for measure OP-6.

F. OP-7

1. Background

The OP-7 performance measure evaluates the duration for completing coordinated hot cuts of unbundled loops, focusing on the time actually involved in disconnecting the loop from the Qwest network and connecting/testing the loop. Qwest measures the average time to complete coordinated hot cuts for unbundled loops based on intervals beginning with the "lift" time and ending with the completion time of Qwest's applicable tests for the loop.

¹⁹⁰ Responses to Data Requests #291 and #292.

¹⁹¹ Response to Data Request #292.

¹⁹² NorthStar/Vantage's Final Report of Qwest's CPAP 2004 Annual Audit; March 3, 2006.

¹⁹³ Colorado PUC Decision No. C06-1216A, Docket No. 02M-259T.

¹⁹⁴ Response to Data Request #30.

¹⁹⁵ Response to Data Request #175.

¹⁹⁶ Response to Data Request #5.

OP-7 includes all coordinated hot cuts of unbundled loops that are completed/closed during the reporting period. "Hot cut" refers to moving the service of existing customers from Qwest's switch/frames to the CLEC's equipment, via unbundled loops, that will serve the customers. The PID defines "Lift" time as when Qwest disconnects the existing loop and defines completion time as when Qwest completes the applicable tests after connecting the loop to the CLEC.

The PID disaggregates OP-7 by analog loops and by all other loop types. The PID specifies the standard as one hour in Colorado and diagnostic in all other states.

Qwest reports OP-7 for CLEC aggregate and individual CLECs. Qwest reports results at an individual statewide level for each of the 14 states in the Qwest service area, as well as at a regional level reflecting the 14-state aggregate results.

Version 8.1 of Qwest's 14-State 271 PID lists the following exclusions for OP-7:

- Time intervals associated with CLEC-caused delays
- Records missing data essential to the calculation of the measurement per the PID
- Invalid start/stop dates/times or invalid scheduled date/times.

The PID version 8.1 provides the following formula for the calculation of the OP-7 performance measure results:

$$\frac{\sum[\text{Completion time} - \text{Lift time}]}{(\text{Total Number of unbundled loops with coordinated cutovers completed in the reporting period})}$$

The definition of OP-7 did not change during 2005.

Only the QPAPs of Colorado and Minnesota include OP-7.

2. Analysis and Evaluation

The scope of the 2005 ROC Audit required a partial re-audit of OP-7 based on two 2004 CPAP Audit recommendations and the CPAP audit requirements.

Based on the 2004 CPAP Audit Recommendation II-R17,¹⁹⁷ the Colorado PUC determined that Qwest's RRS documentation must be updated to properly reflect the method Qwest uses to calculate the OP-7 results.¹⁹⁸ Liberty obtained a copy of Qwest's updated RRS Chapter 21, "Hot Cuts," documentation and confirmed that Qwest made the recommended documentation changes to define the OP-7 measure in the overview section and correct the description of how Qwest derives the "EN" field.¹⁹⁹

¹⁹⁷ NorthStar/Vantage's Final Report of Qwest's CPAP 2004 Annual Audit; March 3, 2006.

¹⁹⁸ Colorado PUC Decision No. C06-1216A, Docket No. 02M-259T.

¹⁹⁹ Response to Data Request #31.

Based on the 2004 CPAP Audit Recommendation II-R18,²⁰⁰ the Colorado PUC determined that Qwest's RRS documentation must be updated to reflect the proper standards for the OP-7 measure.²⁰¹ Liberty obtained a copy of Qwest's updated RRS documentation and confirmed that Qwest has corrected the standard for Colorado from diagnostic to a benchmark of one hour.²⁰²

Liberty recalculated Qwest's individual, CLEC aggregate, and retail October 2005 reported results for each state to confirm that Qwest calculated them accurately. Liberty wrote its own code to perform its replication based on its interpretation of the PID. Using this code, Liberty recalculated the results for the loop types relevant to the QPAP for the measure OP-7, using the data found in the monthly Ad Hoc file.²⁰³ Liberty calculated the numerators, denominators, results, and standard deviation, and compared its recalculated results with these calculations with those reported on Qwest's Summarized Master Table.²⁰⁴ Liberty successfully replicated 100 percent of Qwest's state-specific reported metric results for measure OP-7.

G. OP-8

1. Background

The OP-8 performance measure evaluates the timeliness of cutovers of LNP.

The OP-8 PID consists of two sub-measures. OP-8B evaluates LNP timeliness with loop coordination. Qwest measures the percentage of coordinated LNP triggers set prior to the scheduled start time of the loop. Qwest measures all orders for LNP coordinated with unbundled loops that Qwest completed/closed during the reporting period. OP-8C evaluates LNP timeliness without loop coordination. Qwest measures the percentage of LNP triggers set prior to the Frame Due Time or scheduled start time for the LNP cutover as applicable. Qwest measures all orders for LNP for which coordination with a loop was not requested that Qwest completed/closed during the reporting period.

The PID describes "trigger" as the "10-digit unconditional trigger" or Line Side Attribute (LSA) that Qwest sets or translates. The PID defines "scheduled start time" as the confirmed appointment time, as stated on the FOC, or a newly negotiated time. In the case of LNP cutovers coordinated with loops, the scheduled time used in this measurement will be no later than the "lay" time for the loop.

The PID lists no further disaggregations for OP-8B and OP-8C. The PID specifies a benchmark standard of 95 percent on time.

²⁰⁰ NorthStar/Vantage's Final Report of Qwest's CPAP 2004 Annual Audit; March 3, 2006.

²⁰¹ Colorado PUC Decision No. C06-1216A, Docket No. 02M-259T.

²⁰² Response to Data Request #32.

²⁰³ Response to Data Request #175.

²⁰⁴ Response to Data Request #5.

Qwest reports OP-8 for CLEC aggregate and individual CLECs. Qwest reports results at an individual statewide level for each of the 14 states in the Qwest service area, as well as at a regional level reflecting the 14-state aggregate results.

Version 8.1 of Qwest's 14-State 271 PID lists the following exclusions for OP-8:

- CLEC-caused delays in trigger setting
- LNP requests that do not involve automatic triggers, *e.g.*, Direct Inward Dial (DID) lines without separate, unique telephone numbers and Centrex 21.
- LNP requests for which the records used as sources of data for these measurements have the following types of errors:
 - a. Records with no PON or State
 - b. Records for which triggers cannot be set due to switch capabilities
 - c. Records with invalid due dates, application dates, or start dates
 - d. Records with invalid completion dates
 - e. Records missing data essential to the calculation of the measurement per the PID
 - f. Records with invalid start/stop dates/times or invalid frame due or scheduled date/times.

The PID version 8.1 provides the following formula for the calculation of the OP-8B and OP-8C performance measure results:

[(Number of LNP triggers set before the scheduled time for the coordinated loop cutover) ÷ (Total Number of LNP activations coordinated with unbundled loops completed)] x 100

[(Number of LNP triggers set before the Frame Due Time or Scheduled Start Time) ÷ (Total Number of LNP activations without loop cutovers completed)] x 100

The definition of OP-8 did not change during 2005.

The QPAPs of all 14 states include OP-8.

2. Analysis and Evaluation

The scope of the 2005 ROC Audit required a partial re-audit of OP-8 based on changes Qwest has made since the last audit of this measure, four 2004 CPAP Audit recommendations, and the CPAP audit requirements.

During 2005, Qwest implemented a change to identify and exclude Digital 2-Way Flat DID Trunks, Centrex-Routed to Intercept, and Voice Mailbox Only orders from the calculation of the

OP-8 results. According to Qwest, these products are not eligible for inclusion in the calculation of OP-8 results because they are not types of service associated with a working line. Qwest can only set triggers on working lines and since these products do not fall within the definition of working lines, triggers cannot be set. Qwest indicated that it implemented the code changes necessary to identify the USOCs associated with these products and exclude them with an exclusion code of 48 (Invalid USOC). Qwest implemented this code change in April 2005 for all the products except the Voice Mail Only product, which Qwest excluded beginning with the September 2005 data.²⁰⁵ Liberty reviewed the coding changes to verify that Qwest was appropriately excluding the USOCs associated with these products from its calculation of the OP-8 measure.²⁰⁶ Qwest indicated that it identified this issue during its routine internal analysis and determined that rerun analysis for these changes was unnecessary because the products involved are rarely ordered, and Liberty concurs with Qwest's assessment.²⁰⁷ Liberty obtained a copy of Qwest's updated RRS Chapter 22, "Number Portability," documentation and determined that Qwest had properly updated the documentation to reflect this change.²⁰⁸

During 2005, Qwest also implemented a change to identify and exclude records associated with the DMS-10 switches from the calculation of the OP-8 and OP-17 measures. According to Qwest, the OP-8 and OP-17 results should not include DMS-10 switches for remote call forwarding or market expansion line classes of service, because the switch does not contain the functionality to set an LNP Trigger on the telephone number unless the service has been disconnected. As part of an internal analysis conducted by Qwest on records that were not set on time, Qwest discovered that it included orders in the DMS-10 switches for market expansion lines in the results in error. An automatic trigger cannot be set on this type of service in the DMS-10 switch. Therefore, Qwest made a coding change to identify records with the DMS equipment type and a SLUSOC of RD5, RD6, or RCF to exclude these records from the calculation of the OP-8 and OP-17 results. Qwest completed this code change for the November 2004 release, produced in December 2004.²⁰⁹ Liberty reviewed the changes made by Qwest to its PID_RULES Table to exclude these DMS-10 switch records from its calculation of the OP-8 PID.²¹⁰ Qwest explained that it added the PID_RULES Table in 2005 as part of its unification project to define the business rules for all measures and eliminate the need to have the business rules contained in the ETL code for each measure.²¹¹ Liberty also obtained an updated copy of Qwest's RRS Chapter 22, "Number Portability," documentation and verified that Qwest made the appropriate updates to reflect these changes.²¹² Additionally, Liberty verified that Qwest conducted an impact analysis of this change on prior months' OP-8 results and determined that a rerun was not required according to the rerun guidelines.²¹³

²⁰⁵ Response to Data Request #34. Qwest delayed implementation of the Voice Mail Only product exclusion to conduct further analysis on this product and verify it was being included in the OP-8 results before implementing the code change to exclude for the measure calculation.

²⁰⁶ Response to Data Request #222.

²⁰⁷ Response to Data Request #198.

²⁰⁸ Response to Data Request #34 and Data Request #1 (supplemental), received October 11, 2007.

²⁰⁹ Responses to Data Requests #35, #35 (supplemental), and #59.

²¹⁰ Response to Data Request #223.

²¹¹ Response to Data Request #277.

²¹² Responses to Data Requests #35 and #59.

²¹³ Response to Data Request #223.

Based on the 2004 CPAP Audit Recommendation II-R31,²¹⁴ the Colorado PUC determined that Qwest needed to reconcile the denominator used for the calculation on the OP-8 measure with the denominator used for the calculation of the OP-17 measure.²¹⁵ The denominators of these two measures are both based on the total number of LNP activations and, as such, should correlate. Please refer to the OP-17 section of this document for discussion of this issue.

Based on the 2004 CPAP Audit Recommendations II-R26 and II-R28,²¹⁶ the Colorado PUC determined that Qwest RRS documentation must be updated to properly reflect the method Qwest uses to calculate the OP-8 results.²¹⁷ Liberty obtained a copy of Qwest's updated RRS Chapter 22, "Number Portability," documentation and confirmed that Qwest made the recommended documentation changes to accurately reflect how Qwest i) extracts source data, ii) implements exclusions, iii) calculates the results, and iv) derives key fields.²¹⁸

Based on the 2004 CPAP Audit Recommendation II-R27,²¹⁹ the Colorado PUC determined that Qwest is required to eliminate the exclusion for CLEC-caused delays from the calculation of the OP-8 measure for the CPAP.²²⁰ Qwest indicated that as a result of the Commission's decision, Qwest revised the CPAP to include a notation in Appendix B that reads: CLEC-caused delays in trigger setting is not an exclusion. Qwest made its compliance finding for this change on February 9, 2007 and the Colorado PUC approved it on February, 23, 2007.²²¹ Liberty obtained Qwest's updated CPAP Appendix B documentation and verified Qwest made the required change to indicate that Qwest does not exclude CLEC-caused delays in the trigger setting for the OP-8 measurement.²²²

Liberty noted that although this change was made to the CPAP, Version 8.1 of the PID documentation still reflected the exclusion for CLEC-caused delays in the trigger setting. In reply, Qwest quoted the Colorado PUC "Order Approving 2004 Annual Audit."²²³ This order states, "Qwest should eliminate the exclusion from [the] OP-8 PID for the CPAP. Qwest can determine how to incorporate this change in the 14-state PID documents, if it chooses." Qwest indicated that this exclusion has no impact on the OP-8 measure because CLECs currently have no means to cause such a delay; Qwest is solely responsible for setting triggers. Thus, Qwest has not developed plans to eliminate this exclusion from OP-8 in the 14-state PID documentation. Furthermore, Qwest feels that there might be some development in the future that could allow the possibility of CLEC-caused delays. If such a development occurred, Qwest would like to maintain this exclusion in the PID, because it believes such exclusions would be appropriate.²²⁴

²¹⁴ NorthStar/Vantage's Final Report of Qwest's CPAP 2004 Annual Audit; March 3, 2006

²¹⁵ Colorado PUC Decision No. C06-1216A, Docket No. 02M-259T.

²¹⁶ NorthStar/Vantage's Final Report of Qwest's CPAP 2004 Annual Audit; March 3, 2006.

²¹⁷ Colorado PUC Decision No. C06-1216A, Docket No. 02M-259T.

²¹⁸ Responses to Data Requests #37 and #38.

²¹⁹ NorthStar/Vantage's Final Report of Qwest's CPAP 2004 Annual Audit; March 3, 2006.

²²⁰ Colorado PUC Decision No. C06-1216A, Docket No. 02M-259T.

²²¹ Response to Data Request #39.

²²² Response to Data Request #65.

²²³ Colorado PUC Decision No. C06-1216, Docket No. 02M-259T

²²⁴ Responses to Data Requests #152 and #220.

Similarly, no RRS documentation updates were required because Qwest currently does not apply this exclusion.²²⁵

Liberty recalculated Qwest's individual, CLEC aggregate, and retail October 2005 reported results for each state to confirm that Qwest calculated them accurately. Liberty wrote its own code to perform its replication based on its interpretation of the PID. Using this code, Liberty recalculated the results relevant to the QPAP for the measure OP-8, using the data found in the monthly Ad Hoc file.²²⁶ Liberty calculated the numerators, denominators, results, and standard deviation, and compared its recalculated results with these calculations with those reported on Qwest's Summarized Master Table.²²⁷ Liberty successfully replicated 100 percent of Qwest's state-specific reported metric results for measure OP-8.

H. OP-13

1. Background

The OP-13 performance measure evaluates the percentage of coordinated cuts of unbundled loops that are completed on time, focusing on cuts that Qwest completed within one hour of the committed order due time and the percent that Qwest started without CLEC approval.

OP-13A measures the percentage of LSRs (CLEC orders) for all coordinated cuts of unbundled loops that Qwest starts and completes on time. For coordinated loop cuts to be counted as "on time" in this measurement, the CLEC must agree to the start time, and Qwest must i) receive verbal CLEC approval before starting the cut or lifting the loop, ii) complete the physical work and appropriate tests, iii) complete the Qwest portion of any associated LNP orders, and iv) call the CLEC with completion information, all within one hour of the time interval defined by the committed order due time.

OP-13B measures the percentage of all LSRs for coordinated cuts of unbundled loops that Qwest starts without CLEC approval.

OP-13 includes all LSRs for coordinated cuts of unbundled loops that Qwest completed/closed during the reporting period. The PID defines "scheduled start time" as the confirmed appointment time (as stated on the FOC), or a newly negotiated appointment time. Qwest bases the "committed order due time" on the number and type of loops involved in the cut and calculates it by adding the applicable time interval to the scheduled start time. The PID defines "stop" time as when Qwest notifies the CLEC that the Qwest physical work and the appropriate tests have been successfully accomplished, including the Qwest portion of any coordinated LNP orders. Qwest subtracts time intervals following the scheduled start time or during the cutover process associated with customer-caused delays from the actual cutover duration. Qwest will

²²⁵ Response to Data Request #39.

²²⁶ Response to Data Request #175.

²²⁷ Response to Data Request #5.

count the cut as a miss under both OP-13A and OP-13B when Qwest's records of completed coordinated cut transactions do not have evidence of CLEC approval of the cutover.

The PID disaggregates OP-13A and OP-13B by analog loops and by all other loop types. The PID specifies a benchmark standard for OP-13A of 90 percent or more in Minnesota and 95 percent or more in all other states, and it lists OP-13B as a diagnostic measure.

Qwest reports OP-13 for CLEC aggregate and individual CLECs. Qwest reports results at an individual statewide level for each of the 14 states in the Qwest service area, as well as at a regional level reflecting the 14-state aggregate results.

Version 8.1 of Qwest's 14-State 271 PID lists the following exclusions for OP-13:

- Loop cuts that involve CLEC-requested non-standard methods, processes, or timelines (applies to OP-13A only)
- Records with invalid completion dates
- Records missing data essential to the calculation of the measurement per the PID which are not otherwise designated to be "counted as a miss"
- Invalid start/stop dates/times or invalid scheduled date/times
- Projects involving 25 or more lines.

The PID version 8.1 provides the following formula for the calculation of the OP-13A and OP-13B performance measure results:

[(Count of LSRs for Coordinated Unbundled Loop cuts completed "On Time") ÷ (Total Number of LSRs for Coordinated Unbundled Loop Cuts completed in the reporting period)] x 100

[(Count of LSRs for Coordinated Unbundled Loop cuts whose actual start time occurs without CLEC approval) ÷ (Total Number of LSRs for Coordinated Unbundled Loop Cuts completed in the reporting period)] x 100

The definition of OP-13 did not change during 2005.

The QPAPs of all 14 states include OP-13A. The QPAPs do not, however, include OP-13B.

2. Analysis and Evaluation

The scope of the 2005 ROC Audit required a partial re-audit of OP-13 based on three 2004 CPAP Audit recommendations and the CPAP audit requirements.

Based on the 2004 CPAP Audit Recommendations II-R20 and II-R22,²²⁸ the Colorado PUC determined that Qwest RRS documentation must be updated to properly reflect the method Qwest uses to calculate the OP-13 results.²²⁹ Liberty obtained a copy of Qwest's updated RRS Chapter 13, "Hot Cuts," documentation and confirmed that Qwest made the recommended documentation changes to the derived fields, exclusions, and "non-standard methodologies" identified by these two recommendations.

Based on the 2004 CPAP Audit Recommendation II-R21,²³⁰ the Colorado PUC determined that Qwest is required to exclude requests involving non-standard methodologies from the calculation of the OP-13 results.²³¹ As a result of its investigation into this finding, Qwest amended its code to exclude those coordinated cuts requesting an Appointment Time outside of the normal 8:00 a.m. to 5:00 p.m. Monday through Friday process hours in each of its separate time zones. Qwest also adapted the Reason Codes to accept a new code of '6' to designate non-standard methods or processes requested which would make the order ineligible for OP-13A results. Qwest implemented this code change for the January 2007 data produced in February 2007.²³² Liberty reviewed the coding changes made by Qwest to the OP-13 Ad Hoc file to exclude these non-standard records from its calculation of the OP-13 measure.²³³ Liberty also verified that Qwest conducted an impact analysis of this change on prior months' OP-13 results and determined that a rerun was not required according to the rerun guidelines.²³⁴ Because Qwest did not implement this process change until 2007, the 2005 RRS documentation does not reflect this change.

Liberty recalculated Qwest's individual, CLEC aggregate, and retail October 2005 reported results for each state to confirm that Qwest calculated them accurately. Liberty wrote its own code to perform its replication based on its interpretation of the PID. Using this code, Liberty recalculated the results for the loop types relevant to the QPAP for the measure OP-13, using the data found in the monthly Ad Hoc file.²³⁵ Liberty calculated the numerators, denominators, results, and standard deviation, and compared its recalculated results with these calculations with those reported on Qwest's Summarized Master Table.²³⁶ Liberty successfully replicated 100 percent of Qwest's state-specific reported metric results for measure OP-13.

²²⁸ NorthStar/Vantage's Final Report of Qwest's CPAP 2004 Annual Audit; March 3, 2006.

²²⁹ Colorado PUC Decision No. C06-1216A, Docket No. 02M-259T.

²³⁰ NorthStar/Vantage's Final Report of Qwest's CPAP 2004 Annual Audit; March 3, 2006.

²³¹ Colorado PUC Decision No. C06-1216A, Docket No. 02M-259T.

²³² Response to Data Request #41.

²³³ Response to Data Request #67.

²³⁴ Response to Data Request #194.

²³⁵ Response to Data Request #175.

²³⁶ Response to Data Request #5.

I. OP-15

1. Background

The OP-15 performance measure evaluates the extent to which Qwest's pending orders are late, focusing on the average number of days the pending orders are delayed past the Applicable Due Date, as of the end of the reporting period.

OP-15A measures the average number of business days that pending orders are delayed beyond the Applicable Due Date for reasons attributed to Qwest. OP-15A includes all pending inward orders (*i.e.*, Change, New, and Transfer order types) for which the Applicable Due Date recorded by Qwest has been missed. Change order types included in this measurement consist of all C orders representing inward activity. The PID defines the Applicable Due Date as the original due date or, if changed or delayed by the customer, the most recently revised due date. If Qwest changes a due date for Qwest reasons, the PID defines the Applicable Due Date as the customer-initiated due date, if any, that is i) subsequent to the original due date and ii) prior to a Qwest-initiated, changed due date, if any. Qwest calculates time intervals associated with customer-initiated due date changes or delays occurring after the Applicable Due Date by subtracting the latest Qwest-initiated due date, if any, following the Applicable Due Date, from the subsequent customer-initiated due date, if any.

OP-15B reports the number of pending orders measured in the numerator of OP-15A that were delayed for Qwest facility reasons.

The PID specifies the unit of measure for OP-15A as average business days and the unit of measure for OP-15B as number of orders pending facilities. OP-15 has over 30 product disaggregations for each sub-measure. The PID specifies that Qwest reports OP-15 as a diagnostic measure with an eventual expectation of parity with the comparable retail product, where applicable.

Qwest reports OP-15 for CLEC aggregate, individual CLECs, and Qwest retail. Qwest reports results at an individual statewide level for each of the 14 states in the Qwest service area, as well as at a regional level reflecting the 14-state aggregate results.

Version 8.1 of Qwest's 14-State 271 PID lists the following exclusions for OP-15:

- Disconnect, From, and Record order types
- Records involving official company services
- Records with invalid due dates or application dates
- Records with invalid product codes
- Records missing data essential to the calculation of the measurement per the PID.

The PID version 8.1 provides the following formula for the calculation of the OP-15A and OP-15B performance measure results:

$\Sigma[(\text{Last Day of Reporting Period}) - (\text{Applicable Due Date of Late Pending Order}) - (\text{Time intervals associated with customer-initiated due date changes or delays occurring after the Applicable Due Date})] \div (\text{Total Number of Pending Orders Delayed for Qwest reasons as of the last day of Reporting Period})$

Count of pending orders measured in numerator of OP-15A that were delayed for Qwest facility reasons

The definition of OP-15 did not change during 2005.

None of the state QPAPs include OP-15.

2. Analysis and Evaluation

The scope of the 2005 ROC Audit required a partial re-audit of OP-15 based on a change Qwest has made since the last audit of this measure and two 2004 ROC Audit findings.

Liberty's 2004 ROC Audit Finding #4 found that Qwest did not include all products that should roll up to the DS3 and Above product disaggregation when calculating the OP-5A measure.²³⁷ This finding also affected Qwest's calculation of the OP-3, OP-4, OP-6, and OP-15 measure results. Please refer to the OP-5A section of this document for more details on Liberty's 2004 ROC Audit Finding #4 and its analysis of Qwest's response to the finding.

Liberty's 2004 ROC Audit Finding #7 found that Qwest did not use the correct retail product as the parity standard for the wholesale Non-Loaded 2-Wire Loop product disaggregation when calculating the OP-5A measure.²³⁸ This finding also affected Qwest's calculation of the OP-3, OP-4, OP-6, and OP-15 measure results. Please refer to the OP-5A section of this document for more details on Liberty's 2004 ROC Audit Finding #7 and its analysis of Qwest's response to the finding.

Qwest improved its RRS process to identify Coordinated Access records not eligible for PAP reporting.²³⁹ Qwest explained that Coordinated Access occurs when end-user customers request that their IXC facilitate their interLATA service order(s). The IXC acts on behalf of the end-user, who is billed directly by Qwest for the service. Qwest indicated that in its new process it excludes a record from PAP measurement results calculations when it identifies a record with a product code of 'DS0,' 'DS1,' or 'DS3' and an ACNA code of 'ZZZ.'²⁴⁰ Qwest retains records that contain an ACNA equal to 'ZZZ' and a product code other than 'DS0,' 'DS1,' or 'DS3' and includes these records in its PAP report measurement results.²⁴¹

²³⁷ Liberty's Final Report on the Audit of Qwest's Performance Assurance Plans, October 28, 2005.

²³⁸ Liberty's Final Report on the Audit of Qwest's Performance Assurance Plans, October 28, 2005.

²³⁹ This action also impacts Qwest's calculation of the PO-15, OP-3, OP-4, and OP-6 measures.

²⁴⁰ Responses to Data Requests #25, #149, and #258.

²⁴¹ Responses to Data Requests #149, #258, and #294.

Qwest modified its code in the June 2005 release produced in July 2005 to include this method of identifying Coordinated Access orders.²⁴² Qwest stated that it did not rerun OP-15 results because “there would have been no material or meaningful impact upon results,” noting that OP-15 is a diagnostic measure.²⁴³ Liberty agrees that because OP-15 is a diagnostic measure and not included in any QPAP payment calculation, a rerun is unnecessary to correct payments. Liberty investigated the conditions under which Qwest excludes a record with an ACNA code of ‘ZZZ’ and verified that the combination of the ‘ZZZ’ ACNA code and the product codes ‘DS0,’ ‘DS1,’ or ‘DS3’ indicates that the order was for a Coordinated Access service and thus appropriate to exclude. Liberty also reviewed the RRS coding changes implemented by Qwest to identify these records for exclusion from the OP-15 results calculation and verified that these changes are consistent with the intent to identify and exclude Coordinated Access order activity.²⁴⁴ Qwest indicated that because this method for Coordinated Access product identification is not a reportable product or service for PAP reporting, updates to the Pre-Ordering and Ordering and Provisioning sections of its RRS documentation were not required.²⁴⁵

The scope of the 2005 ROC Audit did not require replication this OP-15. Liberty determined that it did not need to replicate Qwest’s reported OP-15 results because the coding changes made by Qwest did not impact the manner in which Qwest calculates the measure results.

J. OP-17

1. Background

The OP-17 performance measure evaluates the quality with which Qwest completes LNP telephone number porting, focusing on the degree to which porting occurs without implementing associated disconnects before the scheduled time/date.

OP-17A measures the percentage of all LNP telephone numbers, both stand alone and associated with loops, that Qwest ports, without disconnects, before the scheduled time/date, as identified by associated qualifying trouble reports. OP-17A focuses on disconnects associated with timely CLEC requests for delaying the disconnect or no requests for delays. The PID defines the scheduled time/date as 11:59 p.m. on i) the due date of the LNP order recorded by Qwest or ii) the delayed disconnect date requested by the CLEC, when the CLEC submits a timely request for delay of disconnect. Qwest considers a CLEC request for delay of disconnection as timely if received by Qwest before 8:00 p.m. Mountain Time on the current due date of the LNP order recorded by Qwest.

OP-17B measures the percentage of all LNP telephone numbers, both stand alone and associated with loops, that Qwest ports without disconnects before the scheduled time/date, as identified by associated qualifying trouble reports. OP-17B includes only disconnects associated with

²⁴² Responses to Data Requests #24 and #25.

²⁴³ Qwest comments on Liberty’s Draft Final Report.

²⁴⁴ Response to Data Request #294.

²⁴⁵ Response to Data Request #25.

untimely CLEC requests for delaying the disconnect. Qwest considers a CLEC request for delay of disconnect as “untimely” if received by Qwest after 8:00 p.m. Mountain Time on the current due date of the LNP order recorded by Qwest and before 12:00 p.m. (noon) Mountain Time on the day after the current due date.

The PID defines disconnects as the removal of switch translations, including the ten-digit trigger. The PID counts disconnects implemented early as a “miss” under this measurement if the CLEC identifies early disconnect to Qwest via trouble reports, within four calendar days of the actual disconnect date, that Qwest confirms are caused by disconnects being made before the scheduled time. OP-17 includes all CLEC orders for LNP telephone numbers completed in the reporting period.

The PID does not disaggregate OP-17A and OP-17B further than focusing on timely requests for delays or no delay (OP-17A) and untimely requests for delaying the disconnect (OP-17B). The PID specifies a benchmark standard for OP-17A of 98.25 percent, and lists OP-17B as a diagnostic measure.

Qwest reports OP-17 for CLEC aggregate and individual CLECs. Qwest reports results at an individual statewide level for each of the 14 states in the Qwest service area, as well as at a regional level reflecting the 14-state aggregate results.

Version 8.1 of Qwest's 14-State 271 PID lists the following exclusions for OP-17:

- Trouble reports notifying Qwest of early disconnects when the CLEC has failed to submit timely requests to have disconnects held for later implementation (applies to OP-17A only).
- Trouble reports not related to valid requests (LSRs) for LNP and associated disconnects.
- LNP requests that do not involve automatic triggers, *e.g.*, DID lines without separate and unique telephone numbers (TNs), and Centrex 21.
- Records with invalid trouble receipt dates.
- Records with invalid cleared, closed or due dates.
- Records with invalid product codes.
- Records missing data essential to the calculation of the measurement.
- Trouble reports notifying Qwest of early disconnects when the CLEC did not submit its request by 12:00 p.m. Mountain Time (noon) on the day after the LNP due date to have disconnects held for later implementation (applies to OP-17B only).

The PID version 8.1 provides the following formula for the calculation of the OP-17 performance measure results:

[(Total number of LNP TNs ported pursuant to orders completed in the reporting period – Number of TNs with qualifying trouble reports notifying Qwest that

*(disconnection before the scheduled time has occurred) ÷ Total Number of LNP
TNs ported pursuant to orders completed in the reporting period] x 100*

The definition of OP-17 did not change during 2005.

The QPAPs of all 14 states include OP-17A. The QPAPs do not, however, include OP-17B.

2. Analysis and Evaluation

The scope of the 2005 ROC Audit required a partial re-audit of OP-17 based on changes Qwest has made since the last audit of this measure, four 2004 CPAP Audit recommendations, and the CPAP audit requirements.

During 2005, Qwest also implemented a change to identify and exclude records associated with the DMS-10 switches from the calculation of the OP-8 and OP-17 measures. Please refer to the OP-8 section for further discussion.

During 2005, Qwest also implemented a change to identify and exclude certain orders issued to split out DID ranges from the calculation of the OP-17 results. As a result of its internal analysis, Qwest identified orders for DID ranges which should not be included in the OP-17 results. Qwest modified its code to exclude these records from the OP-17 measures by applying an exception code for "Not Eligible Order Type" (exception code 57) to any record for which the PON indicates a records correction or the order did not start with a 'C' or 'D.' Qwest completed this code change in the January 2005 release, produced in February 2005.²⁴⁶ Liberty reviewed the coding change made by Qwest to the OP-17 Ad Hoc file to exclude these DID orders when calculating its results for the OP-17 measure.²⁴⁷ Liberty also verified that Qwest conducted an impact analysis of this change on prior months' OP-17 results and determined that a rerun was not required according to the rerun guidelines.²⁴⁸ Liberty obtained an updated copy of Qwest's RRS Chapter 22, "Number Portability," documentation and verified Qwest had properly updated the documentation to reflect these changes.²⁴⁹

Based on the 2004 CPAP Audit Recommendation II-R31,²⁵⁰ the Colorado PUC determined that Qwest needed to reconcile the denominator used for the calculation on the OP-8 measure with the denominator used for the calculation of the OP-17 measure.²⁵¹ The denominators of these two measures are both based on the total number of LNP activations and, as such, should correlate. Qwest indicated that it investigated the differences between the denominators for these two measures first by comparing the two Ad Hoc files to determine which records it included in both and which ones it included in only the OP-17 file (all records in the OP-8 file were included

²⁴⁶ Responses to Data Requests #42 and #60.

²⁴⁷ Response to Data Request #227.

²⁴⁸ Response to Data Request #200.

²⁴⁹ Response to Data Request #42.

²⁵⁰ NorthStar/Vantage's Final Report of Qwest's CPAP 2004 Annual Audit; March 3, 2006

²⁵¹ Colorado PUC Decision No. C06-1216A, Docket No. 02M-259T.

in the OP-17 file). Qwest then reviewed the records that it only included in the OP-17 file and found that it was including three types of ineligible record types in the denominator of the OP-17 calculation. These ineligible record types included i) orders on which Qwest had not received a port request for the telephone numbers on the order, ii) duplicate order/telephone numbers, and iii) orders with a null in the telephone number field. Qwest completed its analysis of this issue in February 2007 and implemented changes to the OP-17 code to only include eligible orders. Qwest made this coding change with the February 2007 result, produced in March 2007.²⁵² Liberty reviewed the coding changes made by Qwest to the OP17 Ad Hoc file to exclude these ineligible records from the denominator of the OP-17 measure.²⁵³ Liberty also verified that Qwest conducted an impact analysis of this change on prior months' OP-17 results and determined that a rerun was not required according to the rerun guidelines.²⁵⁴ Because Qwest did not make this code change until March 2007, the 2005 RRS documentation did not include this update. Qwest indicated that it would incorporate the documentation updates associated with this change into the 2007 documentation update that will be consolidated and finalized in the first quarter of 2008.²⁵⁵

Based on the 2004 CPAP Audit Recommendation II-R32,²⁵⁶ the Colorado PUC determined that Qwest needed to identify and exclude LNP trouble reports not determined to be disconnected in error from the calculation of the OP-17 results.²⁵⁷ In November 2004, Qwest enhanced the call center database to bring in the product description of local service number portability (LSNP). Qwest also added coding at that time to properly identify Disconnect in Error (DIE). Qwest's coding change did not identify records as DIE if the production description was 'LSNP' and the ticket receipt date was after the service order completion date. Additionally, Qwest also did not count as DIE, those records with a product that was not 'LSNP' when the ticket was received after the service order effective billing date.²⁵⁸ Liberty reviewed the coding changes made by Qwest to the OP-17 Ad Hoc file to properly identify DIE records on LNP trouble reports for the calculation of the OP-17 PID.²⁵⁹ Liberty also verified that Qwest made the appropriate updates to Chapter 22, "Number Portability," of its RRS documentation to reflect this code change and that Qwest conducted an impact analysis of this change on prior months' OP-17 results. Liberty agreed with Qwest's determination that a rerun was not required according to the rerun guidelines.²⁶⁰

Based on the 2004 CPAP Audit Recommendation II-R33,²⁶¹ the Colorado PUC determined that Qwest's RRS documentation must be updated to accurately describe the source of the data extracted, formulae, exclusions, and how Qwest performs the calculations to determine the OP-

²⁵² Response to Data Request #36.

²⁵³ Response to Data Request #151.

²⁵⁴ Response to Data Request #199.

²⁵⁵ Response to Data Request #36 (supplemental). Because this change has not yet taken place, its verification is outside the audit scope.

²⁵⁶ NorthStar/Vantage's Final Report of Qwest's CPAP 2004 Annual Audit; March 3, 2006.

²⁵⁷ Colorado PUC Decision No. C06-1216A, Docket No. 02M-259T.

²⁵⁸ Response to Data Request #43.

²⁵⁹ Response to Data Request #224.

²⁶⁰ Responses to Data Requests #43 and #201.

²⁶¹ NorthStar/Vantage's Final Report of Qwest's CPAP 2004 Annual Audit; March 3, 2006.

17 results.²⁶² Liberty obtained a copy of Qwest's updated RRS Chapter 22, "Number Portability," documentation and verified that Qwest made the recommended documentation changes to reflect how it derives key fields, sets flags, and calculates the results.²⁶³

Based on the 2004 CPAP Audit Recommendation II-R30,²⁶⁴ the Colorado PUC determined that Qwest should update the OP-17 and MR-11 PIDs to reflect what happens to requests received right at 8:00 p.m. for the CPAP, and the Colorado PUC also allowed Qwest to determine whether and how to incorporate this change in the 14-state PID document.²⁶⁵ Pursuant to the Commission's decision, Qwest revised the CPAP to include notations in Appendix B for OP-17 stating that "[a] CLEC request for delay of disconnection is considered 'untimely' if received by Qwest on or after 8:00 PM MT on the current due date of the LNP order recorded by Qwest and before noon on the day after the current due date."²⁶⁶ Qwest made its compliance filing on February 9, 2007, and the Colorado PUC approved it on February 23, 2007. Liberty obtained the updated version of Qwest's CPAP Appendix B and verified that Qwest made the appropriate changes to reflect the criteria for an untimely request for a disconnect delay.²⁶⁷ Liberty also verified that this change did not require a coding change or a rerun analysis by Qwest.²⁶⁸ As noted, the Colorado PUC did not require Qwest to incorporate the change in its 14-state PID. Liberty observes that Qwest has not done so but believes it would be helpful if it included a notation in its next PID version that is consistent with the CPAP change.

Liberty recalculated Qwest's individual, CLEC aggregate, and retail October 2005 reported results for each state to confirm that Qwest calculated them accurately. Liberty wrote its own code to perform its replication based on its interpretation of the PID. Using this code, Liberty recalculated the results relevant to the QPAP for the measure OP-17, using the data found in the monthly Ad Hoc file.²⁶⁹ Liberty calculated the numerators, denominators, results, and standard deviation, and compared its recalculated results with these calculations with those reported on Qwest's Summarized Master Table.²⁷⁰ Liberty successfully replicated 100 percent of Qwest's state-specific reported metric results for measure OP-17.

²⁶² Colorado PUC Decision No. C06-1216A, Docket No. 02M-259T.

²⁶³ Response to Data Request #44.

²⁶⁴ NorthStar/Vantage's Final Report of Qwest's CPAP 2004 Annual Audit; March 3, 2006.

²⁶⁵ Colorado PUC Decision No. C06-1216A, Docket No. 02M-259T.

²⁶⁶ Response to Data Request #45.

²⁶⁷ Response to Data Request #66.

²⁶⁸ Response to Data Request #225.

²⁶⁹ Response to Data Request #175.

²⁷⁰ Response to Data Request #5.

VII. Maintenance and Repair (MR)

A. MR-3

1. Background

The MR-3 performance measure evaluates timeliness of repair for specified services, focusing on out-of-service trouble reports cleared by Qwest within the standard estimate. Qwest measures the percentage of out of service trouble reports cleared within 24 hours of receipt for both CLEC and retail customer trouble reports.

MR-3 includes all trouble reports, closed during the reporting period that involve an out-of-service condition (*i.e.*, unable to place or receive calls). Qwest measures time from the date and time the CLEC first notifies Qwest of the trouble to the date and time Qwest clears the trouble.

Qwest disaggregates MR-3 into the following sub-measures:

- MR-3A: Dispatches within MSAs.
- MR-3B: Dispatches outside MSAs
- MR-3C: No Dispatches
- MR-3D: In Interval Zone 1 areas
- MR-3E: In Interval Zone 2 areas.

The MR-3A, MR-3B, and MR-3C sub-measures report on products that have MSA-type disaggregations. The MR-3D and MR-3E sub-measures report on products that have Zone-type disaggregations.²⁷¹ The PID specifies most of the standards as parity with the retail service equivalent but specifies some products as diagnostic.²⁷²

Qwest reports MR-3 for CLEC aggregate, individual CLECs, and Qwest retail. Qwest reports results at an individual statewide level for each of the 14 states in the Qwest service area, as well as at a regional level reflecting the 14-state aggregate results.

Version 8.1 of Qwest's 14-State 271 PID lists the following exclusions for MR-3:

- Trouble reports measured from MTAS data (*i.e.*, products listed for MSA-type disaggregation); and coded to disposition codes for Customer Action, Non-Telco Plant, Trouble Beyond the Network Interface, and Non-Dispatch, non-Qwest (includes CPE, Customer Instruction, Carrier, Alternate Provider).
- Trouble reports measured from WFA data (*i.e.*, products listed for Zone-type disaggregation), and coded to trouble codes for Carrier Action (IEC) and CPE.

²⁷¹ Qwest disaggregates designed service products by Zone and non-design products by MSA.

²⁷² Qwest reports Loop Splitting as a diagnostic measure in all states. Additionally, Qwest reports Sub-Loop Unbundling as diagnostic in all states except Colorado, where this product has a standard of parity with retail ISDN-BRI.

- Subsequent trouble reports of any trouble before Qwest has closed the original trouble report.
- Information tickets generated for internal Qwest system/network monitoring purposes.
- Time delays due to “no access” for products/services listed in Product Reporting under “Zone-type Disaggregation” are excluded from the repair time.
- For products measured from MTAS data (products listed for MSA-type disaggregation), trouble reports involving a "no access" delay
- Trouble reports on the day of installation before the technician/installer reports the installation work as complete.
- Records involving official company services.
- Records with invalid trouble receipt dates.
- Records with invalid cleared or closed dates.
- Records with invalid product codes.
- Records missing data essential to the calculation of the measurement.

The PID version 8.1 provides the following formula for the calculation of the MR-3 performance measure results:

$$\left[\frac{\text{(Number of Out of Service Trouble Reports closed in the reporting period that are cleared within 24 hours)}}{\text{(Total Number of Out of Service Trouble Reports closed in the reporting period)}} \right] \times 100$$

The definition of MR-3 did not change during 2005.

The QPAPs of all 14 states include MR-3.

2. Analysis and Evaluation

The scope of the 2005 ROC Audit required a replication of MR-3 results based on the CPAP audit requirements. Liberty recalculated Qwest's individual, CLEC aggregate, and retail October 2005 reported results for each state to confirm that Qwest calculated them accurately. Liberty wrote its own code to perform its replication based on its interpretation of the PID. Using this code, Liberty recalculated the results for every product disaggregation relevant to the QPAP for the measure MR-3, using the data found in the monthly Ad Hoc file.²⁷³ Liberty calculated the numerators, denominators, results, and standard deviations, and compared its recalculated results with these calculations with those reported on Qwest's Summarized Master Table.²⁷⁴ Liberty successfully replicated 100 percent of Qwest's state-specific reported metric results for measure MR-3.

²⁷³ Response to Data Request #176.

²⁷⁴ Response to Data Request #5.

B. MR-5

1. Background

The MR-5 performance measure evaluates timeliness of repair for specified services, focusing on all trouble reports of all types (including out of service and service affecting troubles) and focusing on the number of such trouble reports cleared within the standard estimate for specified services. Qwest measures the percentage of trouble reports cleared within four hours of receipt for trouble reports from CLECs or from retail customers.

MR-5 includes all trouble reports closed during the reporting period. Qwest measures time from the date and time that the CLEC first notifies Qwest of the trouble to the date and time the trouble is cleared by Qwest.

Qwest disaggregates MR-5 into the following sub-measures:

- MR-5A: In Interval Zone 1 areas
- MR-5B: In Interval Zone 2 areas.

MR-5A and MR-5B sub-measures each have 15 product disaggregations. The PID specifies most of the standards as parity with the retail service equivalent but specifies some products as diagnostic.²⁷⁵

Qwest reports MR-5 for CLEC aggregate, individual CLECs, and Qwest retail. Qwest reports results at an individual statewide level for each of the 14 states in the Qwest service area, as well as at a regional level reflecting the 14-state aggregate results.

Version 8.1 of Qwest's 14-State 271 PID lists the following exclusions for MR-5:

- Trouble reports measured from WFA data (*i.e.*, products listed for Zone-type disaggregation), and coded to trouble codes for IEC and CPE
- Subsequent trouble reports of any trouble before Qwest has closed the original trouble report
- Information tickets generated for internal Qwest system/network monitoring purposes
- Time delays due to "no access" are excluded from the repair time
- Trouble reports on the day of installation before the technician/installer reports the installation work complete
- Records involving official company services
- Records with invalid trouble receipt dates

²⁷⁵ The PID lists EEL-DS0 and EEL-DS3 as diagnostic measures.

- Records with invalid cleared or closed dates
- Records with invalid product codes
- Records missing data essential to the calculation of the measurement.

The PID version 8.1 provides the following formula for the calculation of the MR-5 performance measure results:

$$\frac{[(\text{Number of Trouble Reports closed in the reporting period that are cleared within 4 hours}) \div (\text{Total Trouble Reports closed in the reporting period})] \times 100}{}$$

The definition of MR-5 did not change during 2005.

The QPAPs of all 14 states include MR-5.

2. Analysis and Evaluation

The scope of the 2005 ROC Audit required a replication of MR-5 results based on the CPAP audit requirements. Liberty recalculated Qwest's individual, CLEC aggregate, and retail October 2005 reported results for each state to confirm that Qwest calculated them accurately. Liberty wrote its own code to perform its replication based on its interpretation of the PID. Using this code, Liberty recalculated the results for every product disaggregation relevant to the QPAP for the measure MR-5, using the data found in the monthly Ad Hoc file.²⁷⁶ Liberty calculated the numerators, denominators, results, and standard deviations, and compared its recalculated results with these calculations with those reported on Qwest's Summarized Master Table.²⁷⁷ Liberty successfully replicated 100 percent of Qwest's state-specific reported metric results for measure MR-5.

C. MR-6

1. Background

The MR-6 performance measure evaluates timeliness of repair, focusing how long it takes Qwest to restore services to proper operation. Qwest measures the time actually taken to clear trouble reports.

MR-6 includes all trouble reports closed during the reporting period. MR-6 includes customer direct reports, customer-relayed reports, and test assist reports that result in a trouble report. Qwest measures time from the date and time the CLEC first notifies Qwest of the trouble to the date and time the trouble is cleared by Qwest.

²⁷⁶ Response to Data Request #176.

²⁷⁷ Response to Data Request #5.

Qwest disaggregates MR-6 into the following sub-measures:

- MR-6A: Dispatches within MSAs.
- MR-6B: Dispatches outside MSAs
- MR-6C: No Dispatches
- MR-6D: In Interval Zone 1 areas
- MR-6E: In Interval Zone 2 areas.

The MR-6A, MR-6B, and MR-6C sub-measures report on products that have MSA-type disaggregations. The MR-6D and MR-6E sub-measures report on products that have Zone-type disaggregations. The PID specifies most of the standards as parity with the retail service equivalent but specifies some products as diagnostic.²⁷⁸

Qwest reports MR-6 for CLEC aggregate, individual CLECs, and Qwest retail. Qwest reports results at an individual statewide level for each of the 14 states in the Qwest service area, as well as at a regional level reflecting the 14-state aggregate results.

Version 8.1 of Qwest's 14-State 271 PID lists the same exclusions for MR-6 as it does for MR-3:

- Trouble reports measured from MTAS data (*i.e.*, products listed for MSA-type disaggregation); and coded to disposition codes for Customer Action, Non-Telco Plant, Trouble Beyond the Network Interface, and Non-Dispatch, non-Qwest (includes CPE, Customer Instruction, Carrier, Alternate Provider).
- For trouble reports measured from WFA data (*i.e.*, products listed for Zone-type disaggregation), and coded to trouble codes for Carrier Action (IEC) and CPE.
- Subsequent trouble reports of any trouble before Qwest has closed the original trouble report.
- Information tickets generated for internal Qwest system/network monitoring purposes.
- Time delays due to "no access" for products/services listed in Product Reporting under "Zone-type Disaggregation" are excluded from the repair time.
- For products measured from MTAS data (products listed for MSA-type disaggregation), trouble reports involving a "no access" delay.
- Trouble reports on the day of installation before the technician/installer reports the installation work as complete.
- Records involving official company services.
- Records with invalid trouble receipt dates.
- Records with invalid cleared or closed dates.
- Records with invalid product codes.

²⁷⁸ Qwest reports Loop Splitting, Dark Fiber-IOF, Dark Fiber-Loop, EEL-DS0 and EEL-DS3 as diagnostic measures. Additionally, Qwest reports Line Sharing and Sub-Loop Unbundling as diagnostic measures in all states except Colorado where these products have a standard of parity with retail.

- Records missing data essential to the calculation of the measurement.

The PID version 8.1 provides the following formula for the calculation of the MR-6 performance measure results:

$$\frac{\sum[(Date \ \& \ Time \ Trouble \ Report \ Cleared) - (Date \ \& \ Time \ Trouble \ Report \ Opened)]}{(Total \ number \ of \ Trouble \ Reports \ closed \ in \ the \ reporting \ period)}$$

The definition of MR-6 did not change during 2005.

The QPAPs of all 14 states include MR-6.

2. Analysis and Evaluation

The scope of the 2005 ROC Audit required a replication of MR-6 results based on the CPAP audit requirements. Liberty recalculated Qwest's individual, CLEC aggregate, and retail October 2005 reported results for each state to confirm that Qwest calculated them accurately. Liberty wrote its own code to perform its replication based on its interpretation of the PID. Using this code, Liberty recalculated the results for every product disaggregation relevant to the QPAP for the measure MR-6, using the data found in the monthly Ad Hoc file.²⁷⁹ Liberty calculated the numerators, denominators, results, and standard deviations, and compared its recalculated results with these calculations with those reported on Qwest's Summarized Master Table.²⁸⁰ Liberty successfully replicated 100 percent of Qwest's state-specific reported metric results for measure MR-6.

D. MR-7

1. Background

The MR-7 performance measure evaluates the accuracy of repair actions, focusing on the number of repeated trouble reports received for the same line/circuit within 30 calendar days. Qwest measures the percentage of trouble reports that are repeated within 30 days on end-user lines and circuits.

MR-7 includes all trouble reports closed during the reporting period that have a repeated trouble report received within 30 days of the initial trouble report for the same service (regardless of whether the report is about the same type of trouble for that service). Qwest compares the end-user telephone number or circuit access code of the initial trouble reports closed during the reporting period with reports received within 30 days of when the initial trouble report closed. MR-7 includes trouble reports due to Qwest network or system causes, customer-direct and

²⁷⁹ Response to Data Request #176.

²⁸⁰ Response to Data Request #5.

customer-relayed reports. The PID defines the 30-day period applied in the numerator of the formula as from the date and time Qwest closes the initial trouble report to the date and time that Qwest receives (*i.e.*, opens) the next, or “repeat” trouble report.

Qwest disaggregates MR-7 as follows:

- MR-7A: Dispatches within MSAs.
- MR-7B: Dispatches outside MSAs
- MR-7C: No Dispatches
- MR-7D: In Interval Zone 1 areas
- MR-7E: In Interval Zone 2 areas.

The MR-7A, MR-7B, and MR-7C sub-measures report on products that have MSA-type disaggregations. The MR-7D and MR-7E sub-measures report on products that have a Zone-type disaggregation. The MR-7 sub-measures combined report on over 30 product disaggregations. The PID specifies most of the standards as parity with the retail service equivalent but specifies some products as diagnostic.²⁸¹

Qwest reports MR-7 for CLEC aggregate, individual CLECs, and Qwest retail. Qwest reports results at an individual statewide level for each of the 14 states in the Qwest service area, as well as at a regional level reflecting the 14-state aggregate results. Qwest reports MR-7 one month in arrears in order to cover the 30-day period following the initial trouble report.

Version 8.1 of Qwest's 14-State 271 PID lists the following exclusions for MR-7:

- Trouble reports coded for products measured from MTAS data (*i.e.*, products listed for MSA-type disaggregation); trouble reports coded to disposition codes for Customer Action, Non-Telco Plant, Trouble Beyond the Network Interface, and Non-Dispatch, non-Qwest (includes CPE, Customer Instruction, Carrier, Alternate Provider).
- Trouble reports coded for products measured from WFA data (*i.e.*, products listed for Zone-type disaggregation), trouble reports coded to trouble codes for Carrier Action (IEC) and CPE.
- Subsequent trouble reports of any trouble before the original trouble report is closed.
- Information tickets generated for internal Qwest system/network monitoring purposes.
- Trouble reports on the day of installation before the technician/installer reports the installation work complete.
- Records involving official company services.

²⁸¹ The PID lists Loop Splitting, Dark Fiber-IOF, Dark Fiber-Loop, EEL-DS0, and EEL-DS1 as diagnostic measures. Additionally, Line Sharing and Sub-Loop Unbundling are diagnostic in most states with some exceptions. In Arizona and Colorado, Line Sharing has a standard of parity with retail DSL, and in Colorado Sub-Loop Unbundling has a standard of parity with retail ISDN-BRI.

- Records with invalid trouble receipt dates.
- Records with invalid cleared or closed dates.
- Records with invalid product codes.
- Records missing data essential to the calculation of the measurement.

The PID version 8.1 provides the following formula for the calculation of the MR-7 performance measure results:

$$\left[\frac{\text{Total trouble reports closed within the reporting period that had a repeated trouble report received within 30 calendar days of when the initial trouble report closed}}{\text{Total number of Trouble Reports Closed in the reporting period}} \right] \times 100$$

The definition of MR-7 did not change during 2005.

The QPAPs of all 14 states include MR-7.

2. Analysis and Evaluation

The scope of the 2005 ROC Audit required a full audit of MR-7 because of a significant change in the calculation process that Qwest made since the last audit of this measure.

Qwest uses data from two different legacy source systems, Loop Maintenance Operating System (LMOS) and WFA-C for the calculation the MR-7 measure. Trouble ticket data for non-designed services originate in Qwest's LMOS. Trouble ticket data flow from LMOS to MTAS, an intermediate database for the collection and storage of trouble ticket data on non-design services. From MTAS, transaction-level trouble report data flow to PANS and then to RRS for measure calculation. Qwest obtains trouble report data on design services from its WFA-C legacy source system. The trouble report data flow from WFA-C to PANS and then to RRS for use in performance measure calculation.²⁸²

In August of 2004, Qwest implemented a process change for the MR-7 measure calculation. Prior to this change Qwest took all trouble reports for the current month and looked backward in time to determine whether a trouble report existed on the same line/circuit within the previous thirty days. Beginning in August 2004, Qwest holds all the trouble tickets and looks forward in time to determine whether a "future" trouble ticket on the same line/circuit exists within thirty days of the original trouble.

Data Validation

As part of its 2004 ROC Audit, Liberty examined the flow of the trouble ticket data from the LMOS and WFA-C source systems through PANS to RRS. Qwest confirmed that, for all of the

²⁸² Unlike LMOS and the SOP, WFA-C has some data storage capabilities eliminating the need for an intermediary database.

MR measures, it has made no changes to the data flows from the source systems to PANS or from PANS to RRS in 2005.²⁸³ Therefore, Liberty did not reexamine this process or programming code during its 2005 audit.

For the data integrity review of MR-7, Liberty focused primarily on the two Ad Hoc files that Qwest uses for the calculation of the measure's results.²⁸⁴ Liberty reviewed the code and process used by Qwest to create these files in RRS.²⁸⁵ Qwest uses the WFAC and the MTAS Ad Hoc files created for the other MR measures as the source data for the creation of the MR7M and MR7W Ad Hoc files. To create the MR7 specific Ad Hoc files, RRS pulls in data from the current and the previous month's MTAS and WFAC Ad Hoc files. Qwest requires two month's worth of data for the MR7 results calculation to be able to make a determination of whether a trouble report experienced a repeat trouble within 30 days of the original trouble report. Qwest calculates the 30 day interval by subtracting the date that the original trouble was cleared from the date Qwest received the second trouble report on the same line/circuit. After reviewing the SAS programming with Qwest, Liberty was satisfied that Qwest's process for the creation of the MR7M and MR7W Ad Hoc file was adequate to ensure that it retrieved all the relevant data for the calculation of the MR-7 measure and that this data did not change during the process.²⁸⁶ Liberty also verified that Qwest's process excludes transactions from the MR-7 performance results according to the PID business rules.

Liberty also reviewed the data fields needed for the calculation of the MR-7 results that RRS adds during the creation of the monthly Ad Hoc files. Because the Ad Hoc files contain both original and derived data fields, Liberty used the original data fields in the monthly Ad Hoc files to validate the derived data fields. Liberty verified that Qwest correctly derives the data and information contained in these added fields from the source data and Qwest reference tables, as appropriate. Liberty also verified that Qwest maintains the integrity of the data through the data flow process (*i.e.*, data values are not changed or dropped). The critical derived data field values from the MR7M Ad Hoc file verified by Liberty include:

- FLAG – Qwest sets this flag to indicate whether the trouble report was for a retail or wholesale customer.
- MR7NEW – Qwest uses this flag to identify trouble reports that should be counted in the numerator of the results calculation.
- CLEC_CT – This flag identifies MTAS trouble reports that are to be excluded due to customer caused or non-Qwest plant troubles.
- F_REP – Qwest uses this flag to identify a MTAS future repeat trouble report received within 30 days of the original trouble report.
- FDIS – This field lists final disposition code on a MTAS trouble report.
- NPA – This field lists the area code of the customer's telephone number.

²⁸³ Response to Data Request #103.

²⁸⁴ Interview #1, May 8, 2007. Qwest creates the MR7M (for MTAS data) and the MR7W (for WFA data) Ad Hoc files in RRS.

²⁸⁵ Response to Data Request #157.

²⁸⁶ Interview #9, July 17, 2007.

- NXX – This field lists the exchange of the customer's telephone number.
- TELNO – This field lists the customer's telephone number.
- STATE – This field lists the state code based on look-up table.
- DISPATCH – Qwest uses this flag to indicate that trouble report required a dispatch.
- CLID_ID – This field lists the three character code used to identify the carrier associated with the trouble report.
- ENTY_CLS – This field lists the MSA/non-MSA indicator set based on look-up table.
- PRODUCT_CD – This field lists the code used to identify the product associated with the trouble report.

Liberty also verified the following critical derived data field values from the MR7W Ad Hoc file:

- FLAG – Qwest sets this flag to indicate whether the trouble report was for a retail or wholesale customer.
- CLEC_CT – This flag identifies WFAC trouble reports that are to be excluded due to coding for carrier action (IEC) or for CPE.
- MR7NEW – Qwest uses this flag to identify trouble reports that should be counted in the numerator of the results calculation.
- CHRF_CNT – Qwest uses this flag to identify a WFAC future repeat trouble report received within 30 days of the original trouble report.
- ENTY_CLS – Qwest sets this density zone indicator based on look-up table.
- DISPFLG – Qwest uses this flag to identify DSL services.
- PRODUCT_CD – This field lists the code used to identify the product associated with the trouble report.

Qwest calculates a variety of exclusion codes in RRS that it uses to exclude specific trouble reports from the MR-7 measure calculation. Qwest only includes those records with an exclusion code of "0" in the reported results. The following table lists the exclusion codes that can be found in the RRS Ad Hoc files that apply to the MR-7 measure:

| Exclusion Code | Exclusion Type |
|----------------|---|
| 1 | Test CLEC |
| 2 | Invalid state |
| 3 | Not an eligible product |
| 4 | Unknown product codes |
| 15 | Excluded invalid products from the Network Channel code match |
| 31 | Invalid CLEC |
| 36 | Trouble clear date prior to trouble receive date |
| 67 | Invalid E911 Current Center Location code |
| 99 | Non-Qwest relate trouble reports |
| 100 | Repair data exclusions |

Qwest uses these codes to identify trouble report records that it will not count toward the calculation of the MR-7 performance and payment results. Qwest excludes any trouble report assigned one of these exclusion codes from the results calculation of the MR-7 measure.

Liberty reviewed the logic used by Qwest to set the exclusion codes in the RRS program and was satisfied that Qwest set these codes in accordance with the PID.²⁸⁷ Additionally, Liberty verified that the exclusion code was being set properly based on a review of the original source data for the records excluded using one of these exclusion codes in the October 2005 Ad Hoc files.²⁸⁸

The key data fields found in the MR7M or MR7W files used for the calculation of the MR-7 results are: state code, exclusion code, CLEC identification code, product code, MR-7 numerator flag, flag used to identify CLEC caused or non-Qwest plant troubles, future repeat trouble within 30 days flag, dispatch flag, and MSA flag and density zone. Liberty examined the method that Qwest uses to populate these fields and to calculate the MR-7 measurement results. To calculate the denominator of the MR-7 measure, Qwest counts all trouble reports closed during the reporting period that have an exclusion code of "0" and a CLEC_CT equal to "0," which indicates that this record represents a trouble report that was not excluded for customer-caused reasons. Qwest determines the numerator for the measure based on the MR7M records with the future repeat trouble flag set to "1" or the MR7W records with the CHRF_CNT flag set to "1," indicating that the record is a repeat trouble report within 30 days of the original report. Qwest performs this calculation at a state level, as well as at a retail and CLEC specific level. Liberty concluded that Qwest's method for the calculation of the MR-7 measure conforms to the PID requirements.

Liberty reviewed all system changes implemented by Qwest that resulted in a rerun of the previously reported MR-7 results during 2005, in order to verify that the system changes that were implemented by Qwest conformed to the PID business rules. According to the *Summary of Notes for Qwest Regional Performance Results Reports* published on its web site, Qwest implemented three system changes between January 2005 and January 2006 that required a rerun of MR-7 results. However, Liberty found that Qwest actually implemented five system changes during 2005 that required a rerun of the previously reported MR-7 results.²⁸⁹ Liberty issued a finding to indicate that Qwest's Summary of Notes documentation does not accurately reflect all 271 performance results changes that occurred during the 2005 reporting year.²⁹⁰ Liberty addresses this issue in more detail in the Findings and Recommendations section. Liberty verified that the RRS coding associated with all five of these changes was in compliance with the PID requirements.

Liberty focused its data review on the October 2005 MR7M and MR7W Ad Hoc files.²⁹¹ Liberty reviewed both wholesale and retail transactions from these files using a random sample of approximately 10,000 records from each of the two Ad Hoc files. These records contained

²⁸⁷ Interview #9, July 17, 2007 and Interview #11, August 20, 2007.

²⁸⁸ With the October 2005 data, Liberty was able to verify the exclusion codes 1, 2, 4, 15, 31, 99, and 100. Qwest provided the Ad Hoc files in response to Data Request #176.

²⁸⁹ Responses to Data Requests #23 (supplemental), #297, and #331.

²⁹⁰ Liberty Finding 6.

²⁹¹ Response to Data Request #176.

trouble reports on diverse products from each of the fourteen states in the Qwest service area. Liberty also took selective samples of the records in these files that contained an exception value other than "0" to verify that Qwest was setting these exception codes correctly. These transactions contained both original and derived data fields. In order to substantiate the accuracy of the programming logic it examined earlier, Liberty reviewed each of the critical data fields, both derived and original, needed for the calculation of the MR-7 measure results to verify that Qwest was calculating the fields correctly based on the source data and, when appropriate, a look-up table. Liberty also verified that QPP products were properly identified based on the October 2005 Commercial Contracts Database supplied by Qwest.²⁹² In addition to the critical data field values, Liberty also focused this portion of its review on the exclusion codes derived by Qwest in the Ad Hoc files. Liberty found that Qwest was calculating all of the critical derived data fields properly with the exception of the repeat trouble report flags (F_REP in the MR7M file and CHRF_CNT in the MR7W file). During its analysis of the MR-7, WFAC and MTAS Ad Hoc data Liberty found records in each of these two files on which Qwest reported a trouble report for a line or circuit within 30 days of the original trouble report; however, Qwest did not flag these records as a repeat trouble.²⁹³ In response to Liberty's queries about these records, Qwest indicated that when it changed its MR-7 coding logic to look for future troubles it inadvertently changed the logic for calculating the 30 day interval by incorrectly using the first ticket's receipt date and the second ticket's close date.²⁹⁴ The correct calculation for this interval is the time from the close date of the first ticket to the receipt date of the second ticket. Liberty issued a finding that Qwest is not calculating the interval correctly to identify all lines/circuits that had a repeat trouble report within 30 days.²⁹⁵ Liberty addresses this issue in more detail in the Findings and Recommendations section.

Additionally, during its analysis of the records containing an exception code other than "0," Liberty found that Qwest was excluding records in the MR7M Ad Hoc with an exception code of 31 (*i.e.*, "invalid CLEC") even when the records contained sufficient information to identify the CLEC. In response to Liberty's query about these exclusions, Qwest agreed that the records identified by Liberty did contain sufficient information to make a valid CLEC identification but that under its current process, Qwest was not using the data found in the customer name ("CUSTN") field in the CLEC identification process for the MR-7 measure. Qwest indicated that it would implement an enhancement to its RRS code to use the additional data identified by Liberty when populating the CLEC ID field on a trouble record, thereby reducing the number of invalid CLEC exclusions applied to the MR-7 calculation.²⁹⁶ Liberty addresses the issue in more detail in the Findings and Recommendations section.²⁹⁷

Liberty also reviewed the MR-7 Master File, a summary of the transaction-level data from the Ad Hoc files created by Qwest. Qwest uses this Master File for performance measure reporting and calculation of QPAP payments. This file contains summaries at the reporting level (*e.g.*, state, product). Liberty reviewed the records found in these files to ensure that they were

²⁹² Responses to Data Requests #100 and #175.

²⁹³ Responses to Data Requests #176 and #283.

²⁹⁴ Responses to Data Requests #333 and #334.

²⁹⁵ Liberty Finding 8.

²⁹⁶ Response to Data Request #290.

²⁹⁷ Liberty Finding 5.

summarized correctly from the Ad Hoc file records. Liberty found that the Master File and payment input records accurately captured the retail and the CLEC aggregate results that Qwest reported. The records also matched the results that Liberty recalculated in each state.

Replication

Liberty recalculated Qwest's individual, CLEC aggregate, and retail October 2005 reported results for each state to confirm that Qwest calculated them accurately. Liberty wrote its own code to perform its replication based on its interpretation of the PID. Using this code, Liberty recalculated the results for every product disaggregation relevant to the QPAP for the measure MR-7, using the data found in the monthly Ad Hoc file.²⁹⁸ Liberty calculated the numerators, denominators, results, and standard deviations, and compared its recalculated results with these calculations with those reported on Qwest's Summarized Master Table.²⁹⁹ Liberty successfully replicated 100 percent of Qwest's state-specific reported metric results for measure MR-7.

E. MR-8

1. Background

The MR-8 performance measure evaluates the overall rate of trouble reports as a percentage of the total installed base of the service or element. Qwest measures trouble reports by product and compares them to the number of lines in service.

MR-8 includes all trouble reports closed during the reporting period. MR-8 includes all applicable trouble reports, including those that are out of service and those that are only service-affecting.

MR-8 has no sub-measures. MR-8 has over 30 product disaggregations. The PID specifies most of the standards as parity with the retail service equivalent but specifies some products as diagnostic.³⁰⁰

Qwest reports MR-8 for CLEC aggregate, individual CLECs, and Qwest retail. Qwest reports results at an individual statewide level for each of the 14 states in the Qwest service area, as well as at a regional level reflecting the 14-state aggregate results.

Version 8.1 of Qwest's 14-State 271 PID lists the following exclusions for MR-8:

- For trouble reports measured from MTAS data (*i.e.*, products listed for MSA-type disaggregation); and coded to disposition codes for Customer Action, Non-Telco Plant, Trouble Beyond the Network Interface, and Non-Dispatch, non-Qwest (includes CPE, Customer Instruction, Carrier, Alternate Provider)

²⁹⁸ Response to Data Request #176.

²⁹⁹ Response to Data Request #5.

³⁰⁰ Qwest reports Loop Splitting, Dark Fiber-IOF, Dark Fiber-Loop, EEL-DS0, and EEL-DS3 as diagnostic measures. Additionally, Qwest reports Line Sharing and Sub-Loop Unbundling as diagnostic in all states except Colorado where these products have a parity with retail standard

- For trouble reports measured from WFA data (*i.e.*, products listed for Zone-type disaggregation), and coded to trouble codes for Carrier Action (IEC) and CPE
- Subsequent trouble reports of any trouble before Qwest has closed the original trouble report
- Information tickets generated for internal Qwest system/network monitoring purposes
- Trouble reports on the day of installation before the technician/installer reports the installation work as complete
- Records involving official company services
- Records with invalid trouble receipt dates
- Records with invalid cleared or closed dates
- Records with invalid product codes
- Records missing data essential to the calculation of the measurement.

The PID version 8.1 provides the following formula for the calculation of the MR-8 performance measure results:

[(Total number of trouble reports closed in the reporting period involving the specified service grouping) ÷ (Total number of the specified services that are in service in the reporting period)] x 100

The definition of MR-8 did not change during 2005.

The QPAPs of all 14 states include MR-8.

2. Analysis and Evaluation

The scope of the 2005 ROC Audit required a replication of MR-8 results based on the CPAP audit requirements. Liberty recalculated Qwest's individual, CLEC aggregate, and retail October 2005 reported results for each state to confirm that Qwest calculated them accurately. Liberty wrote its own code to perform its replication based on its interpretation of the PID. Using this code, Liberty recalculated the results for every product disaggregation relevant to the QPAP for the measure MR-8, using the data found in the monthly Ad Hoc file.³⁰¹ Liberty calculated the numerators, denominators, results, and standard deviations, and compared its recalculated results with these calculations with those reported on Qwest's Summarized Master Table.³⁰² Liberty successfully replicated 100 percent of Qwest's state-specific reported metric results for measure MR-8.

³⁰¹ Response to Data Request #176.

³⁰² Response to Data Request #5.

F. MR-11

1. Background

The MR-11 performance measure evaluates timeliness of clearing LNP trouble reports, focusing on the degree to which residence and business, disconnect-related, out-of-service trouble reports are cleared within four business hours and all LNP-related trouble reports are cleared within 48 hours.

The PID lists two sub-measures for MR-11. MR-11A measures the percentage of specified LNP-only (*i.e.*, not Unbundled Loop), residence and business, out-of-service trouble reports that are cleared within four business hours of Qwest receiving these trouble reports from CLECs. MR-11A includes only trouble reports received on or before the currently-scheduled due date of the actual LNP-related disconnect time/date, or the next business day, that are i) confirmed to be caused by disconnects being made before the scheduled time, and ii) closed during the reporting period.

MR-11B measures the percentage of specified LNP-only trouble reports that are cleared within 48 hours of Qwest receiving these trouble reports from CLECs. MR-11B includes all LNP-only trouble reports, received within four calendar days of the actual LNP-related disconnect date and closed during the reporting period.

The PID defines “currently-scheduled due date/time” as the original due date/time established by Qwest in response to CLEC/customer request for disconnection of service ported via LNP or, if the CLEC submits to Qwest a timely or untimely request for delay of disconnection, as the CLEC/customer-requested later date/time. Qwest considers a request for delay of disconnection timely if received by Qwest before 8:00 p.m. Mountain Time on the due date that Qwest has on record at the time of the request. Qwest considers a request for delay of disconnection untimely if received by Qwest after 8:00 p.m. Mountain Time on the due date and before 12:00 p.m. Mountain Time (noon) on the day after the due date. Qwest measures time from the date and time Qwest receives the trouble report to the date and time Qwest clears the trouble.

The PID does not disaggregate MR-11A and MR-11B further. The PID specifies the standard for MR-11A as diagnostic if OP-17 meets its standard. If OP-17 misses its standard, then the PID specifies the standard for MR-11A as i) no more than one ticket cleared in greater than four business hours for up to 20 trouble reports or ii) the lesser of 95 percent or parity with MR-3C results for greater than 20 trouble reports. The PID specifies the standard for MR-11B as i) no more than one ticket cleared in greater than 48 hours for up to 20 trouble reports or ii) the lesser of 95 percent or parity with MR-4C results for greater than 20 trouble reports.

Qwest reports MR-11 for CLEC aggregate and individual CLECs. Qwest reports results at an individual statewide level for each of the 14 states in the Qwest service area, as well as at a regional level reflecting the 14-state aggregate results.

Version 8.1 of Qwest's 14-State 271 PID lists the following exclusions for MR-11:

- Trouble reports attributed to customer or non-Qwest reasons
- Trouble reports not related to valid requests (LSRs) for LNP and associated disconnects
- Subsequent trouble reports of LNP trouble before the original trouble report is closed
- For MR-11B only: Trouble reports involving a “no access” delay.
- Information tickets generated for internal Qwest system/network monitoring purposes
- Records involving official company services
- Records with invalid trouble receipt dates
- Records with invalid cleared or closed dates
- Records with invalid product codes
- Records missing data essential to the calculation of the measurement.

The PID version 8.1 provides the following formula for the calculation of the MR-11A performance measure results:

[(Number of specified out-of-service LNP-only Trouble Reports, for LNP-related troubles confirmed to be caused by disconnects, that Qwest executed before the currently-scheduled due date/time, that were closed in the reporting period and cleared within four business hours) ÷ (Total Number of specified out of service LNP-only Trouble Reports for LNP-related troubles confirmed to be caused by disconnects that Qwest executed before the currently-scheduled due date/time, that were closed in the reporting period)] x 100

The PID version 8.1 provides the following formula for the calculation of the MR-11B performance measure results:

[(Number of specified LNP-only Trouble Reports closed in the reporting period that were cleared within 48 hours) ÷ (Total Number of specified LNP-only Trouble Reports closed in the reporting period)] x 100

The definition of MR-11 did not change during 2005.

The QPAPs of all 14 states include MR-11.

2. Analysis and Evaluation

The scope of the 2005 ROC Audit required a partial re-audit of MR-11 based on changes Qwest has made since the last audit of this measure, five 2004 CPAP Audit recommendations, and the CPAP audit requirements.

Since the last audit of MR-11, Qwest implemented changes to include escalations and Loop Service with Number Portability Call Center Tickets in the calculation of the MR-11 results. Qwest explained that its internal analysis found that for all records with a null value in the Service Order Effective Billing Date (SOEBD) field, Qwest would set the Disconnect in Error flag to zero making the record ineligible as a miss for OP-17, and therefore for the MR-11 measure as well.³⁰³ Qwest implemented a programming change in the November 2004 release, reported in December 2004, which replaced the SOEBD field with the service order completion date (SOCDD) field to identify LSNP Call Center tickets. When the completion date is the same as the Call Center Ticket receipt date or later, Qwest sets the Disconnect in Error flag to one, making the record eligible as a miss for OP-17 and therefore eligible for the MR-11 measure, assuming all other criteria are met.³⁰⁴ Liberty reviewed the coding changes made by Qwest to the OP-17 Ad Hoc file used in the calculation of the MR-11 results to properly identify and include escalations and LSNP Call Center Tickets in the calculation of the MR-11 measure.³⁰⁵ Liberty also verified that Qwest made the appropriate updates to its RRS Chapter 22, "Number Portability," documentation to reflect this coding change and that Qwest conducted an impact analysis of this change on prior months' MR-11 results. Liberty agreed with Qwest's determination that a rerun was not required according to the rerun guidelines.³⁰⁶

Since the last audit of MR-11, Qwest also implemented changes to exclude orders with missing call center data from the calculation of the MR-11 results. In the December 2004 release produced in January 2005, Qwest modified RRS coding to apply an exclusion for missing Call Center data (*i.e.*, exclusion code 52) for records missing data essential to the calculation of the MR-11 measure. This code change sets the exclusion code to 52 when the SOEBD field is blank, and the Call Center product is either not LSNP or blank, thus excluding the record from the calculation of the OP-17 and MR-11 measures. The code excludes these records because it cannot determine whether Qwest received the ticket on or prior to the requested due date (SOEBD) without that data.³⁰⁷ Liberty reviewed the coding changes made by Qwest to the OP-17 Ad Hoc file used in the calculation of the MR-11 results to properly identify and exclude these records with missing data.³⁰⁸ Liberty also verified that Qwest made the appropriate updates to its RRS documentation to reflect the criteria for setting the exclusion code to equal '52' and that Qwest conducted an impact analysis of this change on prior months' MR-11 results. Liberty agreed with Qwest's determination that a rerun was not required according to the rerun guidelines.³⁰⁹

Based on the 2004 CPAP Audit Recommendations II-R37, II-R38 and II-R39,³¹⁰ the Colorado PUC determined that Qwest RRS documentation must be updated to properly reflect the method

³⁰³ LSNP Call Center Tickets and Escalations contain a null effective billing date.

³⁰⁴ Response to Data Request #46.

³⁰⁵ Response to Data Request #226. Qwest uses the OP17.SAS file as a source data file for the calculation of the MR-11 results.

³⁰⁶ Responses to Data Requests #46 and #202.

³⁰⁷ Response to Data Request #47.

³⁰⁸ Response to Data Request #153.

³⁰⁹ Responses to Data Requests #47 and #203.

³¹⁰ NorthStar/Vantage's Final Report of Qwest's CPAP 2004 Annual Audit; March 3, 2006.

Qwest uses to extract source data and calculate the MR-11 results.³¹¹ For the documentation issues identified in the 2004 CPAP Audit Recommendations II-R37 and II-R38, Liberty obtained updated copies of Qwest's RRS Chapter 22, "Number Portability," and Chapter 23, "Maintenance and Repair," documentation and verified that Qwest made the appropriate updates to reflect how it i) derives the receipt time of a trouble report, ii) determines the exclusions, and iii) calculates the results.³¹²

Liberty's investigation into the issue identified by NorthStar/Vantage in its 2004 CPAP Audit Recommendations II-R39 involved more than a RRS documentation update. This recommendation states, "[d]etermine a method to work around the fact that many LNP cases of trouble that normally would be included in MR-11 are not because the CLEC id is unknown at the time of the trouble. Also, determine if MR-11A should be diagnostic given these audit results."³¹³ Qwest determined that this unknown CLEC issue stemmed from the inclusion of service orders in the OP-17 Ad Hoc file when the telephone number field was blank.³¹⁴ The OP-17 code identifies the CLEC ID by matching the service order telephone number to the Automated Provisioning Infrastructure Layer (APRIL) data, which contains the trigger information and the service provider ID (SPID) code. Qwest then matches the SPID code to the SPID table to identify the CLEC ID in the OP-17 data set. Qwest corrected this issue with the February 2007 data, produced in March 2007, in conjunction with the coding change that Qwest implemented to address the OP-17 data gathering issues identified by NorthStar/Vantage Recommendation II-R31.³¹⁵ Qwest acknowledged and addressed the unknown CLEC issue identified by this recommendation and Liberty does not believe that there is a need to change the PID, which specifies that MR-11A is a diagnostic measure in cases where Qwest did not meet the OP-17 standards. Liberty discusses the action it took to investigate the resolution to NorthStar/Vantage Recommendation II-R31 in the OP-8 section of this report.

Based on the 2004 CPAP Audit Recommendation II-R30,³¹⁶ the Colorado PUC determined that Qwest should update the OP-17 and MR-11 PIDs to reflect what happens to requests received exactly at 8:00 pm for the CPAP documentation, and the Colorado PUC also allowed Qwest to determine whether and how to incorporate this change in the 14-state PID document.³¹⁷ According to the MR-11 PID, a request for delay of a disconnect is considered timely if it is received by Qwest before 8:00 p.m. Mountain time and is considered untimely if it is received after 8:00 p.m.. The PID does not specify how Qwest should treat a request received exactly at 8:00 p.m. Pursuant to the Commission's decision, Qwest revised the CPAP documentation to include notations in Appendix B for OP-17 stating that "[a] CLEC request for delay of disconnection is considered 'untimely' if received by Qwest on or after 8:00 PM MT on the current due date of the LNP order recorded by Qwest and before noon on the day after the

³¹¹ Colorado PUC Decision No. C06-1216A, Docket No. 02M-259T.

³¹² Responses to Data Requests #48 and #49.

³¹³ NorthStar/Vantage's Final Report of Qwest's CPAP 2004 Annual Audit for Colorado Public Services Commission, dated March 3, 2006 page 155.

³¹⁴ Qwest uses the OP-17 Ad Hoc file as a data source for the calculation of the MR-11 results.

³¹⁵ Response to Data Request #293. NorthStar/Vantage Recommendation II-R31 required that Qwest "[d]etermine why the denominator for OP-8B and OP-8C do not match the denominator of OP-17."

³¹⁶ NorthStar/Vantage's Final Report of Qwest's CPAP 2004 Annual Audit; March 3, 2006.

³¹⁷ Colorado PUC Decision No. C06-1216A, Docket No. 02M-259T.

current due date.”³¹⁸ Qwest made its compliance filing on February 9, 2007 and the Colorado PUC approved it on February 23, 2007. Liberty obtained the updated version of Qwest's CPAP Appendix B and verified that Qwest made the appropriate changes to reflect the criteria for an untimely request for a disconnect delay.³¹⁹ Liberty also verified that this change did not require a coding change or a rerun analysis by Qwest.³²⁰ As noted, the Colorado PUC did not require Qwest to incorporate the change in its 14-state PID. Liberty observes that Qwest has not done so but believes it would be helpful if it included a notation in its next PID version that is consistent with the CPAP change.

Based on the 2004 CPAP Audit Recommendation II-R34,³²¹ the Colorado PUC determined that Qwest should change the title of the MR-11 PID to properly reflect the metric's purpose and description.³²² Qwest indicated that it has been in negotiations with participating CLECs via the PID/PAP Management Process on a number of issues including this one. Qwest stated that the participants agreed that the title should be changed to read “MR-11 – LNP Trouble Reports Cleared within Specified Timeframes.” Qwest filed an updated Exhibit B in each of the 14 states to reflect this change in June 2007.³²³ Liberty obtained a copy of Qwest's updated Appendix B documentation and verified that Qwest made the required change to the PID title.³²⁴

Liberty recalculated Qwest's individual, CLEC aggregate, and retail October 2005 reported results for each state to confirm that Qwest calculated them accurately. Liberty wrote its own code to perform its replication based on its interpretation of the PID. Using this code, Liberty recalculated the results relevant to the QPAP for the measure MR-11, using the data found in the monthly Ad Hoc file.³²⁵ Liberty calculated the numerators, denominators, results, and standard deviation, and compared its recalculated results with these calculations with those reported on Qwest's Summarized Master Table.³²⁶ Liberty successfully replicated 100 percent of Qwest's state-specific reported metric results for measure MR-11.

³¹⁸ Response to Data Request #45.

³¹⁹ Response to Data Request #66.

³²⁰ Response to Data Request #225.

³²¹ NorthStar/Vantage's Final Report of Qwest's CPAP 2004 Annual Audit; March 3, 2006.

³²² Colorado PUC Decision No. C06-1216A, Docket No. 02M-259T.

³²³ Response to Data Request #155.

³²⁴ Response to Data Request #259.

³²⁵ Response to Data Request #176.

³²⁶ Response to Data Request #5.

VIII. Billing (BI)

A. BI-1

1. Background

The BI-1 performance measure evaluates the timeliness with which Qwest provides daily usage records to CLECs. Qwest measures the average time interval from the date of recorded daily usage to the date usage records are transmitted or made available to CLECs, as applicable.

Qwest disaggregates BI-1 as follows:

- BI-1A: Measures recorded daily usage for UNEs and Resale and includes industry standard electronically transmitted usage records for feature group switched access, local measured usage, local message usage, toll usage, and local exchange service components priced on a per-use basis.
- BI-1B: Measures the percent of recorded daily usage for jointly provided switched access provided within four days. This includes usage created by the CLEC and Qwest (or IXC providing access), usually via 2-way Feature Group X trunk groups for Feature Group A, Feature Group B, Feature Group D, Phone to Phone IP Telephony, 8XX access, and 900 access and their successors or similar Switched Access services.
- BI-1C: Provides separate reporting for two elements captured in BI-1A above. BI-1C-1 measures recorded daily usage for UNEs and Resale and includes industry standard electronically transmitted usage records for feature group switched access. BI-1C-2 measures recorded daily usage for UNEs and Resale and includes industry standard electronically transmitted usage records for local measured usage, local message usage, toll usage, and local exchange service components priced on a per-use basis.

Qwest reports BI-1 for CLEC aggregate, CLEC-specific, and Qwest retail. Qwest reports results at an individual statewide level for each of the 14 states in the Qwest service area, as well as at a regional level reflecting the 14-state aggregate results.

Version 8.1 of Qwest's 14-State 271 PID lists the following exclusions to BI-1:

- Instances where the CLEC requests other than daily usage transmission or availability
- Duplicate records.

The PID version 8.1 provides the following formula for the calculation of the BI-1A, BI-1C-1 and BI-1C-2 performance measure results:

$$\frac{\sum(\text{Date Record Transmitted or made available} - \text{Date Usage Recorded})}{\text{Total number of records}}$$

The PID version 8.1 provides the following formula for the calculation of the BI-1B performance measure results:

$$[(\# \text{ of daily usage records for Jointly provided switched access sent within four days}) \div (\text{Total daily usage records for Jointly provided switched access in the report period})] \times 100$$

The definition of BI-1 did not change during 2005.

The QPAPs of all 14 states include BI-1.

2. Analysis and Evaluation

The scope of the 2005 ROC Audit required a full audit of BI-1 based on the extensive changes Qwest implemented in the calculation of this measure during 2005. Qwest obtains the source of data for the BI-1 measure from CRIS. The CRIS data goes through the Mechanized Administration System (MCAS) warehouse. MCAS sends files daily to the PANS database. Prior to May 2005, Qwest used MCAS summarized reports. With the May 2005 data reporting month, Qwest moved the record summarization process for these measures into RRS. Unlike other Billing measures, Qwest does not use the Inter-exchange Access Billing System (IABS) billing system for BI-1. Qwest extracts data from PANS every day into RRS. RRS creates separate BI-1A (UNEs and Resale) and BI-1B (jointly provided switch access) Ad Hoc files, extracting the data from different PANS tables. Qwest calculates BI-1C-1 and BI-1C-2 using the BI-1A Ad Hoc data.³²⁷

Source Systems to PANS

To evaluate the integrity of the data that flow to PANS, Liberty examined the processes used by Qwest to extract the data from CRIS and store them in PANS. Liberty also reviewed the quality processes Qwest has in place to assure that PANS receives all the transaction-level data needed for the calculation of BI-1.

MCAS reads the files sent to the CLECs with the daily usage and meet point billing usage (also known as jointly provided switched access) each day. For the daily usage files, MCAS identifies the record type from the first two positions of each record so that Category 01 and Category 10 records go in the PANS file containing local measured usage, local message usage, toll usage, and local exchange service records and Category 11 records go in the PANS file containing feature group switched access records. For the meet point billing files, MCAS again identifies the record type from the first two positions of each record, and Category 11 records go in the PANS file containing jointly provided switched access records. PANS loads these files from MCAS into the appropriate tables daily.³²⁸

³²⁷ Interview #1, May 8, 2007.

³²⁸ Response to Data Request #186.

Qwest performs the check for duplicate records up front as part of the CRIS input program used by MCAS to create the daily usage files for delivery to PANS. If Qwest receives duplicate daily usage file (DUF) records on the same day, the CRIS input program removes the duplicate record. PANS simply accepts a daily flat file from MCAS and validates the expected load of files. It does not incorporate any checks of those files for data duplication. Qwest performs no validation, manipulation, or exclusion of the data delivered from CRIS/MCAS.³²⁹

While preparing the response to a Liberty inquiry about methods used to prevent duplicate data, Qwest identified three legacy system coding errors that created duplicate records.³³⁰ Liberty addresses this issue in more detail in the Findings and Recommendations section.³³¹

PANS tracks the files sent from CRIS and MCAS to make sure the files are loaded successfully and verifies that the number of records sent from CRIS and MCAS is the same after the file is loaded to PANS. Qwest's RRS processing performs checks to determine record eligibility.³³² PANS performs validation on record counts in the files received from CRIS and receives an alarm when the files record counts do not match the expected number of records being sent from CRIS. This insures that PANS has received all the records that CRIS has sent to PANS.³³³

PANS to RRS

Liberty examined the process and code used by RRS to extract data daily from PANS for the BI-1 measures.³³⁴ Qwest uses several programs to create two rolling Ad Hoc files for the measure using data from the CRIS databases in PANS. The ETL code extracts from these files daily to create the BI-1A and BI-1B Ad Hoc files.

Qwest stores daily usage records used to calculate BI-1C-1 in a PANS table dedicated to feature group switched access records. Qwest stores daily usage records used to calculate BI-1C-2 in a PANS table dedicated to local measured usage, local message usage, toll usage, and local exchange service. RRS extracts these two PANS files daily and combines them to create the BI-1A Ad Hoc file. BI-1A represents the sum of BI-1C-1 and BI-1C-2. Qwest stores daily usage records used to calculate BI-1B in a PANS table dedicated to jointly provided switched access. RRS extracts this PANS file daily to create the BI-1B Ad Hoc file.³³⁵

Qwest implemented two sets of ETL code. One creates the Ad Hoc file and derived fields that Qwest uses to calculate BI-1A, BI-1C-1, and BI-1C-2. The other creates the Ad Hoc file and derived fields that Qwest uses to calculate BI-1B.³³⁶ While very similar in approach, the biggest differences between the two sets of code are data source table names, field names, number of exclusions, and measurement calculation. Depending on the day of the month, Qwest pulls up to

³²⁹ Responses to Data Requests #246 and #249.

³³⁰ Response to Data Request #246 (Third Supplement).

³³¹ Liberty Finding 13.

³³² Response to Data Request #247.

³³³ Responses to Data Requests #246 and #254.

³³⁴ Response to Data Request #68.

³³⁵ Interview #2, May 17, 2007.

³³⁶ Response to Data Request #104.

62 days of data to generate month-to-date measurements and prior month measurements.³³⁷ For example, on August 31, Qwest would pull in 62 days of data (to obtain all of the August and July data). However, on March 4, Qwest would pull in only 32 days of data (to receive four days of March data and all the February data). Qwest does this to generate month to date measurements, and prior month measurements.

Qwest maintains record count controls between CRIS and MCAS, and MCAS and PANS to ensure that all these systems have the same record count for any given processing day. When pulling in the PANS data, the code pulls all eligible records from the PANS files. Qwest performs quality checks, using internal analysis tools, to ensure that volumes and results fall within normal ranges.³³⁸

Qwest determines the reporting month for a given record based on the lit_date in the Ad Hoc file. The lit_date is derived from the insert date (insdate) in the PANS data. The lit_date represents the month, day and year parts of the insert date, which determines the reporting month for a given record.³³⁹ Variations in time zones have no affect for both BI-1A and BI-1B because these sub-measures use days as the unit of measure.³⁴⁰

The BI-1 PID designates for exclusion situations when the CLEC requests other than daily usage transmission or availability. Qwest identifies eligible usage records using the CLEC frequency code in PANS. The BI-1A and BI-1B ETL code only load usage records if the CLEC frequency code contains a "D" for Daily or "R" indicating a Retail record. Qwest does not load records populated with other codes, such as "M" for monthly delivery or "W" for weekly delivery.³⁴¹

After reviewing the SAS programs with Qwest, Liberty was satisfied that Qwest's process for extracting data from PANS was adequate to ensure that it retrieved all relevant data for the measure and that the data did not change. Qwest's programs contain a significant amount of code associated with internal Qwest purposes not associated with measurement reporting.

RRS Processing for BI-1

The key data fields in the BI-1 Ad Hoc file are CLEC ID, state, received date, process date, elapsed time, and exclusion code. Qwest uses other fields to determine exclusions. Qwest assigns the exclusion code in RRS, and uses it to identify which records to exclude from the measure. Qwest only includes those records with an exclusion code of "0" in reported results.

Qwest initializes all records with a default exclusion code value of "0." Qwest then calculates a variety of exclusion codes (listed in the tables below) in RRS that it later uses to screen out specific records from the BI-1 measure. The table below lists the BI-1 exclusion codes and types.³⁴²

³³⁷ Response to Data Request #239.

³³⁸ Response to Data Request #248.

³³⁹ Response to Data Request #109.

³⁴⁰ Response to Data Request #110.

³⁴¹ Response to Data Request #112.

³⁴² The RRS documentation for BI-1B lists the exclusion codes incorrectly, Response to Data Request #185.

| Exclusion Code | Exclusion Type |
|-------------------|---|
| 1 | Test CLEC data |
| 2 | Invalid state code |
| 31 | Retail Records – BI-1B only |
| 56 ³⁴³ | Invalid OCN/CIC Number – BI-1B only |
| 120 | Initial month usage record delivery to CLEC |

Exclusion code 31 had no occurrences in the second half of 2005 for BI-1B and does not apply to BI-1A.³⁴⁴ Exclusion codes 1 and 2 are common to most PIDs. Liberty reviewed all of Qwest's exclusions and determined that they are reasonable and necessary for proper PID processing with the exception of exclusion code 120 as described below.

Liberty found that Qwest's use of exclusion code 120 allows them to exclude records received prior to CLEC delivery instructions based on the first listed PID exclusion. Any records received prior to CLEC delivery instructions should legitimately not be counted. However, Qwest currently excludes all BI-1 records for the month in which it receives delivery instructions. Thus, Qwest also excludes any records received after the CLEC provides delivery instructions but before the end of the month during which those instructions were provided. The PID provides no language to justify the exclusion of such records. Liberty addresses this issue in more detail in the Findings and Recommendations section.³⁴⁵

To determine whether a record meets the four day standard in BI-1B, Qwest calculates the elapsed time interval as the difference between the received date and the process date, excluding weekends and holidays. Qwest assigns the value "NULL" in the elapsed time field to records that are invalid and therefore should be excluded from the calculation of BI-1B. Liberty found two errors in the way that Qwest calculates and treats these NULL values. Liberty addresses this issue in more detail in the Findings and Recommendations section.³⁴⁶

The PID defines the unit of measure for BI-1 as business days. The PID includes business days in the Definition of Terms as "Workdays that Qwest is normally open for business. Business day = Monday through Friday, excluding weekends and Qwest published holidays." During data integrity analysis of BI-1A using Ad Hoc data files, Liberty determined that Qwest does not properly exclude holidays from the interval calculation. Liberty addresses this issue in more detail in the Findings and Recommendations section.³⁴⁷

For the BI-1A Ad Hoc, Qwest determines the CLEC using the CLEC list look-up table which Qwest also uses for many other measures. For the BI-1B Ad Hoc, Qwest determines the CLEC using the operating company look-up table.³⁴⁸

³⁴³ Interview #2, May 17, 2007. Exclusion code 56 is no longer relevant.

³⁴⁴ Response to Data Request #69.

³⁴⁵ Liberty Finding 1.

³⁴⁶ Liberty Finding 2.

³⁴⁷ Liberty Finding 9.

³⁴⁸ Interview #2, May 17, 2007.

Qwest uses the Indicator_4 field to identify QPP records in BI-1A. If this field is populated with the number 7, then Qwest changes the product code to UNE-P POTS and matches the records to the commercial agreements table to see whether the CLEC has signed a commercial agreement. If Qwest finds a match, it changes the product code to QPP. If Qwest does not find a match, it resets the product code to UNE/Resale Aggregate and includes it in the BI-1A results. Qwest handles BI-1B differently because it measures a billing arrangement rather than a product. This billing arrangement is known as Jointly-Provided Switched Access (JPSA), also known as Meet Point Billing. Hence, BI-1B calls for no product dimension. Accordingly, for BI-1B, Qwest has no reason or requirement to identify QPP products for exclusion, and thus the QPP-related commercial agreements do not apply.³⁴⁹

During a review of Qwest's results, Liberty noted a significant reduction in volume in the BI-1A regional results for the May through October 2005 reporting months. Qwest attributes the decrease to the removal of the QPP product records. Qwest attributes a subsequent increase in volume for November 2005 and December 2005 results to a 2004 record recovery effort by Qwest. Initially, Qwest did not implement the recovery code correctly and started including ineligible QPP records. The code was corrected to (again) exclude QPP as part of the February 2006 release produced in March 2006. This work included a rerun of performance results for November 2005, December 2005, and January 2006 to remove the ineligible QPP records.³⁵⁰ Liberty confirmed that Qwest's corrections were appropriate.

Liberty also noted a significant increase in volume in the BI-1B regional results for the June through December 2005 reporting months. Qwest attributes the increase to additional detail of ported telephone number usage records that became available as part of the move from a summarized source file to a record level data set.³⁵¹ Prior to June 2005, Qwest did not include usage records for ported telephone numbers in its reported results because it reported BI-1B based on the data in the MCAS summarized data files. Qwest discovered that previously it had included DUF records associated with ported telephone number usage in the summarized data files and therefore not reported them.³⁵² Liberty confirmed that Qwest's corrections were appropriate.

During its review, Liberty found that Qwest regional reporting displays numerator and denominator values in some BI-1 results that end in 0000 and appear to be rounded to the nearest 10,000. This applies to November through December 2005 for BI-1A, C-1, and C-2, and to September through November 2005 for BI-1B. Qwest had set the format of the numerator and denominator fields in the master file to a maximum of eight numbers. BI-1 has very large volumes, forcing the values in the master file to a scientific number, which subsequently were displayed as four zeros on the PDF reports. This did not impact PAP calculations and only changed how Qwest displayed the PDF formatted reports. Qwest increased the format of the numerator and denominator fields to a maximum number of fourteen in the November 2006

³⁴⁹ Response to Data Request #114 (supplemental).

³⁵⁰ Responses to Data Requests #106 and #242.

³⁵¹ Response to Data Request #107.

³⁵² Response to Data Request #243.

release reported in December 2006.³⁵³ With this change, Qwest no longer rounds the display of reported results.

In the October 2005 BI-1B Ad Hoc file, 5.22 percent of the records had an unknown CLEC ID. In the February 2006 release produced in March 2006, Qwest reduced the number of records with unknown CLEC ID by making additional updates to the operating company look-up table. To confirm the impact of its updates, Qwest reviewed the April 2006 Ad Hoc file and found zero records with an unknown CLEC ID.³⁵⁴

Liberty examined the method that Qwest uses to calculate BI-1. For BI-1A, Qwest sums the value of the elapsed time field of all eligible records for the numerator. Qwest counts eligible records for the denominator. Qwest calculates BI-1C-1 (Category 11) and BI-1C-2 (Category 10) the same way but further determines record eligibility using the category code field. For BI-1B, Qwest determines a pass or fail for each record based on whether or not the elapsed time field shows that it met the four day benchmark. Qwest counts all eligible records with a passing mark for the numerator and counts all eligible records (passing and failing) for the denominator. Liberty concluded that Qwest's method for calculating these measures conforms to the PID.

Based on 2004 CPAP Audit Recommendation II-R43,³⁵⁵ the Colorado PUC recommended a review of Qwest's Change Request 4639 for BI-1A regarding the Six-Year Retention project.³⁵⁶ As part of this change request, Qwest Information Technologies comprehensively enhanced data collection and retention obligations for DUF records. The project extended back from the up-front systems in CRIS through the record extraction and storage in MCAS. The project brought individual record-level data into RRS allowing more accurate and complete application of business rules and results calculation for BI-1. Prior to the completion of the project, Qwest implemented the business rules and performed results calculation in MCAS using pre-existing reports with associated limitations. Qwest derived the project title from the fact that with record-level data, Qwest was now able to detail the CPAP requirements related to six-year data retention (at that time), allowing for full reconciliation should the need ever arise. Because Qwest now retains the records used to calculate these results in RRS, retention obligations mirror those already in place for all other measures. The project also provided funding for the necessary hardware and software needed to store the large volume of records gathered. Qwest Information Technologies completed the project in October 2004. Qwest completed the RRS code revisions and implemented the calculations of results from record level data in the May 2005 release produced in June 2005.³⁵⁷ The same RRS system and process changes that triggered Liberty's 2005 ROC Audit of BI-1 also enable the retention of data as defined in the project. In addition, Qwest provided the BI-1 record counts for each month of 2005 and confirmed that the records are available for analysis or rerun as required.³⁵⁸ Liberty believes the Six-Year Data Retention project has been successfully implemented.

³⁵³ Response to Data Request #108.

³⁵⁴ Response to Data Request #375.

³⁵⁵ NorthStar/Vantage's Final Report of Qwest's CPAP 2004 Annual Audit; March 3, 2006.

³⁵⁶ Colorado PUC Decision No. C06-1216A, Docket No. 02M-259T.

³⁵⁷ Responses to Data Requests #19 (supplemental) and #274.

³⁵⁸ Response to Data Request #299.

Qwest listed several minor changes to the BI-1 processing in the revision history of the programming code in 2005 subsequent to the change to record level data from which this PID audit commenced. Qwest's efforts at continuous improvement resulted in a few discoveries of record types that had been inadvertently omitted from BI-1 processing. Liberty examined Qwest's changes and impact analyses and verified that Qwest properly implemented the changes and reran results as required.³⁵⁹

As part of its data validation efforts, Liberty focused on the October 2005 monthly Ad Hoc files, which Qwest uses for the calculation of results. Liberty reviewed transactions from the monthly Ad Hoc files, using samples of records drawn from each of the original three Bell Operating Company Regions served by Qwest.³⁶⁰ The monthly Ad Hoc files contain both original and derived data fields. In order to substantiate the programming logic it examined earlier, Liberty reviewed the derived data fields needed for the calculation of the BI-1 measure results to verify Qwest calculated them correctly from the source data.

Liberty also reviewed the December 2005 Ad Hoc Master File created by Qwest. Liberty reviewed the records in this file for BI-1, and found that they accurately captured the results that Liberty recalculated for CLEC aggregate results.

Liberty reviewed Qwest's documentation of the processes that it uses to calculate the BI-1 results and found it to be generally useful.³⁶¹ However, Liberty noted some errors and omissions. Liberty addresses these issues in more detail in the Findings and Recommendations section.³⁶²

Replication

Liberty recalculated Qwest's individual, CLEC aggregate, and retail October 2005 reported results to confirm that Qwest calculated them accurately. Liberty wrote its own code to perform its replication based on its interpretation of the PID. Using this code, Liberty recalculated the results for the measure BI-1A, using the data found in the monthly Ad Hoc file.³⁶³ Due to the enormous record volumes for this measure, Liberty focused replication on one state's results for all CLECs and three CLEC's results across all states. Liberty calculated the numerators, denominators, results, and standard deviations, and compared its recalculated results with these calculations with those reported on Qwest's Summarized Master Table.³⁶⁴ Liberty successfully replicated 100 percent of Qwest's state-specific reported metric results for measure BI-1A.

³⁵⁹ Responses to Data Requests #145, #146, and #147.

³⁶⁰ Responses to Data Requests #177, #272, #372, and #374.

³⁶¹ Responses to Data Request #1 and #205.

³⁶² Liberty Finding 12.

³⁶³ Response to Data Request #369.

³⁶⁴ Response to Data Request #5.

B. BI-3A

1. Background

The BI-3 performance measure evaluates the accuracy with which Qwest bills CLECs, focusing on the percentage of billed revenue adjusted due to errors. Qwest measures the billed revenue minus amounts adjusted off bills due to errors, as a percentage of total billed revenue. The PID defines the "amounts adjusted off bills due to errors" as the sum of all bill adjustments made in the reporting period that involve, either in part or in total, adjustment codes related to billing errors. Qwest adds each adjustment thus qualifying to the sum in its entirety. Qwest calculates both the billed revenue and the amounts adjusted off bills due to error based on bills rendered in the reporting period.

BI-3 is disaggregated as follows:

- BI-3A: UNEs and Resale
- BI-3B: Reciprocal Compensation Minutes of Use (MOU).

For the 2005 Qwest Audit, Liberty will focus on BI-3A only.

Qwest reports BI-3 for CLEC aggregate, CLEC-specific, and Qwest retail. Qwest reports results at an individual statewide level for each of the 14 states in the Qwest service area, as well as at a regional level reflecting the 14-state aggregate results.

Version 8.1 of Qwest's 14-State 271 PID lists no exclusions for BI-3A.

The PID version 8.1 provides the following formula for the calculation of the BI-3 performance measure results:

$$[\sum(\text{Total Billed Revenue Billed in Reporting Period} - \text{Amounts Adjusted Off Bills Due to Errors}) \div (\text{Total Billed Revenue billed in Reporting Period})] \times 100$$

The definition of BI-3 did not change during 2005.

The QPAPs of all 14 states includes BI-3.

2. Analysis and Evaluation

The scope of the 2005 ROC Audit required a full audit of BI-3A based on the extensive changes Qwest implemented in the calculation of BI-3A during 2005. Qwest obtains data from two sources for the BI-3A measure, the CRIS and the IABS database. The CRIS data goes through the MCAS warehouse. MCAS sends files daily to the CDW database. Prior to May 2005, Qwest used MCAS summarized reports. With the November 2005 data reporting month, Qwest moved the record summarization process for these measurements into RRS. The IABS data is warehoused in PANS. For BI-3A purposes, IABS specializes in records for frame relay,

Unbundled Dedicated Interoffice Transport (UDIT), and dark fiber. CRIS covers all other products that qualify as UNEs or resale.³⁶⁵

The Billing and Order Support System (BOSS) contains the customer service record and bill for customer accounts in the Eastern and Central regions. BOSS provides the necessary account information for order processing, billing and payments. It also provides tracking of requests and changes via notes on the notations screen. Qwest uses the Customer Account Retrieval System (CARS), which is the equivalent of BOSS, in the Western region. Adjustments entered into BOSS and CARS post to CRIS. A BOSS/CARS adjustment includes a bill date, amount, entity, and adjustment reason. The system processes the adjustment, validates for errors and the adjustment posts so it can be reflected on the customers' next bill. Qwest loads these records into CRIS. Qwest issues IABS adjustments against specific invoices for that customer's summary Billing Account Number (BAN).³⁶⁶

Qwest extracts data from CDW (for CRIS data) and from PANS (for IABS data) every day into RRS. In addition, Qwest extracts Other Charges and Credits (OCC) adjustments directly from CRIS on a daily basis.

Prior to the November 2005 reporting month, Qwest had included many ineligible products in the calculation for BI-3A, both in the numerator and denominator of the PID formula. Qwest implemented code changes to properly exclude these products.³⁶⁷ Because this change is one of the primary reasons for a full audit of this measure, Liberty examined December results instead of October.

Source Systems to PANS

To evaluate the integrity of the data that flow to PANS, Liberty examined the processes used by Qwest to extract the data from CRIS and store them in CDW and to extract the data from IABS and store them in PANS. Liberty also reviewed the quality processes Qwest has in place to assure that PANS receives all the transaction-level data needed for the calculation of BI-3A.

To prevent record duplication, the CRIS to CDW process delivers all eligible raw data and CDW loads all detail records passed on within the input files. If duplicate records are received from CRIS in the files stored by CDW, CDW removes the duplicates and retains the original record. The IABS to PANS process also delivers all eligible raw data and PANS loads all detail records passed on all input files. PANS uses primary keys unique to the data to identify and prevent passing duplicate records.³⁶⁸ Qwest performs no other transformations, derivations, or record exclusions at this stage of the process.³⁶⁹

PANS performs validation on record counts in the files received from IABS and receives an alarm when the files' record counts do not match the expected number of records sent from the

³⁶⁵ Interview #1, May 8, 2007.

³⁶⁶ Response to Data Request #124.

³⁶⁷ Interview #1, May 8, 2007.

³⁶⁸ Response to Data Request #252.

³⁶⁹ Response to Data Request #255.

source system. This insures that PANS has received all the records that the source system has sent to PANS. CDW also performs a series of validations on the files received from Regional Journals into CDW. The CDW process will alarm if any of the following conditions arise: invalid bill period on the input data, duplicate bill period, invalid journal date, bill number not numeric, unknown area code, or missing file header or trailer record. CDW works directly with CRIS processing in the event of an alarm to ensure CDW has loaded all necessary data.³⁷⁰

PANS to RRS

Liberty examined the process and code used by RRS to extract data from CDW and PANS on a daily basis for the BI-3A measures.³⁷¹ Qwest uses RRS to create a rolling Ad Hoc file for the measure using data from the CRIS database in CDW and from the IABS database in PANS. Qwest stores billing revenue and adjustment data in several files in PANS and CDW. Qwest uses a separate file for CRIS adjustments, CRIS OCC, CRIS revenue, IABS adjustments, IABS OCC, and IABS revenue. The ETL code extracts from each of these files on a daily basis to create the BI-3A Ad Hoc. Depending on the source of the individual record, RRS assigns the billtype field a value of CRISADJ, CRISOCC, CRISREV, IABSADJ, IABSOCC, or IABSREV.³⁷² Depending on the day of the month, Qwest pulls up to 62 days of data. Qwest does this to generate month to date measurements, and prior month measurements.

For records originating in CRIS, Qwest determines the reporting month by the date that the data is inserted into CDW using the CDW effective date field. For records originating in IABS, Qwest determines the reporting month for revenue-related adjustments by the date in the bill date field and the reporting month for non-recurring charges (*i.e.*, OCC) by the date in the insert date field in PANS.³⁷³

The ETL code also pulls in alpha adjustment exclusion and qualifier information from dedicated PANS files.³⁷⁴ Qwest uses this information to create a new derived field which identifies which CRIS billing adjustment records Qwest should exclude from the measure calculation. The ETL code also pulls in USOC information to determine product code.³⁷⁵

In BI-3A, there are 16 data fields structured as pipe (“|”) delimited fields that string items together related to a given record. This allows Qwest to represent the data associated with a given record in one row per telephone number in the Ad Hoc.³⁷⁶ Each of these 16 fields can contain one or many sub-fields, with the number of sub-fields per field consistent across the same individual record.³⁷⁷ Qwest creates some of these fields as part of the original data from the extraction process and it derives others from the original data. Qwest populates each of the pipe

³⁷⁰ Responses to Data Requests #253 and #254.

³⁷¹ Response to Data Request #70.

³⁷² Interview #3, May 17, 2007.

³⁷³ Responses to Data Requests #125 and #382.

³⁷⁴ Response to Data Request #193.

³⁷⁵ Interview #3, May 17, 2007.

³⁷⁶ Response to Data Request #127.

³⁷⁷ Interview #3, May 17, 2007 and response to Data Request #127.

delimited fields differently depending on the bill type. Most remain unused for IABS source data.³⁷⁸

While preparing the response to a Liberty inquiry about an anomaly in one of the pipe delimited fields observed in Qwest's BI-3A Ad Hoc sample data, Qwest identified an error in one of their data processing programs that occurs when Qwest merges the usage revenue file and the billed product revenue file.³⁷⁹ Liberty addresses this issue in more detail in the Findings and Recommendations section.³⁸⁰

After reviewing the SAS programs with Qwest, Liberty was satisfied that Qwest's process for extracting data from CDW and PANS was adequate to ensure that it retrieved all relevant data for the measure and that the data did not change. Qwest's programs contain a significant amount of code associated with internal Qwest purposes not associated with measurement reporting. The BI-3A Ad Hoc contains over 70 fields that Qwest does not use in the calculation of BI-3A.³⁸¹

RRS Processing for BI-3A

The BI-3A Ad Hoc file contains the following key data fields: CLEC ID, state, bill type, bill amounts, total revenue, total adjustments, and exclusion code. Qwest uses numerous other fields to determine exclusions. Qwest assigns the exclusion code in RRS, and uses it to identify which records to exclude from the measure; Qwest only includes records with an exclusion code of "0" in reported results. Based on the December 2005 BI-3A Ad Hoc file, nearly 99 percent of all records are associated with billing revenue and the other one percent is associated with billing adjustments.³⁸²

Qwest initializes all records with a default exclusion code value of "0." Qwest then calculates a variety of exclusion codes (listed in the table below) in RRS that it later uses to screen out specific records from the BI-3A measure. The BI-3A PID lists no exclusions but code is necessary to identify and exclude ineligible records. Qwest also excludes all billing adjustments types not associated with billing errors.³⁸³ The table below lists the BI-3A exclusion codes and types.

³⁷⁸ Interview #3, May 17, 2007.

³⁷⁹ Responses to Data Requests #178 and #251.

³⁸⁰ Liberty Finding 14

³⁸¹ Response to Data Request #381.

³⁸² Response to Data Request #400.

³⁸³ Response to Data Request #128.

| Exclusion Code | Exclusion Type |
|----------------|---|
| 1 | Test CLEC data |
| 2 | Invalid state code |
| 3 | Invalid IABS Product |
| 31 | Invalid Retail Carrier Code |
| 60 | Zero Revenue and Zero Adjustment Amounts |
| 77 | Invalid Adjustment Jurisdiction |
| 78 | Invalid Adjustment Reason Code |
| 79 | Invalid Adjustment Revenue Code |
| 80 | Invalid Alpha Adjustment Code or RJ Qualifier |
| 84 | Invalid Employee ID |
| 96 | Invalid Bankruptcy Amounts |
| 103 | Uncollectible Charges |
| 115 | Returned Check Charges |
| 117 | Timely Adjustments |
| 122 | Insufficient Funds Adjustments |
| 123 | DirectTV Adjustments |

Exclusion codes 80, 96, 122, and 123 are obsolete. These exclusions applied to the old BI-3A, which Qwest produced using summary data.³⁸⁴ Qwest's new processing code identifies and excludes these situations in the pipe-delimited sub-fields without using exclusion codes.³⁸⁵ Exclusion codes 103 and 115 had no occurrences in November or December of 2005.³⁸⁶ Exclusion codes 1 and 2 are common to most PIDs. Liberty reviewed all of Qwest's exclusions and determined that they are reasonable and necessary for proper PID processing.

While examining Qwest's exclusion processing, Liberty determined that Qwest did not properly process the exclusion for insufficient funds billing adjustments (formerly exclusion code 122) in the December 2005 Ad Hoc data. Qwest improperly included thousands of retail records with this type of billing adjustment in the BI-3A totals. Liberty did not issue a finding for this error because Qwest corrected it independently of this audit. Qwest's 2006 Summary of Notes properly documented this change for the month of February.³⁸⁷ Liberty confirmed that Qwest's impact analysis for this issue showed a rerun of 2005 reporting months was not required.³⁸⁸

Qwest processes BI-3A Ad Hoc records differently depending on the contents of the bill type field. For CRIS adjustments, Qwest first determines which sub-fields in the bill amounts field represent adjustments due to billing errors. Qwest sums the absolute value of all eligible bill amount sub-fields and stores the result in the total adjustments field. For IABS adjustments, RRS populates the total adjustments field directly from PANS. For OCC records associated with CRIS or IABS, Qwest calculates the total adjustments field using the absolute value of the sum of the sub-fields, not the sum of the absolute values, because when Qwest issues a credit to adjust for a partial month of service for a product that was previously billed, Qwest does not consider it an adjustment due to error. Rather, Qwest considers it an adjustment required because the customer

³⁸⁴ Responses to Data Requests #387, #388, #397, and #398.

³⁸⁵ Response to Data Request #396.

³⁸⁶ Response to Data Request #71.

³⁸⁷ Responses to Data Requests #397 and #421.

³⁸⁸ Responses to Data Requests #413 and #423.

disconnected the service/product for a part of a month they had paid for in advance.³⁸⁹ For CRIS revenue records, Qwest sums the non-negative bill amount sub-fields and stores the result in the total revenue field. Qwest does not count negative revenue in the numerator or denominator of the measure results. Negative revenue can occur when service is disconnected or changed. The revenue had already been included in a previous month's results.³⁹⁰ For IABS revenue, RRS populates the total revenue field directly from PANS.

Liberty noted a drastic decrease in reported volumes for BI-3A beginning in November, 2005. Qwest explained that the decrease in volume resulted from the change from summarized reporting to record level data calculations. Previously, the summarized file did not contain the level of detail necessary to identify ineligible records. Qwest previously included and reported all records with billed revenue. Once the record level detail data became available and product identification made possible using the Class of Service USOC, Qwest began excluding additional types of ineligible data. Qwest developed a product exclusion table for those products that are not eligible to be included in the BI-3A PID results, allowing it to remove ineligible products from the reported results. BI-3A now includes only those products eligible for PAP reporting defined as Unbundled Network Elements (UNE) or Resale.³⁹¹

Liberty examined the method that Qwest uses to calculate BI-3A. Qwest includes the value of the total revenue field in both the numerator and denominator field for each record. For those records with a billing adjustment amount in the total adjustments field, Qwest includes a matching negative amount in the numerator field. The overall calculation for BI-3A is simply a ratio of the summation of all records' numerator and denominator fields not otherwise excluded using the exclusion codes. Liberty concluded that Qwest's method for calculating this measure conforms to the PID.

Qwest listed no significant changes to the BI-3A processing in the revision history of the programming code in 2005 subsequent to the change to record level data from which this PID audit commenced. However, Qwest did implement three system changes in early 2006 that required a rerun of BI-3A results for November and December of 2005.³⁹² Specifically, Qwest i) implemented code to identify ineligible records for removal from final results based on product code, ii) corrected product identification from UNEP PBX to UBL DS3 in a USOC table, and iii) revised code to use the date of last update for determining reporting month instead of the bill date for IABS initiated revenue and adjustment records. Two other process changes in early 2006 did not require a rerun of results; Qwest corrected code to make one CLEC's UNE-P records in New Mexico consistent with recent commercial agreements and implemented code logic to identify and exclude Commercial DSL records from performance results as an ineligible product. Liberty examined Qwest's changes and impact analyses and verified that Qwest properly implemented the corrections and reran results as required.³⁹³ However, Qwest's Summary of Notes for 2006 does not properly reflect the reruns of 2005 data months for the appropriate line

³⁸⁹ Response to Data Request #406.

³⁹⁰ Interview #3, May 17, 2007.

³⁹¹ Response to Data Request #129.

³⁹² 2005 *Summary of Notes for Qwest Regional Performance Results Report*, dated January 24, 2006, published on Qwest's website.

³⁹³ Response to Data Request #414.

items and Qwest also does not list any corresponding line items in the 2005 Summary of Notes. Liberty addresses this issue of the Summary of Notes line items not spanning calendar years in the Findings and Recommendations section.³⁹⁴

As part of its data validation efforts, Liberty focused on the December 2005 monthly Ad Hoc files, which Qwest used for the calculation of results. Liberty reviewed transactions from the monthly Ad Hoc files, using samples of records drawn from each of the original three Bell Operating Company Regions served by Qwest.³⁹⁵ The monthly Ad Hoc files contain both original and derived data fields. In order to substantiate the programming logic it examined earlier, Liberty reviewed the derived data fields needed for the calculation of the BI-3A measure results and verified that Qwest calculated them correctly from the source data.

Liberty also reviewed the December 2005 Ad Hoc Master File created by Qwest. Liberty reviewed the records in this file for BI-3A, and found that they accurately captured the results that Liberty recalculated for CLEC aggregate results.

Liberty reviewed Qwest's RRS documentation that it uses to calculate the BI-3A results and found it to be generally useful.³⁹⁶ However, Liberty noted some errors and omissions. Liberty addresses these issues in more detail in the Findings and Recommendations section.³⁹⁷

Replication

Liberty recalculated Qwest's individual, CLEC aggregate, and retail December 2005 reported results for each state to confirm that Qwest calculated them accurately. Liberty wrote its own code to perform its replication based on its interpretation of the PID. Using this code, Liberty recalculated the results for every disaggregation relevant to the QPAP for the measure BI-3A, using the data found in the monthly Ad Hoc file.³⁹⁸ Liberty calculated the numerators, denominators, results, and standard deviations, and compared its recalculated results with these calculations with those reported on Qwest's Summarized Master Table.³⁹⁹ Liberty successfully replicated 100 percent of Qwest's state-specific reported metric results for measure BI-3A.

C. BI-4A

1. Background

The PID lists two BI-4 sub-measures. BI-4A measures the completeness with which Qwest reflects non-recurring and recurring charges associated with completed service orders on the bills. BI-4B measures the completeness with which Qwest reflects the revenue for Local MOU

³⁹⁴ Liberty Finding 7.

³⁹⁵ Responses to Data Requests #178 and #251.

³⁹⁶ Responses to Data Request #1 and #205.

³⁹⁷ Liberty Finding 12.

³⁹⁸ Response to Data Request #369.

³⁹⁹ Response to Data Request #412.

associated with CLEC local traffic over Qwest's network on the bills. The PID lists no exclusions for the BI-4 measure.

The PID version 8.1 provides the following formula for BI-4A, UNE and Resale Billing Completeness:

$[\Sigma (\text{Count of service orders with non-recurring and recurring charges associated with completed service orders on bills that are billed on the correct bill} / \text{Total count of service orders with non-recurring and recurring charges associated with completed service orders billed on the bill})] \times 100.$

The PID provides the following formula for BI-4B, Reciprocal Compensation Billing Completeness:

$[\Sigma (\text{Revenue for Local Minutes of Use billed on the correct bill} / \text{Total revenue for Local Minutes of Use collected during the month})] \times 100.$

The PID defines the correct bill as the next available bill.

Qwest reports BI-4A on a statewide basis for CLEC aggregate, individual CLECs, and Qwest retail. The PID lists the standard for BI-4A as parity with Qwest retail. Qwest reports BI-4B on a statewide basis for CLEC aggregate and individual CLECs; it has a standard of 95 percent.

The definition of BI-4 did not change during 2005

The QPAPs of all 14 states include BI-4.

2. Analysis and Evaluation

The scope of the 2005 ROC Audit requires a partial re-audit of BI-4A based on a 2004 ROC Audit finding.

Liberty's 2004 ROC Audit Finding #10 found that Qwest did not exclude all non-bill impacting records that originate in IABS from the Billing Completeness (Resale and UNE) (BI-4A) measure.⁴⁰⁰

Qwest uses source data from MCAS and IABS to calculate the BI-4A measure. The source systems assign a bill impact indicator value to each billing record they send to PANS. An indicator value of "N" means that the record is non-bill impacting, which means it is associated with a service order having no recurring or non-recurring charges associated with it. For example, a billing address change would be of this type.

⁴⁰⁰ Liberty's Final Report on the Audit of Qwest's Performance Assurance Plans, October 28, 2005.

Qwest began using the bill impact indicator to exclude non-bill impacting records from BI-4A results beginning with the January 2004 data month. Liberty finds this exclusion appropriate because such bills have no charges associated with them, and the PID notes that BI-4A “measures the percentage of non-recurring and recurring charges associated with completed service orders.” Qwest assigns an exclusion code of 118 to records with a bill impact indicator of “N” and excludes them from its calculation of results. Liberty found that Qwest assigned the exclusion code to CRIS records, but not to IABS records. Typically, while there are many non-bill impacting IABS records, Qwest’s process usually excludes them because they pertain to an invalid product. However, the process still included other non-bill impacting IABS records in reported results during 2004.

In its replication of Washington results for December 2004, Liberty found that one non-bill impacting IABS record was incorrectly included in reported results. The denominator for the state was over 30,000, and thus the error had a negligible effect. Qwest stated that it found 11 wholesale and retail records in the regional December 2004 data that were incorrectly included in results, and stated that there was no PAP monetary effect region-wide.

Qwest acknowledged that these IABS records should be excluded. Qwest implemented the exclusion of non-bill impacting records originating in IABS from BI-4A in the July 2005 release produced in August 2005.⁴⁰¹

During the 2004 ROC Audit, Liberty confirmed that the billing impact indicator field was populated in IABS, but that the company’s SAS program did not contain the logic to translate an indicator value of “N” to an exclusion code of 118. Liberty asked the company to provide the new program language.⁴⁰² Liberty reviewed it and found that Qwest had correctly added a logic step to check the value in the billing impact indicator field.

Qwest indicated that the error had negligible impact on results and therefore it made code changes on a going forward basis in accordance with rerun guidelines.⁴⁰³ Liberty agrees that no reposting of results was required.

Liberty successfully performed replication of BI-4A as part of the 2004 ROC Audit. Liberty was satisfied that Qwest’s changes corrected the problem, and believes replication of 2005 results was not necessary to fulfill the goals and requirements of this audit.

⁴⁰¹ Response to Data Request #56.

⁴⁰² Data Request #314.

⁴⁰³ Responses to Data Requests #56 and #356.

IX. Other

A. NI-1

1. Background

The NI-1 performance measure evaluates factors affecting completion of calls from Qwest end offices and tandem offices to CLEC end offices and tandem offices, compared with the completion of calls from Qwest end offices and tandem offices to other Qwest end offices and tandem offices, respectively, focusing on average busy-hour blocking percentages in interconnection or interoffice final trunks. NI-1 includes blocking percentages on all direct final and alternate final interconnection and interoffice trunk groups in service during the reporting period.

Qwest disaggregates NI-1 as follows:

- NI-1A: Interconnection (LIS) trunks to Qwest tandem offices, with Trunk Group Service Request (TGSR) related exclusions applied
- NI-1B: LIS trunks to Qwest end offices, with TGSR-related exclusions applied
- NI-1C: LIS trunks to Qwest tandem offices, without TGSR-related exclusions
- NI-1D: LIS trunks to other Qwest end offices, without TGSR-related exclusions.

The PID specifies standards for NI-1 as follows:

- NI-1A: one percent or, if greater than one percent, parity with Qwest Interoffice Trunks to tandems
- NI-1B: one percent, or if greater than one percent, parity with Qwest Interoffice Trunks to end offices
- NI-1C: diagnostic
- NI-1D: diagnostic.

Qwest reports NI-1 for CLEC aggregate, CLEC-specific, and Qwest Interoffice trunk blocking results. Qwest reports results at an individual statewide level for each of the 14 states in the Qwest service area, as well as at a regional level reflecting the 14-state aggregate results.

The NI-1 PID lists a number of exclusions, many that are quite complex:

- For NI-1A and NI-1B only: Trunk groups, blocking in excess of one percent in the reporting period, for which:
 - a. A TSGR has been issued in the reporting period, or
 - b. CLECs do not submit, within 20 days of receiving a TSGR, i) responsive ASRs, ii) trouble reports, or iii) notification of traffic re-routing.
- Trunk groups blocking in excess of one percent with one of the following causes:
 - a. Out-of-service conditions arising from cable cuts, severe weather, or force majeure conditions
 - b. CLECs placing trunks in a busy condition

- c. Lack of facilities for which the CLEC did not provide a timely forecast
 - d. Isolated incidences of blocking, about which Qwest provides notification to the CLEC, that i) are not recurring, ii) do not warrant corrective action, and iii) thus, do not require an actionable TGSR.
- Trunk groups recently activated that have not been in service for a full “20-high-day, busy hour” review period.
 - Toll trunks, non-final trunks, and trunks that are not connected to the public switched network.
 - One-way trunks originating at CLEC end offices.
 - Qwest official services trunks, local interoffice operator and directory assistance trunks, and local interoffice 911/E911 trunks.
 - Records with invalid product codes.
 - Records missing data essential to the calculation of the measurement per the PID.

The PID version 8.1 provides the following formula for the calculation of the NI-1 performance measure results:

$$\{[\sum(\text{Blockage in Final Trunk Group of Specified Type}) \times (\text{Number of Circuits in Trunk Group})] \div (\text{Total Number of Final Trunk Circuits in all Final Trunk Groups})\} \times 100$$

The definition of NI-1 did not change during 2005.

The QPAPs of all 14 states include NI-1A and NI-1B, but not NI-1C or NI-1D.

2. Analysis and Evaluation

The scope of the 2005 ROC Audit required a full audit of NI-1 because Qwest automated significant portions of the NI-1 calculation. Qwest uses an industry standard automated trunk monitoring process to determine trunk blockage. Every 30 minutes, each Qwest end office and tandem switch sends traffic data to a Telecordia-produced system called Network Performance Monitor (formerly DCOS). These data include usage, peg count (call attempts), and overflow (calls that could not be completed across that particular trunk group).

Each week the data are downloaded into the TIDE system, which in turn sends the data to the Trunk Servicing System (TSS). TSS analyzes trunk group data for a “study period,” defined as the four most recent available weeks of the last nine weeks of data. For each trunk group, TSS calculates the study period’s “busy hour,” using an industry standard process.⁴⁰⁴

⁴⁰⁴ Response to Data Request #131.

The Trunk Record Data Base (TRDB), a time-share information management system, lists the results of the TSS calculations. PANS stores the TRDB data. Qwest extracts data from PANS every day into RRS. Qwest automated significant portions of the NI-1 calculation in 2005.⁴⁰⁵

Source Systems to PANS

To evaluate the integrity of the data that flow to PANS, Liberty examined the processes used by Qwest to extract the data from TRDB and store them in PANS. Liberty also reviewed the quality processes Qwest has in place to assure that PANS receives all the TRDB transaction-level data needed for the calculation of NI-1.

To determine the reporting month for trunk blocking, Qwest uses the trunk blocking study period, consisting of 20 business days, that best represents the month being reported. For example, for the reporting month of October 2005, Qwest used as the study period the 20 business days that lie solely in October 2005 (i.e., October 3 through 28, excluding weekends). Qwest identifies each study period by the last week in the period, referred to as the “study week.” The TSS determines the busy hour in an industry-standard manner by analyzing trunk group data for a study period. TSS determines the busy hour, known as the Time-Consistent Busy Hour (TCBH), based on the hour with the highest average offered load. If two or more hours have the same offered load, TSS selects the TCBH from these hours by choosing the hour with the highest blocking or overflow. If the hours have equal blocking or overflow values, TSS selects the hour with the higher quantity level as the TCBH. And lastly, if the hours have the same quantity levels, TSS selects the earlier hour as the TCBH. For the NI-1 calculation, Qwest measures the blocking percentage for each trunk group during the TCBH and includes that percentage in the numerator of each NI-1 record.⁴⁰⁶

To prevent record duplication, Qwest assigns each trunk group a unique Trunk Group Serial Number (TGSN). Qwest indexes the trunk data loaded into PANS by TGSN and study week date.⁴⁰⁷ Qwest loads data from TRDB into PANS once per week. Qwest maintains separate PANS files for wholesale trunk blocking and retail trunk blocking.⁴⁰⁸ Errors in the process trigger alarms that alert the database administrators to problems. The PANS group uses standard processes to respond to alarms on an individual case basis. The alarms include: i) no data available by the expected time on the day of the load, ii) the number of data rows for the week falls outside of the expected weekly volume, iii) duplicate input files, and iv) mismatches between the number of records loaded into Oracle and SAS.⁴⁰⁹ Qwest excludes non-CLEC and non-Qwest trunk groups by not loading them from TRDB into PANS because the PID does not specify measurement of these types of trunks in NI-1.⁴¹⁰

Each Thursday, Qwest extracts trunk traffic data from the TRDB system and loads them into the current version of the TGSR Oracle table, known as TGSR3. Qwest's trunk monitoring organization uses a web interface to TGSR3 to view and manage the traffic data, to issue TGSRs

⁴⁰⁵ Interview #1, May 8, 2007.

⁴⁰⁶ Response to Data Request #132.

⁴⁰⁷ Response to Data Request #237.

⁴⁰⁸ Interview #6, June 28, 2007.

⁴⁰⁹ Response to Data Request #238.

⁴¹⁰ Response to Data Request #240.

to CLECs, and to manage the TGSR process. Each Monday, Qwest extracts data relating to TGSRs from TGSR3 and loads them into a PANS Oracle table.⁴¹¹ Qwest also stores repair data from the WFAC system in a separate PANS file.⁴¹²

PANS to RRS

Liberty examined the process and code used by RRS to extract data from PANS on a daily basis for the NI-1 measures.⁴¹³ Qwest uses this program to create a rolling Ad Hoc file for the measure using data from the TRDB, TGSR, and WFA databases in PANS. Qwest extracts TRDB data from both PANS files into RRS and merges them into a single Ad Hoc file for NI-1.⁴¹⁴ Depending on the day of the month, Qwest pulls up to 62 days of data to generate month-to-date measurements and prior month measurements.⁴¹⁵ Qwest uses the TGSN to link the repair data from the WFAC PANS file to the TRDB data and uses this data to identify records to exclude for certain repair conditions.⁴¹⁶ Qwest also uses the TGSN to link the TGSR data to the TRDB data.

When Qwest processes the PANS data, alarms are triggered if any errors occur in the automated ETL process. Qwest handles errors on an individual case basis.⁴¹⁷

When processing trunk data, Qwest selects the trunk groups contained in the last full study week of the month. Through this point in the processing, the data are at a trunk group level. The RRS code copies the data to each of the trunk members in each trunk group to calculate the NI-1 measures, thus creating one data record for each trunk group member. Each data record contains blocking data identical to that of the trunk group to which it belongs; thus all records from the same trunk group are identical.⁴¹⁸ Accordingly, all trunk members in each trunk group have the same blocking data as was recorded from their respective trunk groups. This process accomplishes the weighting of blocking data for each trunk group, so that trunk groups can be combined in accordance with the NI-1 PID formula for reporting purposes.⁴¹⁹ Qwest implemented the transformation to circuit level records with the June 2004 data month. Qwest reported Trunk Blocking at the circuit level prior to the change using different methods.⁴²⁰

After reviewing the SAS programs with Qwest, Liberty was satisfied that Qwest's process for extracting data from PANS was adequate to ensure that it retrieved all relevant data for the measure and that the data did not change. Qwest's programs contain a significant amount of code for internal Qwest purposes not associated with measurement reporting.

RRS Processing for NI-1

⁴¹¹ Response to Data Request #404.

⁴¹² Interview #6, June 28, 2007.

⁴¹³ Response to Data Request #72.

⁴¹⁴ Interview #6, June 28, 2007.

⁴¹⁵ Response to Data Request #239.

⁴¹⁶ Responses to Data Requests #231 and #266.

⁴¹⁷ Response to Data Request #238.

⁴¹⁸ Interview #6, June 28, 2007.

⁴¹⁹ Response to Data Request #237.

⁴²⁰ Response to Data Request #411.

The key data fields in the NI-1 Ad Hoc file are CLEC ID, state, circuit blockage, TGSR flag, and exclusion code. Qwest uses numerous other fields to determine exclusions. Qwest assigns the exclusion code in RRS to identify which records to exclude from the measure. Qwest only includes those records with an exclusion code of "0" in reported results. Qwest uses still more fields to properly assign the records to the appropriate NI-1 sub-measures. Qwest calculates the circuit blockage for each record using the blocking percentage for the trunk group and the number of trunks in service in the trunk group.

Qwest initializes all records with a default exclusion code value of "0." Qwest then assigns a variety of exclusion codes in RRS that it later uses to screen out specific records from the NI-1 measure. These records fall into two general categories: those with invalid or ineligible data and those that Qwest believes should be excluded from the measure (*e.g.*, test CLECs). The table below lists the NI-1 exclusion codes and types.

| Exclusion Code | Exclusion Type |
|-----------------------|--|
| 1 | Test CLEC data |
| 2 | Invalid state code |
| 43 | CLEC Tandem |
| 60 | Zero Trunks in Service |
| 61 | Non-Usable Trunk Type |
| 85 | Repairs |
| 86 | Wholesale Trunk Type |
| 87 | Wholesale Multifrequency or SS7 Pulsing Record |
| 121 | Need Four Study Weeks of Data |

As noted above, the PID lists eight exclusions for the NI-1 measure, some of which are quite complex. Qwest uses exclusion codes 61, 85, 86, 87, and 121 to implement several of the PID-defined exclusions. Qwest identified exclusion codes 43 and 60 as obsolete.⁴²¹ In addition, NI-1 uses the exclusion codes 1 and 2, which are common to most PIDs.

In addition to a list of exclusions that apply to all NI-1 sub-measures, the PID specifies a small set of complex exclusions that are "TGSR-related." NI-1C and NI-1D are diagnostic measures, used to illustrate the impact of the TSGR-related exclusions on the NI-1A and NI-1B results. NI-1C represents NI-1A without TGSR-related exclusions, and NI-1D represents NI-1B without TGSR-related exclusions.

Qwest implements the TSGR-related exclusions for NI-1A and NI-1B using the TSGR, not by using exclusion codes.⁴²² However, Qwest also implements three of the exclusions that the PID designates as applying to all four sub-measures using this same flag; as a result, Qwest incorrectly applies these three exclusions to only NI-1A and NI-1B. Liberty addresses this issue in more detail in the Findings and Recommendations section.⁴²³

⁴²¹ Response to Data Request #134.

⁴²² Response to Data Requests #134 and #135.

⁴²³ Liberty Finding 4.

Liberty examined the method that Qwest uses to calculate the four NI-1 sub-measures. Qwest buckets the records into appropriate sub-measures based on the contents of the field identifiers for end office, tandem office, direct final trunk group, alternate final trunk group, and the value of the TGSR flag. Qwest calculates the denominator for each of these sub-measures as a count of the records that it does not otherwise exclude. Qwest calculates the numerator for each sub-measure as a summation of the circuit blocking field.⁴²⁴ Qwest validates the NI-1 PID results each month to determine whether results and volumes conform to past result ranges. If Qwest finds any discrepancies, it reports them to the trunk group servicing organization.⁴²⁵

Liberty concluded that Qwest's method for calculating this measure conforms to the PID with the exception of Qwest's failure to properly identify and process exclusions for NI-1C and NI-1D according to the PID as discussed above and in the Findings and Recommendations section.⁴²⁶

Qwest listed no significant changes to the NI-1 processing in the revision history of the programming code in 2005. Liberty verified that Qwest did not implement any system changes between January 2005 and January 2006 that required a rerun of NI-1 results originally published in 2005.⁴²⁷

As part of its data validation efforts, Liberty focused on the October 2005 monthly Ad Hoc files, which Qwest uses for the calculation of results. Liberty reviewed transactions from the monthly Ad Hoc files, using samples of records drawn from each of the original three Bell Operating Company Regions served by Qwest. The monthly Ad Hoc files contain both original and derived data fields. In order to substantiate the programming logic it examined earlier, Liberty reviewed the derived data fields needed for the calculation of the NI-1 measure results to verify Qwest calculated them correctly from the source data.

Liberty also reviewed the October 2005 Ad Hoc Master File created by Qwest. Liberty reviewed the records in this file for the NI-1 disaggregations, and found that they accurately captured the results that Liberty recalculated for CLEC aggregate results.

Liberty reviewed Qwest's documentation of the processes that it uses to calculate the NI-1 results and found it to be generally useful.⁴²⁸ However, Liberty noted some errors and omissions. Liberty addresses these issues in more detail in the Findings and Recommendations section.⁴²⁹

Re-Audit

Based on 2004 CPAP Audit Recommendation II-R68,⁴³⁰ the Colorado PUC recommended a revision of Qwest's RRS documentation to accurately state that the total number of circuits in

⁴²⁴ Response to Data Request #236.

⁴²⁵ Response to Data Request #238.

⁴²⁶ Liberty Finding 4.

⁴²⁷ 2005 *Summary of Notes for Qwest Regional Performance Results Report*, dated January 24, 2006, published on Qwest's website.

⁴²⁸ Response to Data Request #1.

⁴²⁹ Liberty Finding 12.

⁴³⁰ NorthStar/Vantage's Final Report of Qwest's CPAP 2004 Annual Audit; March 3, 2006.

service is contained in the TRKINSVR field.⁴³¹ Qwest stated that it updated Chapter 33 of the RRS documentation to accurately reflect the use of the TRKINSVR field in the calculation of NI-1.⁴³² Liberty verified that Qwest's RRS documentation has been properly updated to reflect the appropriate field name.

Replication

Liberty recalculated Qwest's individual, CLEC aggregate, and retail October 2005 reported results for each state to confirm that Qwest calculated them accurately. Liberty wrote its own code to perform its replication based on its interpretation of the PID. Using this code, Liberty recalculated the results for every disaggregation relevant to the QPAP for the measure NI-1, using the data found in the monthly Ad Hoc file.⁴³³ Liberty calculated the numerators, denominators, results, and standard deviations, and compared its recalculated results with these calculations with those reported on Qwest's Summarized Master Table.⁴³⁴ Liberty successfully replicated 100 percent of Qwest's state-specific reported metric results for measure NI-1.

B. NP-1A

1. Background

The NP-1 performance measure evaluates the timeliness of Qwest's NXX code activation prior to the Local Exchange Routing Guide (LERG) effective date or by the "revised" effective date. NP-1A measures the percentage of NXX codes activated in the reporting period that Qwest actually loads and tests prior to the LERG effective date or the "revised" date.⁴³⁵ NP-1B measures the percentage of NXX codes activated in the reporting period that are delayed beyond the LERG date or "revised" date due to Qwest-caused Interconnection facility delays. Liberty focused on NP-1A only for this audit.

Qwest must receive complete and accurate routing information required for code activation for all interconnection trunk groups associated with the activation no less than 25 days prior to the LERG Due Date or Revised Due Date to be considered for NP-1. The LERG provides the NXX code activation notice to Qwest. The PID defines NXX code activation as complete when all translations associated with the new NXX are complete by 11:59 p.m. of the day prior to the date identified in the LERG or the "revised" date (if different from the LERG date). The NXX code activation completion process includes testing, including calls to the test number when provided.

The PID specifies the standard for NI-1A as parity with Qwest retail. Qwest reports NI-1A for CLEC aggregate, CLEC-specific, and Qwest retail results. Qwest reports results at an individual

⁴³¹ Colorado PUC Decision No. C06-1216A, Docket No. 02M-259T.

⁴³² Response to Data Request #219.

⁴³³ Response to Data Request #180.

⁴³⁴ Response to Data Request #5.

⁴³⁵ The PID defines the "revised" date as a CLEC-initiated renegotiation of the activation effective date no less than 25 days after Qwest receives complete and accurate routing information required for code activation for all interconnection trunk groups associated with the activation.

statewide level for each of the 14 states in the Qwest service area, as well as at a regional level reflecting the 14-state aggregate results.

The NP-1A PID lists the following exclusions:

- NXX code activations completed after the LERG date or “revised” date due to delays in the installation of Qwest provided interconnection facilities associated with the activations.
- NXX codes with LERG dates or “revised” dates resulting in loading intervals shorter than industry standard (currently 45 calendar days).
- NXX codes where QWEST received complete and accurate routing information required for code activations less than 25 days prior to the LERG due date or revised due date.

The PID version 8.1 provides the following formula for the calculation of the NP-1A performance measure results:

[(Number of NXX codes loaded and tested in the reporting period prior to the LERG effective date or the “revised” date) ÷ (Number of NXX codes loaded and tested in the reporting period)] x 100

The definition of NP-1 did not change during 2005.

The QPAPs of all 14 states include NP-1A.

2. Analysis and Evaluation

The scope of the 2005 ROC Audit required a replication of the NP-1 measure results for October 2005. Liberty recalculated Qwest's individual, CLEC aggregate, and retail October 2005 reported results for each state to confirm that Qwest calculated them accurately. Liberty wrote its own code to perform its replication based on its interpretation of the PID. Using this code, Liberty recalculated the results for every disaggregation relevant to the QPAP for the measure NP-1A, using the data found in the monthly Ad Hoc file.⁴³⁶ Liberty calculated the numerators, denominators, results, and standard deviations, and compared its recalculated results with these calculations with those reported on Qwest's Summarized Master Table.⁴³⁷ Liberty successfully replicated 100 percent of Qwest's state-specific reported metric results for measure NP-1A.

⁴³⁶ Response to Data Request #181.

⁴³⁷ Response to Data Request #5.

C. CP-1

1. Background

The CP-1 performance measure evaluates the timeliness of Qwest's installation of collocation arrangements for CLECs, focusing on the average time to complete such arrangements. Qwest measures the interval between the Collocation Application Date and Qwest's completion of the collocation installation.

CP-1 includes all collocations assigned a Ready for Service (RFS) date by Qwest and completed during the reporting period. The PID lists eligible collocation types as: physical cageless, physical caged, shared physical caged, physical – Line Sharing, cageless – Line Sharing, and virtual. The PID defines Collocation Application Date as the date that Qwest receives a complete and valid application for collocation from the CLEC. If Qwest receives a CLEC's collocation application on a weekend or holiday, it provides a Collocation Application Date of the next business day following the weekend or holiday. Major Infrastructure Modifications include conditioning the collocation space, obtaining permits, and installing DC power plant, standby generators, heating, venting or air conditioning equipment. The PID defines completion of the collocation installation as the date on which the requested collocation arrangement is "Ready for Service." Qwest establishes RFS dates according to intervals specified in interconnection agreements. In the event that an interconnection agreement does not specify intervals, or based upon a CLEC's request, Qwest establishes RFS dates according to details contained in the PID. RFS dates may be extended beyond the above intervals for CLEC reasons, or for reasons beyond Qwest's control, but not for Qwest reasons. In the event that a CLEC does not accept the quote within thirty days of the quote date, Qwest considers the application expired.

Qwest disaggregates CP-1 as follows:

- CP-1A: measures collocation installations with a scheduled interval from Collocation Application Date to RFS date of 90 calendar days or less
- CP-1B: measures collocation installations with a scheduled interval from Collocation Application Date to RFS date of 91 to 120 calendar days
- CP-1C: measures collocation installations with a scheduled interval from Collocation Application Date to RFS date of 121 to 150 calendar days.

The PID specifies standards for CP-1 as follows:

- CP-1A: 90 calendar days
- CP-1B: 120 calendar days
- CP-1C: 150 calendar days.

Qwest reports CP-1 for CLEC aggregate and CLEC-specific results. Qwest reports results at an individual statewide level for each of the 14 states in the Qwest service area, as well as at a regional level reflecting the 14-state aggregate results.

The CP-1 PID lists the following exclusions:

- CP-1A: CLEC collocation applications with RFS dates yielding scheduled intervals longer than 90 calendar days from Collocation Application Date to RFS date.
- CP-1B: CLEC collocation applications with RFS dates yielding scheduled intervals shorter than 91 calendar days or longer than 120 calendar days from Collocation Application Date to RFS date.
- CP-1C: CLEC collocation applications with RFS dates yielding scheduled intervals shorter than 121 calendar days or longer than 150 calendar days from Collocation Application Date to RFS date.
- Cancelled or expired applications.

The PID version 8.1 provides the following formula for the calculation of the CP-1 performance measure results:

$$\frac{\Sigma[(\text{Collocation Completion Date}) - (\text{Complete Application Date})]}{(\text{Total Number of Collocations Completed in Reporting Period})}$$

The definition of CP-1 did not change during 2005.

Arizona includes CP-1 in its QPAP. All other states use the collocation data to determine payments, but do not specifically use the PID definition.

2. Analysis and Evaluation

The scope of the 2005 ROC Audit required a replication of the CP-1 measure results for October 2005. Liberty recalculated Qwest's individual, CLEC aggregate, and retail October 2005 reported results for each state to confirm that Qwest calculated them accurately. Liberty wrote its own code to perform its replication based on its interpretation of the PID. Using this code, Liberty recalculated the results for every disaggregation relevant to the QPAP for the measure CP-1, using the data found in the monthly Ad Hoc file.⁴³⁸ Liberty calculated the numerators, denominators, and results, and compared its recalculated results with these calculations with those reported on Qwest's Summarized Master Table.⁴³⁹ Liberty successfully replicated 100 percent of Qwest's state-specific reported metric results for measure CP-1.

⁴³⁸ Response to Data Request #182.

⁴³⁹ Response to Data Request #5.

D. CP-2

1. Background

The CP-2 performance measure evaluates the extent to which Qwest completes collocation arrangements for CLECs within the standard intervals or intervals established in interconnection agreements. Qwest measures the percentage of collocation applications that are completed within standard intervals, including intervals set forth in interconnection agreements.

CP-2 includes all collocations assigned an RFS date by Qwest and completed during the reporting period. The PID lists eligible collocation types as: physical cageless, physical caged, shared physical caged, physical – Line Sharing, cageless – Line Sharing, and virtual. The PID defines the Collocation Application Date as the date that Qwest receives from the CLEC a complete and valid application for collocation. In the event that Qwest receives a CLEC's collocation application on a weekend or holiday, Qwest provides a Collocation Application Date of the next business day following the weekend or holiday. Major Infrastructure Modifications include conditioning the collocation space, obtaining permits, and installing DC power plant, standby generators, heating, venting or air conditioning equipment. Qwest counts a collocation arrangement as met under this measurement if it meets the RFS date. Qwest establishes RFS dates according to intervals specified in interconnection agreements. In the event that an interconnection agreement does not specify intervals, or based on a CLEC's request, Qwest establishes RFS dates according to details contained in the PID. In the event that a CLEC does not accept the quote within thirty days of the quote date, Qwest considers the application expired.

Qwest disaggregates CP-2 as follows:

- CP-2A: Forecasted Collocations. Measures collocation installations for which the CLEC provides a forecast to Qwest 60 or more calendar days in advance of the Collocation Application Date.
- CP-2B: Non-Forecasted and Late Forecasted Collocations. Measures collocation installations for which the CLEC does not provide a forecast to Qwest 60 or more calendar days in advance of the Collocation Application Date.
- CP-2C: All Collocations requiring Major Infrastructure Modifications and Collocations with intervals longer than 120 days. Measures all collocation installations requiring Major Infrastructure Modifications and collocations for which the RFS date is more than 120 calendar days after the Collocation Application Date.

The PID specifies the standards for CP-2 as 90 percent for all three sub-measures.

Qwest reports CP-2 for CLEC aggregate and CLEC-specific results. Qwest reports results at an individual statewide level for each of the 14 states in the Qwest service area, as well as at a regional level reflecting the 14-state aggregate results.

The CP-2 PID lists the following exclusions:

- RFS dates missed for reasons beyond Qwest's control
- Cancelled or expired requests.

The PID version 8.1 provides the following formula for the calculation of the CP-2 performance measure results:

$$[(\text{Count of Collocations for which the RFS is met}) \div (\text{Total Number of Collocations Completed in the Reporting Period})] \times 100$$

The definition of CP-2 did not change during 2005.

Arizona includes CP-2 in its QPAP. All other states use the collocation data to determine payments, but do not specifically use the PID definition.

2. Analysis and Evaluation

The scope of the 2005 ROC Audit required a replication of the CP-2 measure results for October 2005. Liberty recalculated Qwest's individual, CLEC aggregate, and retail October 2005 reported results for each state to confirm that Qwest calculated them accurately. Liberty wrote its own code to perform its replication based on its interpretation of the PID. Using this code, Liberty recalculated the results for every disaggregation relevant to the QPAP for the measure CP-2, using the data found in the monthly Ad Hoc file.⁴⁴⁰ Liberty calculated the numerators, denominators, and results, and compared its recalculated results with these calculations with those reported on Qwest's Summarized Master Table.⁴⁴¹ Liberty successfully replicated 100 percent of Qwest's state-specific reported metric results for measure CP-2.

E. CP-3

1. Background

The CP-3 performance measure evaluates the timeliness of the Qwest sub-process function of providing a collocation feasibility study to the CLEC. Qwest measures the average interval to respond to collocation studies for feasibility of installation.

CP-3 includes feasibility studies completed in the reporting period for collocations. CP-3 includes collocation types physical cageless, physical caged, shared physical caged, physical – Line Sharing, cageless – Line Sharing, and virtual. The interval begins with the Collocation Application Date and ends with the date Qwest completes the Feasibility Study and provides it to the CLEC. The PID defines the Collocation Application Date as the date Qwest receives a

⁴⁴⁰ Response to Data Request #182.

⁴⁴¹ Response to Data Request #5.

complete application for collocation from the CLEC. In the event that Qwest receives a CLEC's application for collocation on a weekend or holiday, Qwest will provide a Collocation Application Date of the next business day following the weekend or holiday.

The PID lists no disaggregations for CP-3. The PID specifies the standard for CP-3 as 10 calendar days or less.

Qwest reports CP-1 for CLEC aggregate and CLEC-specific results. Qwest reports results at an individual statewide level for each of the 14 states in the Qwest service area, as well as at a regional level reflecting the 14-state aggregate results.

The CP-3 PID lists the following exclusions:

- CLEC-caused delays
- CLEC requests for feasibility study completions resulting in greater than ten calendar days from Collocation Application Date to scheduled feasibility study completion date.

The PID version 8.1 provides the following formula for the calculation of the CP-3 performance measure results:

$$\frac{\Sigma[(Date\ Feasibility\ Study\ provided\ to\ CLEC) - (Date\ Qwest\ receives\ CLEC\ request\ for\ Feasibility\ Study)]}{(Total\ Feasibility\ Studies\ Completed\ in\ the\ Reporting\ Period)}$$

The definition of CP-3 did not change during 2005.

Arizona includes CP-3 in its QPAP. All other states use the collocation data to determine payments, but do not specifically use the PID definition.

2. Analysis and Evaluation

The scope of the 2005 ROC Audit required a replication of the CP-3 measure results for October 2005. Liberty recalculated Qwest's individual, CLEC aggregate, and retail October 2005 reported results for each state to confirm that Qwest calculated them accurately. Liberty wrote its own code to perform its replication based on its interpretation of the PID. Using this code, Liberty recalculated the results for every disaggregation relevant to the QPAP for the measure CP-3, using the data found in the monthly Ad Hoc file.⁴⁴² Liberty calculated the numerators, denominators, and results, and compared its recalculated results with these calculations with those reported on Qwest's Summarized Master Table.⁴⁴³ Liberty successfully replicated 100 percent of Qwest's state-specific reported metric results for measure CP-3.

⁴⁴² Response to Data Request #182.

⁴⁴³ Response to Data Request #5.

F. CP-4

1. Background

The CP-4 performance measure evaluates the degree to which Qwest completes the sub-process function of providing a collocation feasibility study to the CLEC as committed. Qwest measures the percentage of collocation feasibility studies for installations completed within the scheduled interval.

The PID defines the Scheduled Interval for CP-4 as ten calendar days from the Collocation Application Date or, if interconnection agreements call for different intervals, within intervals specified in the agreements, or if otherwise delayed by the CLEC, the interval resulting from the delay. CP-4 includes all feasibility studies for collocations completed in the reporting period. CP-4 includes the following collocation types: physical cageless, physical caged, shared physical caged, physical – Line Sharing, cageless – Line Sharing, and virtual. CP-4 calculates the interval from the Collocation Application Date to the date Qwest completes the Feasibility Study and provides it to the CLEC. The PID defines the Collocation Application Date as the date Qwest receives a complete application for collocation from the CLEC. In the event that Qwest receives the CLEC's application for collocation on a weekend or holiday, Qwest will provide a Collocation Application Date of the next business day following the weekend or holiday. When a CLEC submits six or more Collocation applications in a one-week period in any state, Qwest will individually negotiate feasibility study intervals and use the resulting intervals instead of ten calendar days in this measurement subject to superseding terms in the CLEC's interconnection agreement.

The PID lists no disaggregations for CP-4. The PID specifies the standard for CP-4 as 90 percent.

Qwest reports CP-4 for CLEC aggregate and CLEC-specific results. Qwest reports results at an individual statewide level for each of the 14 states in the Qwest service area, as well as at a regional level reflecting the 14-state aggregate results.

The PID lists no exclusions for CP-4.

The PID version 8.1 provides the following formula for the calculation of the CP-4 performance measure results:

$$\left[\frac{\text{Total Applicable Collocation Feasibility studies completed within Scheduled Intervals}}{\text{Total applicable Collocation Feasibility studies completed in the reporting period}} \right] \times 100$$

The definition of CP-4 did not change during 2005.

Arizona includes CP-4 in its QPAP. All other states use the collocation data to determine payments, but do not specifically use the PID definition.

2. Analysis and Evaluation

The scope of the 2005 ROC Audit required a replication of the CP-4 measure results for October 2005. Liberty recalculated Qwest's individual, CLEC aggregate, and retail October 2005 reported results for each state to confirm that Qwest calculated them accurately. Liberty wrote its own code to perform its replication based on its interpretation of the PID. Using this code, Liberty recalculated the results for every disaggregation relevant to the QPAP for the measure CP-4, using the data found in the monthly Ad Hoc file.⁴⁴⁴ Liberty calculated the numerators, denominators, and results, and compared its recalculated results with these calculations with those reported on Qwest's Summarized Master Table.⁴⁴⁵ Liberty successfully replicated 100 percent of Qwest's state-specific reported metric results for measure CP-4.

⁴⁴⁴ Response to Data Request #182.

⁴⁴⁵ Response to Data Request #5.

X. Performance Assurance Plan Payments

A. Background

QPAP⁴⁴⁶ Plans Overview

The state-specific QPAPs detail payments Qwest is required to make based on monthly performance. The QPAPs identify two general types of payments: Tier 1 and Tier 2 payments.

Qwest typically makes Tier 1 payments directly to a CLEC based on the quality of service provided to that individual CLEC. Several states' QPAPs also include conditions that specify that Qwest make a portion of these payments to a state fund established by the commission or a more general government fund. The specifics of this payment vary by state. Most states also stipulate three severity levels for the payments, and increase the payment level if the problem lasts for more than one month.

Qwest makes Tier 2 payments to the state commission or a special state fund based on the quality of service provided to CLECs in aggregate. In Colorado and Minnesota, Qwest pays Tier 1 payments resulting from individual CLEC performance, but for CLECs not participating in the QPAP, as Tier 2 payments. Tier 2 measures are typically a subset of the Tier 1 measures; however, some measures, such as PO-16 (Release Notifications), are only associated with Tier 2 payments. In addition to the overall caps discussed below, Tier 2 payments usually have a per measure payment maximum.

For both Tier 1 and Tier 2 measures, in order to determine whether the measure meets a performance standard, Qwest applies either a statistical test, used in parity measures, or an absolute standard, used for benchmark measures.⁴⁴⁷ The statistical test allows for some statistical variation from the standard before requiring payments.

The amount of Tier 1 and Tier 2 payments increase according to i) the number of "occurrences" and ii) the number of months that Qwest has failed to meet the standard for a measure. The QPAP defines an occurrence as the number of CLEC transactions (e.g., orders or troubles) multiplied by the extent of the failure. For example, for a CLEC with 100 orders, a standard of 95 percent on-time, and performance of 85 percent on-time, the extent of the miss is ten percent (*i.e.*, 95 percent standard minus 85 percent performance). The number of occurrences equals 10 (*i.e.*, 10 percent multiplied by 100 orders).⁴⁴⁸ Some Tier 1 and Tier 2 payments are per measure; in other words, Qwest pays a fixed amount for each measure missed, without regard to CLEC volume or the extent of the miss. In Colorado and Minnesota, payments for Tier 1 and Tier 2

⁴⁴⁶ As noted in Section I.B., Qwest calls its performance assurance plans for Colorado and Minnesota "CPAP" and "MPAP," respectively. It calls its plan for the other states the "QPAP." For convenience, when referring to all the performance assurance plans, Liberty will use the term "QPAP."

⁴⁴⁷ For Tier 1A parity measures, the CPAP and MPAP use a benchmark rather than using a statistical test in most cases. This benchmark equals the retail result plus or minus a fixed amount. Qwest bases this fixed amount on the CLEC volume for the month.

⁴⁴⁸ Although the formulas for parity measures are more complicated, because they take statistical variability into account, the concept is the same.

measures also depend on a severity level, or the measure of the extent of the miss, assigned to the measure.

Many states choose to apply minimum payments in the QPAP when volumes are low but Qwest still fails the measure. The QPAPs have two provisions for such minimum payments: i) developing markets with small aggregate CLEC volumes, and ii) cases in which volumes are small for individual CLECs.

Every QPAP limits the payments with an overall maximum, or cap. The QPAP applies these caps after Qwest has paid either a fixed amount of money or a percentage of net revenues for the prior year. In every state, this amounts to at least \$20 million. Based on its review of initial data requests, Liberty has determined that the 2005 payments do not exceed these caps for any state.⁴⁴⁹

In order to calculate the Tier 1 and Tier 2 payments, Qwest uses the Qwest Performance Assurance Reporting System (QPARS). As noted above, at a high level, this system:

- Gathers data from the measure results in a RRS output file called the Master File
- Compares measure results to benchmarks using reference tables by state
- Determines applicable CLECs for Tier 1 payments
- Makes comparisons and looks up payment amounts
- Creates payment files for Accounts Payable processing.

After these payment files are created, QPARS begins another process in which it:

- Generates QPAP reports by CLEC and state
- Creates a payment file for accounts payable
- Determines which payments are in the form of checks, electronic fund transfers (EFTs), or bill credits
- Appropriately routes the payments
- Completes the payments.

The processing required for these payment determinations differs by state, and depends on whether the CLEC has opted into the payment plan in the state.

B. Analysis and Evaluation

Liberty based its analysis and evaluation of the state QPAPs on the scope defined for the 2005 ROC Audit, which includes:

- I) Replication of one month of payment results
- II) Review of QPAP system changes

⁴⁴⁹ Responses to Data Requests #7 and #161.

- III) Review of Liberty's 2004 Audit Findings #15 and #16
- IV) Verification of "the receipt of payments for all Tier 1A PIDs and any other measures contributing to 80% of the CPAP payments in 2005."⁴⁵⁰

Liberty addresses these four areas in Sections 1 through 4 below. While associated Findings are noted below, Liberty details them in full in the Findings and Recommendations section of the report.

1. Replication of One Month of Payment Results

Liberty chose to replicate Qwest's reported results for the October 2005 data month because i) it was late in the year, so that Qwest had implemented most of its process changes, and ii) it was a fairly typical month in terms of overall volume.⁴⁵¹ Additionally, Qwest calculated annual minimum payments based on data from November 2004 through October 2005, making October the final month in 2005 for those calculations.

Qwest produces two key datasets that aid in replication of payment amounts. The first dataset, called the Ad Hoc Summarized Master Table ("Master File"), contains all measure results relevant for calculation of the QPAPs in each of the 14 states.⁴⁵² For each measure, the dataset contains the CLEC and Qwest numerators, denominators, and results. The file also shows Z-scores and standard deviations calculated.

The second file, the SAS QPAP file, contains results from those measures relevant to the QPAP.⁴⁵³ The SAS QPAP file shows "rolled up"⁴⁵⁴ results, as well as information on occurrences and Tier 1 and Tier 2 payments.

The SAS QPAP file also contains other information relevant to payments, including an indicator of severity (relevant to Colorado and Minnesota), Z-score critical values, benchmark values, and other adjustments that Qwest needs to make in order to calculate occurrences or payments.

Liberty performed payment replication in three stages. In the first stage, Liberty took the Master File, containing all PID results, and verified that the key information on this file also appeared on the SAS QPAP file. In the second stage, Liberty took the performance measurement information from the SAS QPAP file, read key information from Qwest reference tables showing payments rules and amounts, and verified that Qwest calculated the payment amounts correctly using this

⁴⁵⁰ "2005 ROC QPAP Audit Scope," April 4, 2007, p. 4.

⁴⁵¹ Because Qwest implemented some Billing changes in November and December 2005, Liberty performed some of the Billing replication on the November and December 2005 data, as noted below.

⁴⁵² Responses to Data Requests #5 and #117.

⁴⁵³ Responses to Data Requests #7 and #161.

⁴⁵⁴ The Master File shows, on separate lines, Qwest and CLEC results. When stating that the SAS QPAP file is being "rolled up," Liberty is referring to the fact that, for each parity measure and for each line with CLEC results, the accompanying Qwest results, from which Qwest makes the parity comparison, also appear on that line.

information.⁴⁵⁵ In the third stage, Liberty compared the information about payment rules and amounts found in Qwest's reference tables, with the rules in the QPAP.

During its replication, Liberty i) applied minimums and caps to the payment amounts as appropriate, ii) determined whether an increased payment was required due to multiple misses, and iii) verified whether Qwest appropriately referred to prior months' data as specified by the relevant QPAP.

Liberty performed the following steps in its payment calculation review:

1. Used each state's QPAP to cull from the Master File those measures eligible for possible payments in either Tier 1 or Tier 2 for each state.
2. Determined the performance standard, for each eligible measure, using parity or benchmark rules.
3. For benchmark standards, adjusted the standard according to rounding rules, considered additional data, and applied variances, according to the particular measure and state.
4. For those parity measure/CLEC/state combinations for which the performance did not exceed the standard, applied the appropriate statistical test to determine whether Qwest passed or failed.⁴⁵⁶
5. For benchmark and parity failures on occurrence-based measures, used the state-specific QPAP to determine number of occurrences.
6. Used Qwest reference tables and QPAP rules to determine, for each failure, the measurement group and associated payment amount per occurrence for the measurement group.
7. Using steps 5 and 6 above, determined Tier 1 and Tier 2 payment amounts.
8. Applied minimums and caps as appropriate, according to the applicable QPAPs, in order to determine final payment amounts.
9. For each payment, determined amount, if any, to be allocated to special funds.
10. Excluded CLECs that had not opted in or had opted in after the audit period.
11. Used state-specific QPAP rules to determine portion of payments to be paid to the state and to the CLEC.
12. Verified that Qwest payment reference table entries properly reflected the table entries specifying payment amounts found in the state QPAPs.

The following table shows the files used, items checked, and coverage for each audited item.

⁴⁵⁵ Responses to Data Requests #6 and #61.

⁴⁵⁶ For some of the statistical calculations, Liberty used the locked files, called Ad Hoc files here. These files contain transaction-level detail, which Liberty needed for some of the statistical calculations. Qwest provided these files in its responses to Data Requests #175 through #182, #206, #218, #251, #316, and #319.

| Items Verified | Input File Used | Output File Used | Description of Liberty Verification Results |
|---|------------------------------|-------------------------|--|
| Qwest Numerator | Master File | SAS QPAP File | Verified 100 percent of October 2005 records from input to output file. Because the same field appears on both files, Liberty simply performed a transcription check. |
| Qwest Denominator | Master File | SAS QPAP File | Verified 100 percent of October 2005 records from input to output file. Because the same field appears on both files, Liberty simply performed a transcription check. |
| Qwest Result | Master File | SAS QPAP File | Verified 100 percent of October 2005 records from input to output file. Because the same field appears on both files, Liberty simply performed a transcription check. |
| CLEC Numerator | Master File | SAS QPAP File | Verified 100 percent of October 2005 records from input to output file. Because the same field appears on both files, Liberty simply performed a transcription check. |
| CLEC Denominator | Master File | SAS QPAP File | Verified 100 percent of October 2005 records from input to output file. Because the same field appears on both files, Liberty simply performed a transcription check. |
| CLEC Result | Master File | SAS QPAP File | Verified 100 percent of October 2005 records from input to output file. Because the same field appears on both files, Liberty simply performed a transcription check. |
| Qwest input file included correct Z-score | Master File | SAS QPAP File | Verified 100 percent of October 2005 records from input to output file. Liberty verified that Qwest used the correct Z-score. In some cases, Liberty used permutation tests, and, in others, Liberty used modified Z tests. |
| Qwest calculated Z-scores correctly | Ad Hoc Files and Master File | SAS QPAP File | Verified 100 percent of Z-scores for those measures it replicated using the Ad Hoc Master file. ⁴⁵⁷ For proportion measures requiring a permutation test, Liberty's results did not match Qwest's results. Liberty issued a finding to address this issue. ⁴⁵⁸ |

⁴⁵⁷ Liberty also verified the results of the permutation tests for interval (rather than proportion) measures. For these results, Liberty did not expect the Z-scores to exactly match, because the permutation test, as specified in the QPAPs, involves a simulation. As such, Liberty computed the 95 percent confidence interval for each of 683 Z-scores computed using an interval-type permutation test in October 2005 for the measures requiring an interval-type permutation test (*i.e.*, OP-4, OP-6, and MR-6). Liberty found that 40 of these 683 (6 percent) of these Z-scores fell outside the 95 percent confidence interval, which is within the range of statistical error, and indicates that Qwest is correctly computing the Z-scores.

⁴⁵⁸ Liberty Finding 10.

| | | | |
|--|--|--|---|
| Occurrences | SAS QPAP File and QPAP rules for calculating occurrences | SAS QPAP File | Verified 100 percent of positive occurrences for October 2005. Liberty used verified items (numerators, denominators, results, Z-scores, and variance tables) to calculate and verify the number of occurrences in the SAS QPAP File. |
| Collocation | Ad Hoc Collocation file | SAS QPAP file | Verified that Qwest calculated collocation payments correctly. Except in Arizona, these payments are based on QPAP rules and not specifically on the criteria specified in the Qwest Performance Measures document. |
| Tier 1 Payments | SAS QPAP File, payment reference tables, variance tables | SAS QPAP File | Liberty used occurrences and other verified results to verify 100 percent of the Tier 1 payment amounts. ⁴⁵⁹ |
| Tier 2 Payments | SAS QPAP File, payment reference tables, variance tables | SAS QPAP File | Liberty used occurrences and other verified results to verify 100 percent of the Tier 2 payment amounts. ⁴⁶⁰ |
| Colorado and Minnesota "Variance" Tables | QPAP document | Variance tables | In Colorado and Minnesota only, Qwest must adjust some benchmarks according to tables in the QPAPs that show variance amounts. Verified that 100 percent of the amounts in the Colorado and Minnesota "Variance" tables corresponded to the QPAP. |
| Payment amount Tables | QPAP document | Tier 1 payment table, Tier 2 payment Table, CO MN payment tables | Verified that the amounts on the payment reference tables corresponded to the QPAP amounts. These tables include information about payments for multi-month misses. Liberty did not find any incorrect entries. ⁴⁶¹ |
| Qwest QPAP Measure Reference Table | QPAP | QPAP measure reference table | Verified 100 percent of performance measures, a sample of disaggregations that did not change over the course of the year, and 100 percent of changed or new disaggregations, with two issues, both relating to 2005 changes. Liberty addresses these issues in more detail in the section reviewing QPAP system changes below and the Findings and Recommendations section. ⁴⁶² |

⁴⁵⁹ For interest, penalties, and adjustments, Liberty reviewed October 2005 data.

⁴⁶⁰ For interest, penalties, and adjustments, Liberty reviewed October 2005 data.

⁴⁶¹ Wyoming did not have an entry in the payment table to account for an increase in the per measurement cap. However, this cap does not apply to any of the Wyoming measures, so Liberty determined the entry was not currently necessary. However, in its response to Data Request #425, Qwest stated that it would add the entry with the September 2007 data so the QPAP would correspond to the payment table.

⁴⁶² Liberty Findings 3 and 11.

| | | | |
|-----------|--|---------------------|--|
| Benchmark | Master File, RRS benchmark Reference Table, QPAP benchmark Reference Table | SAS QPAP File | Verified 100 percent of October 2005 records for benchmark rules. Liberty verified a sample from the reference table to ensure that it listed the correct benchmark standards. Liberty verified 100 percent of new or changed benchmark standards. |
|-----------|--|---------------------|--|

As described in the above table, Liberty successfully replicated 100 percent of the October 2005 performance measure numerators, denominators, results, occurrences, and payment calculations for both CLECs and Qwest retail. Because these verifications relied on Qwest's reference tables, Liberty also examined the reference tables that contain information about the performance measures to be used for the QPAP and the benchmark standards for the QPAP.

Liberty identified three issues with the reference tables that could and, in some cases, did affected payment calculations. The issues that affected payment calculations resulted from Qwest not implementing some of the QPAP changes correctly. Liberty addresses these two issues in more detail in the Findings and Recommendations section.⁴⁶³ The last of these issues, which did not stem from a 2005 change to the QPAP, resulted from values missing from a reference table. Liberty determined, however, that these missing values could never have resulted in incorrect payments, either in the past or in the future, unless Qwest made other changes to the included measures.⁴⁶⁴

Liberty also identified one issue with the calculation of Z-scores, which occurs before Qwest creates the Master Table. Liberty addresses this issue in more detail in the Findings and Recommendations section.⁴⁶⁵

Through this combination of results replication, review of changes implemented, and sampling of reference table and smaller items, Liberty verified the accuracy of the payment calculations for October 2005. Below is a more detailed description of the verification results.

Master Data File Fields

Liberty began with the Master Data File and used the appropriate QPAPs and reference tables to verify the following fields for all performance measures for the October 2005 data month: Qwest numerator, denominator, and result; CLEC numerator, denominator, and result; Z-score; and benchmark.⁴⁶⁶

⁴⁶³ Liberty Findings 3 and 11.

⁴⁶⁴ The specific issue was that Qwest did not increase the per measurement cap specified in the Wyoming QPAP beyond six months, according to the Qwest payment reference tables. However, according to the QPAP, the only measures in Wyoming subject to per measurement caps are BI-1, BI-3, and BI-4, and the QPAP specifies that these measures are subject to a maximum payment level equal to the six-month cap. Thus, this error does not affect payments and will not affect payments unless a non-billing measure that is subject to per measurement caps is added for Wyoming. Because Liberty determined that this issue could never affect payments, and because Qwest stated, in its response to Data Request #425, that it is changing the reference table entry for consistency, Liberty does not believe a finding is warranted.

⁴⁶⁵ Liberty Finding 10.

⁴⁶⁶ Qwest also uses the Master File as the input for its PAP measure reports. Qwest provided these reports, at the CLEC aggregate level, in response to Data Request #22. While numerators, denominators, and results are not

For the numerators, denominators, and results, Liberty verified that the same figures appeared in the Master Data File and the payment input file. Liberty also checked to determine whether Qwest appropriately modified the CLEC Result field in the event that a QPAP rule required the compilation of data from prior months or the application of a different benchmark. For these six fields (*i.e.*, Qwest and CLEC numerator, denominator, and result), Liberty checked 12,603 line items for the month, and found no differences between the Master Data File and the payment input file.

The verification of Z-scores took place in two steps. First, Liberty calculated the Z-scores from either the summary data in the Master File or the raw data in the Ad Hoc file, to ensure the Z-scores appearing on the Master File were correct.⁴⁶⁷ Next, Liberty verified that the correct Z-score appeared on the SAS QPAP file.⁴⁶⁸

Liberty found that Qwest was not calculating the Z-score correctly for a permutation test on measures that involved a proportion. Liberty addresses this issue in more detail in the Findings and Recommendations section.⁴⁶⁹ After accounting for this Z-score calculation issue, Liberty found that Qwest selected the correct Z-score for the 8,420 CLEC-state-month-measure-product combinations of parity measures for which it calculated Z-scores.

Liberty also reviewed each result with a benchmark standard, in order to ensure that Qwest used the appropriate benchmark. Liberty found that Qwest used the correct benchmark for all of the 4,183 CLEC-state-month-measure-product combinations that required a benchmark.⁴⁷⁰

Occurrence and Payment Calculation Verification

In order to determine whether Qwest correctly calculated occurrences and payments, Liberty began with the SAS QPAP payment input files. As described above, Liberty verified the key fields in these files for October 2005. Liberty used these key fields in all the months of 2005 to verify occurrence and payment calculations for 2005.

In order to perform this verification, Liberty relied on reference tables used by Qwest to determine payments. These tables show payment amounts, based on the measure and any

changed between the Master File, the SAS QPAP file, and the reported results, Liberty nonetheless verified the consistency of these fields on a sampling basis for October 2005 data. Liberty successfully verified numerators, denominators, and results on a random sample of 60 items from the SAS QPAP files to the reported results, providing 95 percent confidence that the reports are at least 95 percent accurate. In addition, Liberty successfully verified that all aggregate BI-3A numerators and denominators for December 2005 are consistent between the Master File and the reported results.

⁴⁶⁷ For measures requiring permutation tests involving intervals (*i.e.*, OP-4, OP-6, and MR-6), Liberty needed to use the Ad Hoc files. For other measures and tests, the Master File contained adequate information for the calculation.

⁴⁶⁸ This second step required more than a mere transcription from one file to the other, because the Master File frequently has two Z-scores, only one of which is used for the QPAP, depending on the particular rules for the state and measure. Liberty verified that the SAS QPAP file listed the correct Z-score, as required by the specific rules of the measure and state.

⁴⁶⁹ Liberty Finding 10.

⁴⁷⁰ This total includes certain items in Colorado and Minnesota, where, though the PID specifies a parity measure, the QPAP specifies a variance to apply to the retail result in order to produce a benchmark standard.

escalation rules based on the number of months failed. Liberty used these reference tables to calculate payments. Liberty then compared these payment amounts to the amounts contained in the SAS QPAP file.

In total, Liberty checked all 12,635 line items that may have resulted in a payment. This includes all states, CLECs, and performance measures with activity in October 2005. Qwest made Tier 1 payments on 327 line items, Tier 2 payments on 74 line items, and special fund payments on eight line items. In total, Qwest made payments in 378 cases.⁴⁷¹

For each line item, Liberty calculated the payment amount required (or verified that none was required). In all cases, Liberty was able to replicate the Qwest payment. As noted in the previous section, Liberty found three instances of incorrect reference table entries. In these instances, Qwest's used the correct logic to produce a payment amount, but the underlying tables had incorrect information. Liberty addresses these issues in more detail in the Findings and Recommendations section.⁴⁷²

Application of Minimum Payments and Annual Caps

Most states are subject to minimum payment based on the yearly minimum payments for low volume CLECs. The specific provision, identical in the 12 states that carry such a provision, specifies:⁴⁷³

*A minimum payment calculation shall be performed at the end of each year for each CLEC with annual order volumes of no more than 1,200. The payment shall be calculated by multiplying \$2,000 by the number of months in which at least one payment was made to the CLEC. To the extent that the actual CLEC payment for the year is less than the product of the preceding calculation, Qwest shall make an additional payment equal to the difference.*⁴⁷⁴

Qwest explained that minimum payment calculations for 2005 were based on activity in the months November 2004 through October 2005. Liberty received from Qwest the "SAS QPAP" files, containing payment data for these months;⁴⁷⁵ data on total orders, payments, and resulting minimum payments due;⁴⁷⁶ and the accounts payable file that reflected the payments.⁴⁷⁷

Using the responses to these data requests, Liberty verified that Qwest calculated the reported \$913,390 in total minimum payments correctly for each CLEC/state combination, and that Qwest

⁴⁷¹ The Tier 1, Tier 2, and Special Fund payment items do not sum to the total, because the same item was sometimes associated with more than one payment type.

⁴⁷² Liberty Findings 3 and 11.

⁴⁷³ Colorado and Minnesota also calculate and pay minimum payments, but Qwest determines the payments monthly. Liberty verified the payments for Colorado and Minnesota for the October 2005 data month, based on the response to Data Request #250, which provided information about the CLECs subject to minimum payments.

⁴⁷⁴ As stated, this provision appears in the QPAPs of 12 states. For an example, see Washington State Performance Assurance Plan, Section 6.4, p. 7.

⁴⁷⁵ Responses to Data Requests #7 and #161.

⁴⁷⁶ Response to Data Request #162.

⁴⁷⁷ Response to Data Request #281. The February 2006 file showed the payments minimum payments for 2005.

also transmitted the information on payments properly. This validation was successful, with one exception. Liberty found one CLEC to which it appeared a minimum payment was due, but to which it appeared no payment had been made. When Liberty requested further information on this issue, Qwest explained that this CLEC received an overpayment in 2004 due to a PAP re-run.⁴⁷⁸ The total payments that Qwest owed this CLEC in the three months in 2005 came out to less than the 2004 overpayment. Thus, Qwest did not make any payments to this CLEC in 2005. Qwest clarified that the minimum payments language refers to months in which payments were made. In this case, no payments were actually made, so Qwest owed no minimum payments.⁴⁷⁹

Liberty also verified that maximum payments, or *caps*, were not reached in 2005. In order to verify that the annual maximum payments were not reached in any state in 2005, Liberty compared the SAS QPAP report total payments to the amounts specified in the QPAP documentation. Liberty requested the documentation showing the calculation of the cap in states where Qwest calculates the cap as a percentage of its net revenue.⁴⁸⁰ As shown in the following table, the total payments were well below the caps in every state.

Table: 2005 Payment and Cap Summary

| State | Cap of Monthly Payment | Actual Maximum Monthly Payment | Cap of Yearly Payment | Yearly Payment ⁴⁸¹ |
|-------|------------------------|--------------------------------|-----------------------|-------------------------------|
| AZ | \$3,417,443 | \$166,538 | \$41,009,320 | \$1,292,836 |
| CO | \$8,333,333 | \$306,623 | \$100,000,000 | \$1,612,164 |
| IA | \$1,362,760 | \$41,282 | \$16,353,120 | \$235,717 |
| ID | \$2,191,080 | \$18,339 | \$26,292,960 | \$73,020 |
| MN | \$8,333,333 | \$173,955 | \$100,000,000 | \$1,171,225 |
| MT | \$1,602,720 | \$20,243 | \$19,232,640 | \$67,722 |
| ND | \$910,830 | \$23,564 | \$10,929,960 | \$124,092 |
| NE | \$1,172,420 | \$41,090 | \$14,069,040 | \$80,304 |
| NM | \$3,250,000 | \$20,608 | \$39,000,000 | \$139,290 |
| OR | \$4,000,000 | \$42,698 | \$48,000,000 | \$282,899 |
| SD | \$648,090 | \$35,446 | \$7,777,080 | \$158,025 |
| UT | \$3,174,360 | \$116,611 | \$38,092,320 | \$393,886 |
| WA | \$6,164,430 | \$180,152 | \$73,973,160 | \$755,613 |
| WY | \$1,140,120 | \$96,565 | \$13,681,440 | \$177,671 |

⁴⁷⁸ Response to Data Request #280.

⁴⁷⁹ This issue lends itself to the possibility of 'gaming' the system. Qwest could purposefully overpay at the end of one year in order to cover payments, and avoid minimum payments, the next year, thus resulting in lower overall payments. While it does not appear that Qwest has done any sort of 'gaming' of the system, it resulted in the loss of \$5,284 in overpayments to this CLEC due to a PAP re-run in the prior year.

⁴⁸⁰ Response to Data Request #278.

⁴⁸¹ This column displays the sum of Tier 1 and Tier 2 payments due for the January through December 2005 SAS QPAP reports.

The payments are subject to both monthly and annual caps. Thus, the table shows the maximum monthly payment and the total yearly payment, both of which fall below their associated caps for the 2005 year.

2. Review of QPAP System Changes

To verify QPAP system changes, Liberty reviewed all versions of state QPAPs in effect for any part of 2005.⁴⁸² The types of changes implemented during 2005 included addition and removal of performance measures from the QPAPs, addition and removal of products from the QPAPs, implementation of new benchmarks or parity standards, and changes in the PID definitions or product rollups. Most of these changes directly affected the summary data needed to calculate payments. However, in some cases, the change, though affecting performance measurement calculations and results, did not affect the summary data contained in the SAS QPAP file that is used in the QPAP calculations. Liberty reviewed these changes as part of the performance measurement portion of the audit.

For each QPAP change, Liberty checked the SAS QPAP data file in the month the change became effective and in October 2005, to make sure the files contained the new data. If the particular performance measure had no activity in either one of those months, Liberty checked the first month after the change in which the measure or product had activity. When the SAS QPAP file did not contain the required information to verify the change to the QPAP, Liberty verified using the appropriate reference table.

The table below lists each change that affected QPAP results, the effective date of the change, and the states affected by the change. The final column of the table describes how Liberty verified that Qwest successfully implemented the change.

| | Effective Date | Description of Change | Applicable States | Description of Liberty's Verification Methods |
|---|-----------------------|---|--|--|
| 1 | January 2005 | Added OP-5B, with a benchmark of 96.5 percent. Implemented February 2005, effective all 2005. | AZ, CO, ID, IA, MT, NE, NM, OR, SD, UT, WA, WY | Verified using January and October 2005 SAS QPAP file. |
| 2 | January 2005 | Replaced the old OP-5 (New Service Installation Quality) with OP-5A of the new OP-5 PID (New Service Quality). | AZ | Verified using January and October 2005 SAS QPAP file. |
| 3 | January 2005 | Replaced reporting GA-1B ("Fetch-N-Stuff") and GA-1C ("Data Arbiter") with GA-1D (SIA System). Implemented prior to 2005. | AZ, ND | Verified using January and October 2005 SAS QPAP file. |
| 4 | January | Added pre-order transaction types | AZ ND | Not applicable. These transaction types are |

⁴⁸² Response to Data Request #3.

| | | | | |
|----|--------------|---|--------|---|
| | 2005 | 9 ("Connecting Facility Assignment") and 10 ("Meet Point Inquiry") to PO-1. | | combined in the QPAP, rather than separately measured. |
| 5 | January 2005 | Added EELs – DS1 to the existing product reporting category, designated as (b), Unbundled Loops and specified Unbundled Network Elements, in PO-5. | AZ, ND | Not applicable. These transactions are combined in the QPAP, rather than separately measured. |
| 6 | January 2005 | Changed the standard for Line Sharing from diagnostic to parity with retail Qwest DSL on OP-6. | AZ, ND | No activity in January or October 2005 for AZ and ND. Verified for March 2005 for AZ. No activity listed in Qwest Performance Reports for entire year in ND. |
| 7 | January 2005 | Added Line Splitting as a separate product to OP-3, OP-4, and OP-6 with standards. | AZ | Activity verified in OP-3 and OP-4 data, but no activity in OP-6, for AZ, both for January and October 2005 SAS QPAP file. Verified OP-6 activity in AZ using April 2005 SAS QPAP file. No activity listed in Qwest Performance Measurement Reports for entire year in ND. |
| 8 | January 2005 | Replaced aggregated reporting of EELs products with disaggregated reporting. In particular, the EELs DS1 product is subject to PAP on OP-3, OP-4, OP-6A, MR-5, MR-7, and MR-8. | AZ, ND | Verified addition using January and October 2005 SAS QPAP file. In ND some of the sub-measures had no activity for this disaggregation for January and October. Liberty verified this in Qwest Performance Measurement Reports. For AZ for MR-7 and MR-8, Qwest added EEL-DS1, but for Tier 2, Qwest added this product as payment level Medium instead of High. Liberty issued a Finding to address this issue. ⁴⁸³ |
| 9 | January 2005 | Revised MR-7 to report "forward-looking" (1 month in arrears) and included standard for Line Splitting. | AZ, ND | Verified using January and October 2005 SAS QPAP file. |
| 10 | January 2005 | Changed the standard for DS1-capable loops in OP-4 from parity to a benchmark of 5.5 days. | AZ | Verified using January and October 2005 SAS QPAP file. |
| 11 | January 2005 | Added product category Unbundled Loops, xDSL-I as a reporting category for certain measures (OP-3, OP-4, OP-6, MR-3, MR-6, and MR-8 as well as OP-5 and MR-7 which Qwest reports one month in arrears). | AZ | Verified using January and October 2005 SAS QPAP. No activity for OP-6 for xDSL-I on 2005 Qwest Performance Measurement Reports. |
| 12 | January 2005 | Added (expanded) PO-20. | AZ | Not applicable. Changes affected PID results but not QPAP inclusion. |
| 13 | January | Changed the standard for Line Splitting to "Parity with retail Qwest DSL" on MR-3, MR-6, and MR-8. | AZ | Verified using January and October 2005 SAS QPAP file. |

⁴⁸³ Liberty Finding 11.

| | | | | |
|----|---------------|---|----|--|
| 14 | February 2005 | Added Colorado Stipulation items: i) added Unbundled xDSL-I Capable Loops as a product disaggregation for OP-3, OP-4, OP-5A, OP-6, MR-3, MR-6, MR-7, and MR-8 and ii) added Line Splitting as a product disaggregation for OP-5A. | CO | Verified using February 2005 SAS QPAP report. According to CPAP report, this product had no activity in October 2005, but it did in September. This was verified using the SAS QPAP September 2005 report. |
| 15 | February 2005 | Deleted PO-18 | CO | Verified that PO-18 appeared in January 2005 SAS QPAP file but was not in February 2005 or October 2005 QPAP file. |
| 16 | February 2005 | Replaced PO-19 with PO-19A and PO-19B in Exhibit K. | CO | Verified using February 2005 SAS QPAP report. |
| 17 | May 2005 | Made PO-19 a diagnostic measure requiring ongoing reporting for monitoring purposes only. | CO | Reviewed SAS QPAP file for May 2005. PO-19 still appears on the May SAS QPAP file as a benchmark measure, but no longer appears on the June 2005 SAS QPAP file. No payments made in May 2005. |
| 18 | October 2005 | Changed the standard from diagnostic to parity for Line Sharing/Line Splitting for OP-6. | CO | Reviewed Qwest reference table that lists all parity measures. Found that Qwest had not added this measure. ⁴⁸⁴ |
| 19 | October 2005 | Changed the standard from parity to a 5.5 days benchmark for OP-4 Unbundled DS1-capable Loops | CO | No activity in October 2005 file, but verified benchmark using RRS benchmark reference table. |
| 20 | October 2005 | Added UNE-P Centrex 21 to the UNE-P POTS product category for PO-2. Effective October 2005, implemented December 2005. | CO | Not applicable. Changes affected PID grouping but not QPAP inclusion. |

As shown in the table, Liberty positively verified each applicable change, with three exceptions. For the change to disaggregate EELs in Arizona and North Dakota (number 8 in the table), Qwest made the change but input an incorrect payment level for Tier 2.⁴⁸⁵ For the May 2005 PO-19 change (number 17 in the table), the measure still appeared on the SAS QPAP report in May 2005 as a benchmark measure (instead of diagnostic). However, Qwest changed the measure to diagnostic with the June 2005 data, and correctly made no payments on this measure. Thus, Liberty did not believe a finding was warranted. For the OP-6 Line Sharing/Line Splitting Changes for Colorado (number 18 in the table), Liberty was unable to verify the change through activity, because there was no 2005 activity. However, as an alternative, Liberty examined the Qwest QPAP measure reference table and determined that Qwest had not made the change.⁴⁸⁶ Liberty addresses these issues in more detail in the Findings and Recommendations section.

⁴⁸⁴ Liberty Finding 3.

⁴⁸⁵ Liberty Finding 11.

⁴⁸⁶ Liberty Finding 3.

3. Review of Liberty's 2004 ROC Audit Findings #15 and #16

Liberty's 2004 ROC Audit Finding #15 stated that, "Qwest's implementation of the Nebraska, Iowa, Montana, New Mexico, Wyoming, and South Dakota QPAPs did not allow for escalation of Tier 1 payments beyond 24 months."⁴⁸⁷

In particular, Liberty found that the QPAPs for these six states indicated that payments for measurement groups high, medium, and low would increase by \$100 for each month following month six in which Qwest continues to deliver substandard performance for the measure. Qwest's reference tables for these states did implement a payment increase for each month after the sixth month; however, the increase ended at month 24.

To verify this change, Liberty reviewed the payment amount reference table.⁴⁸⁸ This table drives the payment amounts for Tier 1 payments. Liberty verified that this reference table appropriately reflected the increase in per occurrence payments subsequent to month six.⁴⁸⁹ Thus, Liberty concludes that Qwest corrected the problem identified in this finding.

Liberty's 2004 ROC Audit Finding #16 stated that, "[t]he Nebraska payment reference table for Tier 2 payments listed payment amounts to state funds that were not consistent with the Nebraska QPAP."⁴⁹⁰

In particular, for months three through six of a failure for a Nebraska per occurrence measure, payments made would be \$100 less per occurrence than those specified by the QPAP and the caps would be \$5,000 less than specified by the QPAP, according to the reference table.

In order to verify this change, Liberty reviewed the payment amount reference table which drives the payment amounts for Tier 1 payments.⁴⁹¹ Liberty verified that this reference table appropriately reflected the QPAP for Nebraska. In addition, Liberty checked the SAS QPAP files, which show specific payment information by performance indicator, product, state, and CLEC, for all of 2005. Liberty found that Qwest properly calculated payments on the two measures that would have been affected by this change. Thus, Liberty concludes that Qwest corrected the problem identified in this finding.

4. Payment Receipt Verification

Liberty verified that Qwest made payments for all October 2005 by taking the output of the QPAP payment calculation process (*i.e.*, the SAS QPAP file) and matching the payment amounts due on that file with internal Qwest files showing amounts either paid or credited using bill

⁴⁸⁷ Liberty's Final Report on the Audit of Qwest's Performance Assurance Plans, October 28, 2005.

⁴⁸⁸ Response to Data Request #61.

⁴⁸⁹ In addition, Liberty reviewed the SAS QPAP files, which show specific payment information by performance indicator, product, state, and CLEC, for all of 2005. It did not find any instances of a measure that had failed for more than 24 consecutive months.

⁴⁹⁰ Liberty's Final Report on the Audit of Qwest's Performance Assurance Plans, October 28, 2005.

⁴⁹¹ Response to Data Request #61.

credits. Liberty also queried all CLECs with October 2005 payments, giving the exact payment amounts, in order to determine whether there were specific problems with payment receipt.

Qwest stated that the SAS QPAP file is one of the inputs to the payments process.⁴⁹² Qwest combines the SAS QPAP file with a second file containing payments due from re-runs and interest in prior months.⁴⁹³ In order to reconcile payments, Liberty combined these files and compared the result to Qwest's Accounts Payable file (also known as the State Validation Table) containing total payment amounts.⁴⁹⁴

Liberty reviewed Qwest's accounts payable system records and reports and verified that Qwest paid 100 percent of the payments appearing in the SAS QPAP files for October 2005. Qwest made these payments by wire transfer, check, or bill credit.⁴⁹⁵

In order to verify actual receipt of payments by the states and CLECs, Liberty contacted each CLEC that received payments for the October 2005 data month, and requested verification or documentation of any discrepancies.⁴⁹⁶ Liberty successfully contacted all but one of the 61 CLECs that received payment for October 2005, and no CLEC responded that there was any problem with receipt of payment or payment amount.

For state payments, Liberty reviewed proof of payment in the form of copies of bank statements, wire requests, and other records showing payment provided by Qwest.⁴⁹⁷ For the state payments, Liberty successfully verified receipt in this manner for 100 percent of October 2005 payments.

⁴⁹² Interview #1, May 7-8, 2007.

⁴⁹³ Response to Data Request #120.

⁴⁹⁴ Response to Data Request #120.

⁴⁹⁵ In response to Data Request #9, Qwest provided the Service Delivery report, showing payments made via bill credits. In response to Data Request #118, Qwest provided the Invoice Paid Date report, showing invoices paid by Electronic transfer. In response to Data Request #121, Qwest provided Accounts Payable data on manual voucher requests, which are used for payments by check (only applicable to state payments in Arizona and Idaho).

⁴⁹⁶ Qwest provided the CLEC contact information in response to Data Request #352.

⁴⁹⁷ Response to Data Request #353.

XI. Other Audit Items

As noted in Section III.C., Qwest introduced some general changes in its reporting systems and process before the end of 2005 that are not specific to a single measure or group of measures but are within the scope of this audit. These include the following:

- QPAP-related items
 - a) Various QPAP system changes introduced since the last audits.
 - b) Status of QPAP-related findings from the 2004 ROC Audit
- Changes related to the introduction of Commercial Agreements
 - a) Changes to distinguish QPP from UNE-P
 - b) Changes to distinguish Commercial Line Sharing from Line Sharing
- Changes related to RRS
 - a) RRS system changes
 - b) RRS documentation findings from the 2004 ROC Audit
- Review of performance results changes in the Summary of Notes.

Liberty pursued the audit of these items as part of its measure- and QPAP-specific audit work described above. Liberty summarizes the results here.

QPAP-related items

Liberty discusses the analysis of the QPAP-related items including QPAP system changes and the status of QPAP-related findings from the 2004 ROC Audit in Section IX.

Changes related to the introduction of Commercial Agreements

For the changes related to Qwest's introduction of Commercial Agreements to replace products or unbundled elements that the FCC no longer requires to be provided under Section 251 of the Telecommunication Act, Liberty determined that Qwest has properly excluded these products or elements from the measure results and QPAP payment calculations for each of the in-scope measures requiring more than replication of results.

When a CLEC signs a Qwest Platform Plus (QPP) contract with Qwest, UNE-P services automatically switch to QPP services for the first full month following the opt-in date. From a data perspective, QPP products appear exactly the same as UNE-P products in RRS. Qwest distinguishes which product to use on a record using a look-up table known as the "comagree table." The comagree table lists the CLECs that have opted into any commercial agreement (including QPP) by state, start date of the agreement, and commercial agreement products. The table also lists the contract end date as necessary. RRS processes the records and merges them against the comagree table matching on CLEC ID, state, and product code, and contract start date. If RRS finds a match, it switches the product code on the record from a "UNE-P" product to a "QPP" product. Qwest creates the comagree table from the PAP table detail contained within

Customer Contact Data Base (CCDB) on a monthly basis and saved in the RRS table directory.⁴⁹⁸

Qwest implemented Commercial Line Sharing exclusions in the same manner. However, unlike Qwest Platform Plus (QPP), Qwest does not convert the embedded Line Sharing base once a CLEC signs the agreement. The agreement only applies to new Line Sharing records.⁴⁹⁹

Liberty verified that Qwest employs substantially similar programming and processes across measures to differentiate QPP from UNE-P and Commercial Line Sharing from Line Sharing and perform the product exclusion. Qwest consistently uses the same look-up table (comagree) to determine which CLEC/state combinations have signed agreements.⁵⁰⁰ Furthermore, Qwest provided a spreadsheet documenting the implementation of Commercial Agreements across all measures. The spreadsheet showed that implementation had been completed for all measures having a product specific element by the end of 2004.⁵⁰¹

Changes related to RRS

Liberty assessed the impact of the RRS changes through the data integrity examination and replication of the in-scope measures. Liberty addresses its review in the individual in-scope measure sections.

Liberty also reviewed the status of Qwest's responses to the 2004 ROC Audit RRS documentation findings for these measures.⁵⁰² Liberty confirmed that Qwest corrected all documentation findings with one exception: Qwest disagrees with Liberty's assertion that the description of the data sources for the PO-4 measure was misleading and was unclear regarding the IMA data source for auto-rejects.⁵⁰³ Liberty continues to find the documentation unclear on the subject. Qwest has imbedded the data source information in tables and does not include an adequate description in the Source Systems section, which is inconsistent with other measures' documentation. Nevertheless, Liberty considers this finding to be resolved because the remaining issue is relatively minor.

Review of Performance results changes in the Summary of Notes

In response to 2004 CPAP Audit Recommendations II-R47, R49, R57, R64, and R67, the Colorado PUC determined that "Qwest should populate and maintain a complete report of the changes to performance results in its Summary of Notes."⁵⁰⁴ To investigate whether Qwest has complied with the Colorado PUC order, Liberty examined all changes reported in the Summary

⁴⁹⁸ Response to Data Request #51.

⁴⁹⁹ Response to Data Request #52.

⁵⁰⁰ Response to Data Request #100.

⁵⁰¹ Response to Data Request #261.

⁵⁰² 2004 ROC Audit Finding #18.

⁵⁰³ Response to Data Request #54

⁵⁰⁴ Colorado Public Utilities Commission Order No. C0-1216 in Docket No. 02M-259T, October 10, 2006, Attachment A. The Colorado PUC decision regarding the Summary of Notes was related to several 2004 CPAP Audit Recommendations associated with measures (OP-3, OP-4, PO-9B, and MR-3) that are not subject to a full audit in the 2005 ROC Audit. However, the Colorado PUC decision provided a general directive to Qwest to assure complete reporting of changes in performance results. Reviewing the Summary of Notes during 2005 for those measures subject to a full audit allowed Liberty to test Qwest's process for reporting such changes.

of Notes for those measures subject to a full audit.⁵⁰⁵ Qwest provides the Summary of Notes on its wholesale website at <http://www.qwest.com/wholesale/results/roc.html>.

While conducting its audit of Qwest's 2005 PAP results, Liberty observed that Qwest made RRS program changes during the course of the year that were not properly reflected in the "Summary of Notes for Qwest Regional Performance Results Report – January 2005 through December 2005" document posted on Qwest's web site. Liberty addresses this issue in more detail in the Findings and Recommendations section.⁵⁰⁶

According to the legend in a footnote in the Summary of Notes, Qwest uses an "R" to indicate a rerun of results previously reported.⁵⁰⁷ For a change associated with BI-1A, which Qwest implemented in February 2006 and that affected November 2005, December 2005, and January 2006 results,⁵⁰⁸ Qwest listed an appropriate line item in the 2006 Summary of Notes with an "R" for January. Qwest did not, however, include a corresponding line item in the 2005 Summary of Notes for the months of November and December. Liberty identified other similar examples. Qwest proposed an enhancement to the process for compiling the Summary of Notes to include any applicable reruns for the prior calendar year as part of the text in the Description of Note/Comment section of the Summary of Notes.⁵⁰⁹ Liberty addresses this issue in more detail in the Findings and Recommendations section.⁵¹⁰

⁵⁰⁵ Liberty determined that the changes in the Summary of Notes for 2005 associated with the measures subject to a full audit represent about 36 percent of the total and therefore constitute an excellent sample of the changes.

⁵⁰⁶ Liberty Finding 6.

⁵⁰⁷ Response to Data Request #295.

⁵⁰⁸ Responses to Data Requests #242 and #106 (supplemental).

⁵⁰⁹ Response to Data Request #296.

⁵¹⁰ Liberty Finding 7.

XII. Findings and Recommendations

This section discusses Liberty's findings and recommendations from the 2005 ROC Audit as well as the status of those findings and recommendations from the two 2004 audits that were within the scope of the 2005 ROC Audit. As noted above, Liberty classifies its findings as follows:

| Classification | Description |
|----------------|---|
| 1 | Liberty has uncovered an issue with Qwest's methods, procedures, or calculations for which, in Liberty's opinion, either: <ul style="list-style-type: none">• Correction could cause a change in Qwest's reported results or QPAP payments; or• Qwest's practices or methods are clearly inconsistent with the PID or QPAPs. |
| 2 | Liberty has uncovered an issue with Qwest's methods, procedures, or calculations for which, in Liberty's opinion, either: <ul style="list-style-type: none">• Correction may not change Qwest's reported results, or QPAP payments or the magnitude of the change is unknown; or• Qwest's practices or methods may be in error or inconsistent with the PID or QPAPs. |
| 3 | Liberty has found a gap or potential flaw in Qwest's methods, procedures, or documentation for which a change could lead to an improvement in the reliability of reported results or QPAP payments. |
| 4 | Liberty has found an issue that, in Liberty's opinion either: <ul style="list-style-type: none">• Is not a clear inconsistency with Qwest's interpretation of the PID or QPAP but which should be clarified; or• For which Qwest has adopted conventions that are not documented in the PID or QPAPs or has interpreted these documents in ways that Liberty agrees are consistent with the wording but for which other reasonable interpretations are possible. |

Qwest agreed with most of the findings. It has also either taken action or has stated it will take action to resolve all but one of the findings. Although Liberty generally believes that Qwest's actions will resolve the findings, verification that they actually do so is outside of the scope of this audit. Liberty recommends that those states that have a provision for further QPAP auditing consider including the verification of Qwest's resolution of the findings in a future audit.

A. New Findings

Finding 1: Qwest excludes all of a CLEC's daily usage records from BI-1 results when a CLEC provides delivery instructions mid-month, even those

**records created after the instructions were received. Classification: 2
(Preliminary Finding #2)**

The BI-1 performance measure evaluates the timeliness with which Qwest provides daily usage records to CLECs. BI-1A measures the average delivery interval for recorded daily usage for UNEs and Resale. BI-1B measures the percent of recorded daily usage for jointly provided switched access provided within four days.

Version 8.1 of Qwest's 14-State 271 PID lists the following exclusions to BI-1:

- Instances where the CLEC requests other than daily usage transmission or availability.
- Duplicate records.

The RRS documentation for BI-1 states, “[w]henever a CLEC ‘Opts into’ a state without providing instructions to Qwest on where/how to deliver daily usage records, incoming usage records go into a holding pattern. When delivery instructions are available the held records are delivered. These records are excluded from the penalty payment the first month delivery instructions are available.”⁵¹¹ Qwest implements the exclusion of the initial month of usage record delivery to a CLEC after receiving delivery instructions by using exclusion code 120.

Qwest explained the exclusion by noting that upon receipt of delivery instructions, it will deliver the held records to the CLEC; however, because Qwest held the records pending the CLEC's instructions, the records appear as delivered late in the data. The late delivery does not result from Qwest's performance, but rather from the CLEC's decision to provide delivery instructions after Qwest receives the BI-1 records. Qwest stated that it considers commencement of BI-1 reporting with the first full month results after the CLEC provides delivery instructions to be proper and consistent with the intent of the PIDs.⁵¹²

Qwest's use of exclusion code 120 allows them to exclude records received prior to CLEC delivery instructions based on the first listed PID exclusion. Any records received prior to CLEC delivery instructions should legitimately not be counted. However, Qwest currently excludes all BI-1 records for the month in which it receives delivery instructions. Thus, Qwest also excludes any records received after the CLEC provides delivery instructions but before the end of the month during which those instructions were provided.

Qwest provided examples of other measures for which a mid-month start causes no issues. If a CLEC becomes an official wholesale customer mid-month and begins submitting Local Service Requests (LSRs), Qwest would include that activity in PO-2 as ‘activity received’ for the month they became an official wholesale customer. Qwest would count the completed service orders generated from those LSRs in OP-3 and report any associated repair reports in MR-3.⁵¹³

⁵¹¹ Response to Data Request #1.

⁵¹² Response to Data Request #111.

⁵¹³ Response to Data Request #244.

Qwest excluded approximately nine million BI-1A records (about 0.5 percent) based on exclusion code 120 for July through December 2005. It excluded approximately 274 million BI-1B records (about 28 percent) based on exclusion code 120 for May through December 2005.⁵¹⁴ It is probable that Qwest excluded most of these records because they had been held prior to receiving delivery instructions for the CLEC. However, the PID contains no exclusion to justify Qwest's decision to exclude those records received after the CLEC provides mid-month delivery instructions.

Liberty cannot easily quantify the number of records that are incorrectly excluded, but believes that there could be millions of records that fall into this category. Qwest performed Exclusion 120 in a manual fashion beginning in late 2004 and did not mechanize the exclusion until February 2006.⁵¹⁵

In response to this finding, Qwest provided their reasoning for this exclusion: i) the PIDs consistently state the reporting periods as "one month"; ii) a fundamental principle contributing to measurement policies being just and reasonable is that reported results to which standards are applied (whether parity or benchmark) should be evaluated only when the data reasonably represents the full reporting period; and iii) a number of QPAP provisions rely upon the combined effect of PID and PAP provisions, which require the conditions of the performance results and standards to match on, among other things, the length of the reporting period.⁵¹⁶ In addition, Qwest notes that its use of a mid-month start for such measures and PO-2, OP-3, and MR-3 is voluntary and not required by the PIDs and PAPs. Furthermore, Qwest notes,

*The BI-1 process is unique in that the CLEC's unilateral action obligates Qwest to hold messages in abeyance during the time the CLEC fails to provide delivery instructions. This complicates processing of messages – holding those in abeyance while waiting for delivery instructions, retrieving and delivering them after instructions are provided, and delivering newly received messages to the proper destination all of which may be necessary to process at the same time. These process requirements are not found with respect to PO-2, OP-3, and MR-3 where service orders or repair reports are processed as they are provided to Qwest.*⁵¹⁷

Liberty believes that Qwest makes some good points in relation to this finding and that exclusion of these records might be appropriate in this case. However, to avoid misunderstanding in light of Qwest's different approach to some other measures, Liberty recommends that Qwest provide clarifying language in the BI-1 PID. For example, a change to the BI-1 PID that would explicitly authorize Qwest's current process might be to add the exclusion of "Records created in the month in which daily usage transmission or availability instructions are received."

⁵¹⁴ Response to Data Request #69.

⁵¹⁵ Responses to Data Requests #262 and #190 (supplemental).

⁵¹⁶ Response to Preliminary Finding #2.

⁵¹⁷ Qwest comments on Liberty Draft Final Report.

Finding 2: Qwest's programming for calculating BI-1B results contains logic errors for certain field-value combinations. Classification: 2 (Preliminary Finding #3)

The BI-1 performance measure evaluates the timeliness with which Qwest provides daily usage records to CLECs. BI-1B measures the percent of recorded daily usage for jointly provided switched access provided within four days.

To determine whether a record meets the four day standard, Qwest calculates the elapsed time interval as the difference between the received date and the process date, excluding weekends and holidays. Qwest assigns the value "NULL" in the elapsed time field to records that are invalid and therefore should be excluded from the calculation of BI-1B. This occurs under the following conditions:

- If either of the date fields is blank, Qwest cannot calculate the delivery interval and assigns a NULL value to the elapsed time.⁵¹⁸
- Qwest also assigns a NULL value when certain illogical data combinations occur (e.g., when the received date is greater than the process date).⁵¹⁹

Liberty found two errors in the way that Qwest calculates and treats these NULL values:

1. Qwest improperly counts all records with NULL values in both the numerator and denominator of BI-1B. That is, Qwest effectively treats a NULL value as a valid transaction that meets the four day standard, thereby spuriously improving performance.
2. Qwest improperly assigns a NULL elapsed time value to transactions with identical received date and process dates instead of the correct elapsed time of zero days. Such transactions are valid and should be included in the calculation.

Liberty notes that these two errors are completely off-setting for those records in which both errors apply. Their net impact on the calculation of BI-1B depends both on the fraction of transactions with NULL elapsed times and on the fraction of NULL values resulting from zero day intervals.

Qwest provided Liberty with data for October 2005. Of the 147,618,173 records in the October 2005 BI-1B Ad Hoc file, 620,366 have a NULL elapsed time value. None resulted from missing received or process dates. 620,226 have a NULL value in the elapsed time field because the received date and process date were the same (zero day interval). Only 140 have NULL values because of illogical data combinations.⁵²⁰ Thus, Qwest's errors had a negligible net impact in October 2005. However, it is possible that effects could be higher in other months.

⁵¹⁸ Interview #1, May 8, 2007.

⁵¹⁹ Response to Data Request #189.

⁵²⁰ Responses to Data Requests #188 and #245.

Qwest agrees with this finding and committed to enhancing the code to address the errors even though it has minimal impact.⁵²¹ Qwest believes that it is appropriate to enhance the code in order to assign valid elapsed time values (not NULL) when the received date is less than or equal to the process date. This enhancement would result in a change of 0.42 percent⁵²² of the records from having a NULL elapsed time value to being initialized to zero in October 2005. Qwest also stated that the code also needs to be enhanced to say if the elapsed time field is NULL, then the record should not be counted in the measure. Qwest will be enhancing the code as described above with the July 2007 data produced in August 2007.⁵²³ Qwest's evaluation of the impact of the change does not trigger a rerun of historical data under the rerun guidelines.⁵²⁴ Liberty believes the change to the code will resolve this issue if implemented properly.

Finding 3: Qwest did not change the standard from Diagnostic to Parity for the Line Sharing/Splitting product disaggregation for the performance measure OP-6, as required by the CPAP. Classification: 4 (Preliminary Finding #4)

Qwest stated that the CPAP "changed the standard from diagnostic to parity for Line Sharing/Line Splitting for OP-6" and indicated that this change became effective in October 2005.⁵²⁵ Because there was no activity subsequent to the change in 2005, Liberty requested additional documentation that Qwest made the change. In response, Qwest stated that the changes had not been made:

Measures are included in the PAP via the q_meas table provided to Liberty in DR 05-061. If the Include column = "YES" and the reporting month is in the interval represented by the effective and end dates, the measure is included when processing a reporting month. Beginning with the Oct-05 data, the OP-6 linesharing/splitting measure should have been designated with a "YES" in the include column, and the effective date should have been changed to 10/1/2005, but neither of these changes were made.⁵²⁶

In addition, Qwest stated that it had found only one instance of activity for this measure since October 2005, and that activity would not have resulted in any CPAP payments.

Qwest agreed with Liberty's finding and stated that:⁵²⁷

In the June 2007 release produced in July 2007 Qwest has made the appropriate q_meas table changes for OP-6 line sharing/splitting with the original effective date of October 2005.

⁵²¹ Response to Preliminary Finding #3.

⁵²² Liberty corrected the percentage calculation contained in Qwest's response.

⁵²³ Response to Data Request #245.

⁵²⁴ Response to Preliminary Finding #3.

⁵²⁵ Response to Data Request #3.

⁵²⁶ Response to Data Request #264.

⁵²⁷ Response to Preliminary Finding #4.

Since there has been only one instance of data for this PID, which was not a miss, no rerun of the PAP is necessary to calculate payments and interest due. However, in the event a future rerun of the source data should be undertaken, the effective date of October 2005 would be applicable for this change.

Although the issue had not resulted in any CPAP payments, Qwest's process for calculating OP-6 was inconsistent with the CPAP. However, Liberty believes Qwest's July 2007 change will adequately address this finding going forward.

Finding 4: Qwest does not identify and process exclusions for NI-1C and NI-1D according to the PID. Classification: 2 (Preliminary Finding #5)

The NI-1 performance measure evaluates factors affecting completion of calls from Qwest end offices or tandem offices to CLEC end offices or tandem offices, respectively, compared with the completion of calls from Qwest end offices or tandem offices to other Qwest end offices, or tandem offices, respectively, focusing on average busy-hour blocking percentages in interconnection or interoffice final trunks.

The PID disaggregates NI-1 as follows:

- NI-1A: Interconnection (LIS) trunks to Qwest tandem offices, with TGSR related exclusions applied
- NI-1B: LIS Trunks to Qwest end offices, with TGSR-related exclusions applied
- NI-1C: LIS trunks to Qwest tandem offices, without TGSR-related exclusions
- NI-1D: LIS trunks to other Qwest end offices, without TGSR-related exclusions.

In addition to a list of exclusions that apply to all NI-1 sub-measures, the PID specifies a small set of complex exclusions that are "TGSR-related." NI-1C and NI-1D are diagnostic measures, used to illustrate the impact of the TSGR-related exclusions on the NI-1A and NI-1B results. NI-1C represents NI-1A without TGSR-related exclusions, and NI-1D represents NI-1B without TGSR-related exclusions.

Qwest implements the TSGR-related exclusions for NI-1A and NI-1B using the flag "tsgr_flag."⁵²⁸ However, Qwest also implements three of the exclusions that the PID designates as applying to all four sub-measures using this same flag; as a result, Qwest incorrectly applies these three exclusions to only NI-1A and NI-1B. These three exclusions are for trunk groups blocking in excess of one percent, for which Qwest can identify, in time to incorporate in the regular reporting of this measurement, with one of the following causes:

- CLECs placing trunks in a busy condition
- Lack of facilities for which the CLEC did not provide a timely forecast to Qwest

⁵²⁸ Response to Data Requests #134 and #135.

- Isolated incidences of blocking, about which Qwest provides notification to the CLEC, that i) are not recurring, ii) do not warrant corrective action, and iii) thus, do not require an actionable TGSR.

Qwest noted that the PID language for the three exclusions contains the words: "... for which Qwest can identify, in time to incorporate in the regular reporting of this measurement..." Qwest interprets this language to mean that these exclusions are "optional."⁵²⁹

Liberty believes that Qwest does not properly identify and process three of the PID-defined exclusions for NI-1C and NI-1D; nothing in the PID language suggests that these three exclusions are optional. Qwest compromises the diagnostic value of NI-1C and NI-1D by inconsistently implementing the exclusions that the PID specifies should apply to all four sub-measures. Improper implementation of these exclusions means that the differences between NI-1A and NI-1C and between NI-1B and NI-1D are no longer solely associated with the PID-defined TGSR-related exclusions.

Qwest identified approximately seventy thousand records excluded from NI-1A and NI-1B using the `tgssr_flag` for 2005.⁵³⁰ Qwest stated that the circumstances associated with the three exclusions in question are "rare" but cannot quantify how many of the seventy thousand records fall into those categories.⁵³¹ Qwest did not exclude any of these records from NI-1C and NI-1D.

In response to this finding, Qwest explained its reasoning for the treatment of these exclusions: i) the exclusions occur rarely and, in any event, their exclusion would have practical effect only in NI-1C or NI-1D, ii) both the first exclusion bullet in NI-1 (which applies only to NI-1A/1B) and three of the four sub-bullets of the second exclusion (which apply to all four, NI-1A, -1B, -1C, and -1D) are, in fact, "TGSR-related," iii) the fact that Qwest could not and did not implement the exceptions actually left intact the more fundamental, PID-defined conceptual difference between NI-1A/1B and NI-1C/1D, in which NI-1A/1B incorporate the TGSR-related exclusions, and NI-1C/1D do not, and iv) Qwest's method does not produce significant impacts on the diagnostic measures, because the differences between the non-diagnostic NI-1A/B and the diagnostic NI-1C/D are very minimal.⁵³²

In its most recent response to this finding, Qwest stated that "[a]fter further consideration, Qwest believes that these exclusions, for all intents and purposes, are not only rare, but they never happen in reality. It appears that the three exclusions at issue in this finding have never triggered the one percent threshold since the implementation of NI-1." Hence, Qwest "believes the conditions addressed by these three exclusion exceptions in the PID have never been sufficient and therefore are unlikely to ever be sufficient, to cause trunk groups to block 'in excess of one percent,' as necessary for them to meet the PID criterion." If Qwest can verify this, it plans to make PID changes to eliminate these exclusions "at the next available 14-state regulatory opportunity in those states that specifically address the audit results." If Qwest cannot verify this,

⁵²⁹ Response to Data Request #265.

⁵³⁰ Response to Data Request #265.

⁵³¹ Responses to Data Requests #267, #268, and #269.

⁵³² Response to Preliminary Finding #5.

it will “take such steps, to the extent possible, to provide the capability to do what it could not do previously (and cannot do at present) – i.e., to identify, in time for regular reporting of the measurement, the conditions necessary to employ these exclusion exceptions.”⁵³³

Liberty believes that Qwest's proposed actions would adequately address this finding and recommends that they be carried out.

Finding 5: In calculating MR-7 results, Qwest excluded trouble records reported in MTAS for “invalid CLEC” although the records contained sufficient information to make a valid CLEC identification. Classification: 2 (Preliminary Finding #6)

To identify the CLEC associated with a trouble record reported in MTAS for most products, Qwest matches the second through the fourth characters of the “LAST6” field with a reference table listing valid CLECs (“CLECLIST”). If these field characters are either blank or contain a value that does not match with a corresponding CLEC code in the reference table, Qwest excludes the record as “invalid CLEC.” Qwest uses this process for all products except Line Sharing, Shared Distribution Loop, and Central Office Communications Services. For these three products, Qwest determines the CLEC identification using the CLEC information found in the “CUSTN” field.

During its data integrity investigation on the MR7M Ad Hoc file used to calculate Qwest's MR-7 results, Liberty observed that Qwest excluded a number of records from the results calculation for “invalid CLEC” due to insufficient data in the “LAST6” field. However, for these same excluded records, the “CUSTN” field contained sufficient information to allow Qwest to identify the CLEC.

Qwest indicated that it analyzed the effect of using the “CUSTN” data as a secondary level for the identification of the CLEC when its use of the data in the “LAST6” field fails to yield a CLEC ID.⁵³⁴ Qwest's analysis shows that if this change had been made for the October 2005 MTAS data, a total of 110 records currently excluded from that month's reported results would have been identified with a valid CLEC.

Qwest agreed with this finding and indicated that although the volume of transactions affected is very small, it plans to implement an enhancement to its code to check the “CUSTN” field when the “LAST6” field does not provide a valid CLEC identification. Qwest stated that it implemented this change in the August 2007 release to be produced in October.⁵³⁵ Liberty believes that the revised coding change will resolve this issue going forward if implemented properly.

⁵³³ Qwest comments on Liberty's Draft Final Report.

⁵³⁴ Response to Data Request #290.

⁵³⁵ Response to Preliminary Finding #6.

Finding 6: Qwest's Summary of Notes document does not accurately reflect all 271 performance results changes that occurred during the 2005 reporting year. Classification: 3 (Preliminary Finding #7)

The Qwest Performance Assurance Plans (QPAPs) require that a Notes Summary be posted to Qwest's web site detailing the changes made to the RRS that affect 271 performance measurement calculations. In addition, the Colorado PUC determined that "Qwest should populate and maintain a complete report of the changes to performance results in its Summary of Notes."⁵³⁶ Qwest provides the Summary of Notes on its wholesale website at <http://www.qwest.com/wholesale/results/roc.html>.

While conducting its audit of Qwest's 2005 PAP results, Liberty observed that Qwest made RRS program changes during the course of the year that were not properly reflected in the "Summary of Notes for Qwest Regional Performance Results Report – January 2005 through December 2005" document posted on Qwest's web site. Liberty identified the following RRS programming changes that Qwest failed to properly document in its Summary of Notes:

- Qwest did not include OP-5 in its list of measures affected by a programming change in which Qwest used an ACNA code of ZZZ to identify coordinated access records not eligible for PAP reporting.
- Qwest did not correctly identify the months affected by a code change for those measures that it reported one month in arrears, *e.g.*, New Service Quality (OP-5) and Repair Repeat Report Rate (MR-7).
- Qwest failed to report a code change that corrected QPP reporting to remove "test OK" and "no trouble found" trouble reports. This code change required a rerun of the OP-5 and MR-7 measures.
- Qwest failed to report a code change that correctly populated the flag used to distinguish MSA from Zone-type geographic designations. This change required a rerun of the MR-7 measure.
- Qwest documented a code change it implemented to allow for an exclusion of DUF records; however, Qwest failed to reflect that this change required a rerun of the May and June 2005 BI-1 results.

CLECs, State Commissions, and other interested parties use the Summary of Notes document posted on Qwest's website to identify changes made to the reporting system that affect the performance measures. Unless Qwest updates this document properly to reflect all of the changes that it made, as well as the measures and months affected by these changes, stakeholders have no way of knowing of these changes and their effect on the reported results.

In response to this finding, Qwest stated that it complies with the documentation requirements as stated in the QPAPs with no material lapses in what has been documented. While Qwest agrees that it has made some minor errors or omissions in the compilation of the Summary of Notes documentation, these omissions have little or no impact. Qwest believes their immateriality is

⁵³⁶ Colorado Public Utilities Commission Order No. C0-1216 in Docket No. 02M-259T, October 10, 2006, Attachment A.

highlighted by the types of errors that Liberty found, specifically, errors with little or no PAP impacts and errors involving the determination of rerun periods. Qwest updated and plans to repost the 2005 and 2006 Summary of Notes documents to correct the issues that Liberty identified⁵³⁷ but does not believe that an expanded review is warranted.⁵³⁸

While Liberty agrees that the errors it identified in the Summary of Notes are relatively minor, Liberty's analysis was based on only the few measures that were subject to a full audit. Therefore, Liberty recommends an expanded review to look at the complete set of measures. An internal review by Qwest may be sufficient to accomplish this.

In its most recent response to this finding, Qwest agreed that a Qwest internal review "is in fact the best solution to address items described in this finding and Findings 7 and 12. As part of such a comprehensive review, Qwest will examine in detail 2005 changes to all measures not audited by Liberty ... Qwest will also examine in detail 2006 and 2007 changes to all measures. The comprehensive review of items from this Finding 6 and Findings 7 and 12 [will] have the benefit of going beyond the audit's scope of 2005 and will provide a complete review of all measures from 2005 through 2007. If Qwest finds errors or omissions, Qwest will re-post corrected Summary of Notes."⁵³⁹ Liberty believes this should resolve the issue if properly implemented

Finding 7: The Qwest Summary of Notes documentation appears incomplete for issues that span calendar years. Classification: 3 (Preliminary Finding #8)

The Qwest Performance Assurance Plans (QPAPs) require that a Notes Summary be posted to Qwest's web site detailing the changes made to the RRS that affect 271 performance measurement calculations. In addition, the Colorado PUC determined that "Qwest should populate and maintain a complete report of the changes to performance results in its Summary of Notes."⁵⁴⁰ Qwest provides the Summary of Notes on its wholesale website at <http://www.qwest.com/wholesale/results/roc.html>.

According to the legend in a footnote in the Summary of Notes, Qwest uses an "R" to indicate a rerun of results previously reported.⁵⁴¹ For a change associated with BI-1A, which Qwest implemented in February 2006 and that affected November 2005, December 2005, and January 2006 results,⁵⁴² Qwest listed an appropriate line item in the 2006 Summary of Notes with an "R" for January. Qwest did not, however, include a corresponding line item in the 2005 Summary of Notes for the months of November and December. Liberty identified other similar examples.

⁵³⁷ Responses to Data Requests #297 and #331.

⁵³⁸ Response to Preliminary Finding #7.

⁵³⁹ Qwest comments on Liberty's Draft Final Report.

⁵⁴⁰ Colorado Public Utilities Commission Order No. C0-1216 in Docket No. 02M-259T, October 10, 2006, Attachment A.

⁵⁴¹ Response to Data Request #295.

⁵⁴² Responses to Data Requests #106 (supplemental).and #242.

Qwest proposed an enhancement to the process for compiling the Summary of Notes to include any applicable reruns for the prior calendar year as part of the text in the Description of Note/Comment section of the Summary of Notes.⁵⁴³

In response to this finding, Qwest agrees that the Summary of Notes did not account for all the months affected by a change made in one calendar year when that change included a rerun of results from the prior calendar year. Qwest has implemented a change to its process, documenting any applicable reruns for the prior calendar year in the text section of each line item description. Qwest does not, however, agree that a calendar year's Summary of Notes provides an incomplete picture of changes in that year, because with the enhanced process, the Summary of Notes will specify any results from the prior year that have been restated in the current 12-month performance reports. In addition, reflecting changes in a previously published Summary of Notes will cause confusion because it will refer to system changes that were implemented in later months.⁵⁴⁴

Liberty agrees that Qwest's process is an improvement. However, Liberty believes that an issue that spans calendar years would be better reflected by a line entry in the Summary of Notes document in both years, and doesn't agree that this will cause confusion. Furthermore, the specific examples that Liberty identified are based only on its review of the five full audit measures. An expanded review will be necessary to identify whether there are similar issues crossing calendar years in the other measures. For example, Liberty identified several more cross-calendar examples for BI-3A subsequent to issuance of the preliminary finding. Qwest implemented three changes in February 2006 that affected November 2005, December 2005, and January 2006 results for BI-3A.⁵⁴⁵

In Qwest's most recent response to this finding, as noted in the discussion of Finding 6, it agreed to address this issue through a comprehensive internal review of the calendar years 2005, 2006, and 2007, along with the issues raised in Findings 5 and 12. "Qwest will identify reruns that cross calendar years and will describe the timeframes in the [Summary of Notes] text section in the line item descriptions."⁵⁴⁶ Liberty believes this should resolve the issue if properly implemented.

**Finding 8: Qwest does not calculate the interval correctly for MR-7 to identify all lines/circuits that had a repeat trouble report within 30 days.
Classification: 1 (Preliminary Finding #9)**

The MR-7 measure, Repair Repeat Report Rate, measures the percentage of all troubles within a reporting period for which there was a repeat trouble on the same line or circuit within 30 days, or stated differently, when the repeat trouble interval is less than or equal to 30 days. While

⁵⁴³ Response to Data Request #296.

⁵⁴⁴ Response to Preliminary Finding #8.

⁵⁴⁵ Response to Data Request #414.

⁵⁴⁶ Qwest comments on Liberty's Draft Final Report.

conducting its data integrity investigation of the MR-7 measure, Liberty found some POTS lines and designed circuits for which there were repeat trouble reports within 30 days of the initial trouble report that Qwest did not include in the MR-7 numerator. The PID defines the repeat trouble interval as the duration from the *first* trouble report's *closed* date and time to the *second* trouble report's *received* date and time. Instead, Qwest's current process for measuring the repeat trouble interval calculates the number of days from the *first* trouble report's *received* date and time to the *second* trouble report's *closed* date and time. This error, which incorrectly lengthens the calculated repeat report interval, has the effect of reducing the MR-7 numerator for both retail and wholesale results for all products.⁵⁴⁷

Qwest agreed with this finding,⁵⁴⁸ and indicated that it conducted an impact analysis on this error using the May 2007 data month and found that the correction had minimal impact on the MR-7 sub-measurement results and had a total impact of \$363 in PAP payments involving four CLECs, with three of the four CLECs receiving an overpayment as a result of the error.⁵⁴⁹

Qwest corrected the MR-7 duration calculation beginning in the August 2007 release (that is, beginning with the July 2007 MR-7 data available in September 2007, because Qwest reports MR-7 results one month in arrears). Liberty believes this should resolve this issue if properly implemented.

Finding 9: Qwest improperly includes holidays in the elapsed time calculations for BI-1. Classification: 2 (Preliminary Finding #10)

The BI-1 performance measure evaluates the timeliness with which Qwest provides daily usage records to CLECs. BI-1A measures the average delivery interval for recorded daily usage for UNEs and Resale. BI-1B measures the percent of recorded daily usage for jointly provided switched access provided within four days.

The PID defines the unit of measure for BI-1 as business days. The PID includes business days in the Definition of Terms as "Workdays that Qwest is normally open for business. Business day = Monday through Friday, excluding weekends and Qwest published holidays." Qwest confirmed that holidays for 2005 included May 30, 2005, July 4, 2005, September 5, 2005, and November 24, 2005. Other holidays (*i.e.*, January 1, 2005 and December 25, 2005) occurred on the weekend.⁵⁵⁰

During data integrity analysis of BI-1A using Ad Hoc data files,⁵⁵¹ Liberty determined that Qwest does not properly exclude holidays from the interval calculation. Qwest confirmed that for records with a received date on or before a holiday and a process date on or after a holiday, Qwest includes an extra day in the elapsed time interval for each holiday.⁵⁵² Qwest calculates

⁵⁴⁷ Responses to Data Requests #333 and #334.

⁵⁴⁸ Response to Preliminary Finding #9.

⁵⁴⁹ Responses to Data Requests #333 and #334.

⁵⁵⁰ Response to Data Request #113.

⁵⁵¹ Response to Data Request #272.

⁵⁵² Response to Data Request #367.

BI-1B in a separate Ad Hoc file; however, Qwest confirmed that it calculates the elapsed time field in BI-1B exactly the same as it does for BI-1A.⁵⁵³ This issue also affects the BI-1C-1 and BI-1C-2 diagnostic measures.

Qwest calculates elapsed time intervals for BI-1 improperly when a holiday is included in the interval. For BI-1A, this results in a slightly higher average delivery interval, especially in months with a holiday.

Qwest agreed with this finding and indicated that it would implement a coding change with the August 2007 data produced in September 2007.⁵⁵⁴ The correction will affect any record with a holiday in the interval; however, because the standard is four days in BI-1B, it will only affect the pass/fail status of those that were previously exactly five days. Qwest's impact analysis confirms that correcting this issue will minimally improve Qwest's results⁵⁵⁵ but will not trigger a rerun of historical data.⁵⁵⁶ Liberty believes this correction will resolve the finding going forward if properly implemented..

Finding 10: Qwest's implementation of the permutation test Z-scores calculation for proportion measures that require a permutation test is not the method specified in the QPAP. Classification: 1 (Preliminary Finding #11)

Section 4.3 of Qwest's QPAP states that "[f]or parity measurements where the number of data points is 30 or less, Qwest will apply a permutation test to test for statistical significance."⁵⁵⁷ The plans go on to provide a specific method of calculating this test based on a simulation.

Liberty notified Qwest of the differences between Liberty's Z-scores, calculated based upon the QPAP-specified plan, and Qwest's Z-scores. In response, Qwest provided an explanation of its method.⁵⁵⁸ Based on Qwest's response, Liberty determined that Qwest's method of calculating Z-scores for proportion measures does not conform to the method specified in the QPAP, when the QPAP requires a permutation test. Moreover, Qwest's method produces consistently higher Z-scores than the QPAP-specified method.

Liberty notes that this difference is subtle, and thus was apparently not detected in prior independent audits or by Qwest. The reason for this subtlety is two-fold. First, the scoring relies on a simulation, whose results vary, making exact replication impossible. Second, for the month Liberty reviewed (October 2005), the issue only made a difference for 31 out of 1,371 measurements, a difference small enough (less than 3 percent) that it could be explained by the variation of the simulation. Only by examining Qwest's actual method and the nature of the

⁵⁵³ Response to Data Request #368.

⁵⁵⁴ Response to Data Request #367.

⁵⁵⁵ Response to Data Request #368.

⁵⁵⁶ Response to Preliminary Finding #10.

⁵⁵⁷ See, for example, the Qwest North Dakota SGAT Sixth Revision, Second Amended Exhibit K, June 24, 2004, p. 3. All states have similar language, but the Colorado and Minnesota plans' permutation test applies in a different set of circumstances, and its description is on page 2 of the associated plans.

⁵⁵⁸ Response to Data Request #329.

differences was Liberty able to definitively prove that Qwest's method was not that specified in the QPAP.

Liberty identified 31 measure results for the October 2005 data month for which the Qwest method resulted in payments and the QPAP-specified method would have resulted in no payments.⁵⁵⁹ Qwest made a total of \$19,777 in overpayments for October 2005 as a result of this issue.

Qwest responded in part that:⁵⁶⁰

Qwest is willing to modify its procedures for calculating permutation test Z-scores for proportion measures that require a permutation test to more closely align with what is called for in the PAPs ... Qwest observes that its calculations of these Z-scores have been fully audited previously and accepted ... Qwest plans to begin using the hypergeometric test [Fisher's Exact Test] in September 2007 to more closely match permutation test results.

Qwest also explained that the impact of \$19,777 in October 2005 may not have been typical, because it included three minimum payments of \$5,000 in low volume, developing markets, and that these types of payments had declined since October 2005. Furthermore, Qwest stated that, had the Fisher's Exact Test been implemented, the increase in regular payments would have reduced the quantity of minimum payments, thus partially offsetting the impact.

As stated in the finding and acknowledged in Qwest's response, Qwest's current test does not consistently mimic the results of a permutation test using simulation, and thus differs from that specified in the QPAP. For proportion measures, it is possible for Qwest to calculate this test without a simulation using the Fisher's Exact Test (referred to by Qwest as the hypergeometric test).⁵⁶¹ Liberty believes that Qwest's plans to implement a Fisher's Exact Test for proportions seem appropriate.⁵⁶² Liberty recommends changing the QPAP language concerning permutation tests to better reflect Qwest's proposed method, which provides for an *exact* permutation test for proportions.⁵⁶³ The current permutation test is specified in the QPAP as a *simulation* (for both proportions and intervals). Liberty finds an exact test preferable to an approximation using simulation.

Because Qwest's use of a method different from the QPAP-specified test previously resulted in overpayment by Qwest, Liberty does not see any negative impact to the CLECs or the states by waiting until September 2007 to implement the change, as Qwest has planned.

⁵⁵⁹ Because Qwest's method always produces a higher Z-score, there are no instances in which the QPAP-specified method would have resulted in a payment when Qwest's method did not.

⁵⁶⁰ Response to Preliminary Finding #11.

⁵⁶¹ The simulations, if done repeatedly for the same data, produce, on average, the result of the Fisher's Exact Test, but natural statistical variation results in slight differences between the simulation and Fisher's Exact Test.

⁵⁶² For intervals, where an exact test is often not possible, the test based on simulation is necessary.

⁵⁶³ Liberty does not know the reason why the original method calls for a simulation, but it may have been out of concern that an exact test would be computationally difficult or impossible, as is the case with interval methods. With Qwest's proposed method using proportions, an exact test can be easily performed.

Finding 11: Qwest recorded the incorrect Tier 2 payment level for the EEL-DS1 product for MR-7 and MR-8 in Arizona. Classification: 1 (Preliminary Finding #12)

Qwest implemented the disaggregation of EEL products in Arizona in February 2005 and effective for all of 2005.⁵⁶⁴ This change necessitated an update to the reference table used by Qwest to capture penalty amounts by product. Qwest sets the payment level as high, medium, or low, according to the chart in attachment 1 of the Arizona QPAP. The payment level, along with the number of occurrences and the numbers of months of failure, determines the payment amount. According to the Arizona QPAP, all included MR-7 and MR-8 sub-measures should be associated with a High payment level.⁵⁶⁵ When Qwest added the EEL-DS1 product for MR-7 and MR-8, it coded the Arizona payment level as Medium.⁵⁶⁶

As a result of this incorrect coding, Qwest calculates the Tier 2 payments for MR-7 and MR-8 for the EEL-DS1 product incorrectly. Liberty identified two months in 2005 in which this issue affected MR-8 payments and no instances in 2005 in which this issue affected MR-7 payments. In January 2005, Qwest paid \$3,900 but should have paid \$6,500, due to this error. In February 2005, Qwest paid \$4,800 but should have paid \$7,200, due to this error. In total, Qwest underpaid by a total of \$5,000 in 2005 due to this error.

Qwest responded:⁵⁶⁷

Qwest acknowledges this finding and impact and further notes that there no Tier 2 payments for the MR-7 or MR-8 PID for the EEL-DS1 product were made or required from March 2005 through July 2007 or prior to January 2005. Qwest will make the necessary correction to its QPAP q_meas table in the August 2007 release produced in September.

Regarding the \$5,000 additional payment that should have been made to the State of Arizona for the Tier 2 misses in 2005; Qwest will make an additional payment of \$5,000 plus interest in the amount of \$636 in October with its regular payment for the August 2007 data.

Liberty agrees that the change proposed by Qwest will resolve the problem if properly implemented.

⁵⁶⁴ Response to Data Request #3.

⁵⁶⁵ See Arizona QPAP, Attachment 1.

⁵⁶⁶ Since the reference table contains history, Liberty verified that the previously used aggregated EEL product was correctly entered with a High payment level for Arizona.

⁵⁶⁷ Response to Preliminary Finding #12.

Finding 12: The RRS documentation of Qwest's processes and methods for calculating its performance measures contained errors, and was not up to date. Classification: 3 (Preliminary Finding #13)

Qwest provided Liberty with the December 2005 version of its RRS documentation that describes the processes and methods Qwest uses to calculate performance measure results.⁵⁶⁸ Liberty found that the RRS documentation for the full audit measures contained numerous errors and omissions. Liberty found the following specific examples of documentation errors:

RRS Chapter #18 – Installation Quality

- The Standard for the OP-5B measure shown on page 18-2 is listed as “diagnostic,” but it is a benchmark measure.⁵⁶⁹
- Table 1, “OP5_SAS” on page 18-3, indicates that Qwest only pulls three months of line-level data into the report. This correct number is six months.⁵⁷⁰
- The definition for “B_EXCEPT” type 15, on page 18-36, reads, “[t]icket is received before order is completed.” The definition for this exception should read, “ticket is received before *application date*.”⁵⁷¹
- Table 2, “OP50 Data Element Table” on pages 18-5 through 18-12, does not contain the “SOAPPDT” field.⁵⁷²
- Page 18-32 of the documentation indicates that the “REGCAC” field must contain a null value for the “MTASMTCH” flag to be set to equal ‘1.’ However, the “REGCAC” field does not affect the setting of this flag.⁵⁷³
- Page 18-32 of the documentation indicates that if the “REGCAC” field is populated, the “WFACMTCH” flag should be set to equal ‘1.’ However, there are cases where the “REGCAC” field is populated and the “WFACMTCH” flag is not set to ‘1.’⁵⁷⁴

RRS Chapter #25 – Time to Provide Recorded Usage Records

- The documentation does not contain an explanation of how Qwest uses the CLEC Frequency code (CLC_FREQ_CD) to identify the eligible usage records in the data extraction process on page 25-5.⁵⁷⁵
- The documentation does not explain how Qwest uses the INDR_4 field to identify QPP records in the calculation process on page 25-17 for BI-1A. Also, the documentation does not clarify that because BI-1B measures a billing arrangement, rather than a product, BI-1B does not require product dimension and

⁵⁶⁸ Response to Data Request #1.

⁵⁶⁹ Interview #1, May 7-8, 2007.

⁵⁷⁰ Interview #1, May 7-8, 2007.

⁵⁷¹ Interview #1, May 7-8, 2007.

⁵⁷² Response to Data Request #97.

⁵⁷³ Response to Data Request #350.

⁵⁷⁴ Response to Data Request #351.

⁵⁷⁵ Response to Data Request #112.

there is no reason to identify QPP products for exclusion, and thus the QPP-related commercial agreements do not apply.⁵⁷⁶

- For BI-1B, page 25-16 lists incorrect exclusion code. The Invalid State exclusion is listed as exclusion code 1 but should be exclusion code 2 and the Test CLEC exclusion is listed as exclusion code 3 but should be exclusion code 1.⁵⁷⁷
- In Table 7, “Derived Fields Table” on page 25-14, the derived fields product_id, carrier_id, provider_cd, provider_id reference the dimension macro in Chapter 4 in error.⁵⁷⁸
- Page 25-16 lists exclusion code 56 (Invalid OCN/CIC Number) which is no longer relevant for BI-1B.⁵⁷⁹
- The calculation section on page 25-18 does not list the fieldnames used to separate BI-1C-1 (Category 11) records and BI-1C-2 (Category 10) records.⁵⁸⁰

RRS Chapter #27 – Adjustments for Errors on UNEs and Resale (BI-3A)

- Table 4, “Derived Fields Table” on page 27-21, does not adequately describe how Qwest derives the LIT_DATE field when the BILLTYPE equals IABSOCC.⁵⁸¹
- In Table 4, “Derived Fields Table” on pages 27-19 to 27-20, the derived fields product_cd, product_id, carrier_id, provider_cd, provider_id, state_cd, state_id reference the dimension macro in Chapter 4 in error.
- The reference to exclusion code 3 on page 27-23 does not include English descriptions explaining the differences between the Billing Account Numbers.⁵⁸²
- The references to exclusion codes 77, 78, and 79 on pages 27-23 and 27-24 do not include a description of the numeric codes Qwest uses to exclude records.⁵⁸³
- References to exclusion codes 80, 96, 122, and 123 on page 27-24 are no longer valid. These exclusions applied to the old BI-3A, which Qwest produced using summary data.⁵⁸⁴
- The description for exclusion code 103 on page 27-24 contains an outdated reference to “manually flagged.”⁵⁸⁵
- Page 27-24 contains an inaccurate description for exclusion code 117.⁵⁸⁶
- Table 4, “Derived Fields Table” on page 27-21, contains no information regarding how Qwest applies the detail level exclusions in the BILL_AMTS_CNT field derivation.⁵⁸⁷

⁵⁷⁶ Response to Data Request #114.

⁵⁷⁷ Response to Data Request #185.

⁵⁷⁸ Response to Data Request #373.

⁵⁷⁹ Interview #2, May 17, 2007.

⁵⁸⁰ Interview #2, May 17, 2007.

⁵⁸¹ Response to Data Request #382.

⁵⁸² Response to Data Request #383.

⁵⁸³ Responses to Data Requests #384, #385, and #386.

⁵⁸⁴ Responses to Data Requests #387, #388, #397, and #398.

⁵⁸⁵ Response to Data Request #389.

⁵⁸⁶ Response to Data Request #390.

- Table 2, “Data Elements Table” on pages 27-8 through 27-14, does not include descriptions of several fields that appear in the BI-3A Ad Hoc: ALPH_ADJ_TMP, BILL_AMTTMP, JNLYRMO, PROD_TEMP, RJ_QLFR_TMP, TEMPADJ0, TEMPADJ1, TEMPADJ2, TEMPADJ3, TEMPADJ4, and USOCTMP.⁵⁸⁸
- Table 2, “Data Elements Table” on page 27-12, contains a description of the INV_ID field which does not appear in the BI-3A Ad Hoc.⁵⁸⁹

RRS Chapter #33 – Trunk Blocking

- The description of the NI-1 measure calculations on pages 33-20 through 33-23 does not yet reflect the use of RRS’s new “stats engine.”⁵⁹⁰
- The Source Systems section on page 33-3 does not adequately describe the source systems TRDB, TGSR, or WFAC.⁵⁹¹
- Table 2, “Data Elements Table” on page 33-7, incorrectly identifies the REPAIR field as an original field; it is actually a derived field.⁵⁹²
- Table 4, “Derived Fields Table” on page 33-14, incorrectly lists the CXR field, instead of the correct ACNA field, as the field used for deriving the CLEC_ID field.⁵⁹³
- Table 4, “Derived Fields Table” on page 33-15, contains incorrect derivations of the TGSR and TGSR-FLAG fields.⁵⁹⁴
- The reference to exclusion code 43 on page 33-16 is obsolete.⁵⁹⁵
- Table 2, “Data Elements Table” on pages 33-5 through 33-10, contains several inconsistencies when compared with the contents of the NI-1 Ad Hoc files.
 - Table 2 does not contain the following fields that appear in the NI-1 Ad Hoc file: AGGREGATE_TYPE, CARRIER_CD, CARRIER_DSC, CARRIER_ID, COPYFLAG, DISPATCH_CD, DISPATCH_DSC, DISPATCH_ID, LOCALITY_CD, LOCALITY_DSC, LOCALITY_ID, LOCALITY_TYP_CD, LOCALITY_TYP_DSC, LOCALITY_TYP_ID, PIDSPEC, PRODUCT_CD, PRODUCT_DSC, PRODUCT_ID, PROVIDER_CD, PROVIDER_DSC, PROVIDER_ID, STATE_CD, STATE_DSC, STATE_ID, WRITTEN.
 - Table 2 contains the following fields that do not appear in the NI-1 Ad Hoc: EXC_DATA, EXC_PID, and EXC_NE.

⁵⁸⁷ Responses to Data Request #396, #397, and #398.

⁵⁸⁸ Responses to Data Requests #1 and #178.

⁵⁸⁹ Responses to Data Requests #1 and #178.

⁵⁹⁰ Responses to Data Request #133, #236.

⁵⁹¹ Responses to Data Requests #131, #231, and #404.

⁵⁹² Response to Data Request #266.

⁵⁹³ Response to Data Request #402.

⁵⁹⁴ Response to Data Request #403.

⁵⁹⁵ Response to Data Request #134.

- Table 2 lists the following fields as derived fields, but they have no corresponding entries in the Derived Fields Table: EMAILDT, LIT_DATE, and TKSVDT.
- Table 2 contains the following fields misspelled: ALOCEQPT, ZLOCEQPT.⁵⁹⁶

RRS Chapter #43 –MR7 Repair Repeat Report Rate

- Table 3, “Data Elements Table” on page 43-6, indicates WFADO as the PANS source file for the “B” data field. The correct source file for this field should be MTAS.⁵⁹⁷
- Table 5, “Field Name Conversion Table” on page 43-19, should indicate that the “ACTUALD” field is an original field in the QCSRA column of the table.⁵⁹⁸
- In the derived fields description, the “STATE” field found on page 43-40, incorrectly references the OP-5 measure.⁵⁹⁹
- The cell on the table for determining the CHRF_CNT field value on page 43-31 and on the table for determining the F_REP field value on page 43-33, states, “F_RDT – 30 days is after closeddt.” This cell should read “F_RDT – 30 days is *before* closeddt.”⁶⁰⁰
- The “DISAGG” field on page 43-33 is incorrectly identified as a level 3 derived value. This field should be classified as a level 4 derived value.⁶⁰¹
- The “FALLOUT” flag on page 43-35 should be moved in the derived level documentation to precede the “ENTY_CLS” field as this flag is used as one of the variables to determine the value that should be populated in the “ENTY_CLS” field.⁶⁰²
- The “PROD_CD” table on page 43-35 conflicts with the table found on pages 43-36 and 43-37 and should be removed.⁶⁰³
- The “CARRIER_CD” table on page 43-41 lists the last two priorities used for identifying the carrier in the wrong order. Using the 2nd-4th character of the “LAST6” field should come before “UNK” on the table.⁶⁰⁴
- The “PROVIDER_CD” field is listed as both a level 5 derived variable on page 43-42 and a level 6 derived variable on page 43-43. It should only be listed as a level 6 derived variable.⁶⁰⁵

⁵⁹⁶ Responses to Data Requests #1, #180, and #402.

⁵⁹⁷ Interview #1, May 7-8, 2007.

⁵⁹⁸ Interview #1, May 7-8, 2007.

⁵⁹⁹ Interview #1, May 7-8, 2007.

⁶⁰⁰ Interview #1, May 7-8, 2007.

⁶⁰¹ Interview #1, May 7-8, 2007.

⁶⁰² Interview #1, May 7-8, 2007 and response to Data Request #300.

⁶⁰³ Interview #1, May 7-8, 2007.

⁶⁰⁴ Interview #1, May 7-8, 2007.

⁶⁰⁵ Interview #1, May 7-8, 2007.

- The “Summary Information” tables shown on pages 43-3 and 43-4 incorrectly state that Qwest uses a number of input tables in the calculation of the MR-7 measure even though Qwest does not use these input tables for the calculation of this measure’s results.⁶⁰⁶
- The description on page 43-41 incorrectly lists the field name “CARRIER_CD.” The correct field name should be “CLEC_ID.”⁶⁰⁷
- The definition for exclusion code 99, on page 43-45, is incomplete. Specifically, it does list trouble reports created by Qwest to track secondary appointment times as one of the trouble report types that Qwest excludes with this exclusion code.⁶⁰⁸
- The common exclusion list shown on pages 43-44 and 43-45 contains an exclusion code of 999 – “Repair Data Exclusion,” which is not a valid exclusion code for the MR-7 measure.⁶⁰⁹
- In the MR-7 sub-measure calculation formulas on pages 43-46 through 43-48, Qwest incorrectly states that it excludes records with a value of ‘1’ in the “NA” (No Access) indicator field from the calculation of the MR-7 results.⁶¹⁰
- The definition for exclusion code 15 on page 43-45 indicates that Qwest uses the “NC Codes” table to make selected product identifications associated with this exclusion. However, Qwest uses the “USOC” table and not the “NC Code” table in conjunction with this exclusion.⁶¹¹
- The table on page 43-32 which Qwest uses to reflect the criteria required to set the “DISPTCH” flag does not agree with the ETL code that sets the flag. This table needs to be updated to reflect the correct criteria for setting this flag.⁶¹²
- The product identification tables on pages 43-37 through 43-40 do not reflect the conversion of the “FEAT GRP D” product records to the “LIS” product code.⁶¹³
- The product tables on pages 43-37 through 43-40 do not reflect the conversion of the “DSL” product to a product code of “MBIT.”⁶¹⁴
- The table on page 43-41 that Qwest uses to show the logic used to derive the “CARRIER_CD” field states “5th digit of MCN = D or V and”. The information in this cell of the table should read “5th digit of MCN = D or V *or*.”⁶¹⁵
- The “PRODUCT_CD” table instructions on page 43-35 used to determine the product code states, “[i]n order for a product to be specified using the table all the criteria in that row must be satisfied.” This instruction should state, “in order for a

⁶⁰⁶ Responses to Data Requests #78, #83, and #209.

⁶⁰⁷ Response to Data Request #79.

⁶⁰⁸ Response to Data Request #87.

⁶⁰⁹ Response to Data Request #88.

⁶¹⁰ Response to Data Request #284.

⁶¹¹ Response to Data Request #285.

⁶¹² Response to Data Request #332.

⁶¹³ Response to Data Request #343.

⁶¹⁴ Response to Data Request #344.

⁶¹⁵ Response to Data Request #346.

product to be specified using the table, all the *populated* criteria in that row must be satisfied.”⁶¹⁶

Liberty believes that incorrect documentation can lead to confusion and potential processing errors by the internal users of the documentation. It also hampers the ability of external users of the documentation (*e.g.*, auditors and regulators) to understand Qwest's regulatory reporting system process. Qwest has acknowledged that the RRS documentation contains errors,⁶¹⁷ and provided an updated version of their RRS documentation along with a description of the actions taken for each item listed above.⁶¹⁸ Liberty did not verify Qwest's revisions. Given that Liberty identified numerous RRS documentation errors while focusing on the full audit measures, Liberty recommends an expanded review to look at the complete set of measures. An internal review by Qwest may be sufficient to accomplish this.

In its most recent response to this finding, Qwest indicated, as noted in the discussion of Findings 6 and 7, that it plans to conduct such an internal review of the issues raised in this finding along with those in Findings 6 and 7. Qwest noted, “The third part of Qwest's comprehensive review will inspect the new version of RRS documentation to ensure that chapters falling outside the scope of the 2005 Audit will also be complete and accurate. Qwest has made all of the changes to chapters audited by Liberty in this audit. The review of additional chapters will be completed when the new version of documentation is published in the first quarter of 2008.”⁶¹⁹ Liberty believes this should resolve the issue if properly implemented.

Finding 13: The data Qwest used to calculate BI-1 results contained duplicate records. Classification: 1 (Preliminary Finding #14)

The BI-1 performance measure evaluates the timeliness with which Qwest provides daily usage records to CLECs. BI-1A measures the average delivery interval for recorded daily usage for UNEs and Resale. BI-1B measures the percent of recorded daily usage for jointly provided switched access provided within four days.

Qwest draws its BI-1 data from the CRIS. The CRIS data goes through the MCAS warehouse. MCAS sends files daily to the PANS database. Prior to May 2005, Qwest used MCAS summarized reports in its calculation of the BI-1 measure. With the May 2005 data reporting month, Qwest moved the record summarization process into RRS. Qwest extracts the data daily from PANS into RRS.⁶²⁰

While preparing the response to a Liberty inquiry about methods used to prevent duplicate data, Qwest identified three legacy system coding errors that created duplicate records.⁶²¹ For

⁶¹⁶ Response to Data Request #358.

⁶¹⁷ Response to Data Request #137.

⁶¹⁸ Response to Preliminary Finding #13.

⁶¹⁹ Qwest comments on Liberty's Draft Final Report.

⁶²⁰ Interview #1, May 8, 2007.

⁶²¹ Response to Data Request #246.

wholesale records, the duplication was limited to records for an international call originating on a feature group "D" trunk from a UNE-P telephone number. Qwest implemented a code change that corrected the logic to include a check on the international indicator value to prevent duplicate records from being created. Qwest addressed this issue on August 10, 2007.⁶²²

Qwest identified legacy coding errors isolated to the Central region affecting BI-1A Category 10 retail records only. Although these issues did not affect wholesale records, they did affect the determination of retail results for parity comparison purposes.⁶²³ One legacy coding issue caused retail 800 Calling Card messages to error out of the CRIS system because the records did not contain message entry dates. Qwest reprocessed these messages, causing duplicate records. Qwest corrected the code on August 24, 2007, going forward.⁶²⁴

In response to this finding, Qwest agreed that some of the data used to calculate the performance results associated with BI-1 included duplicate records. Qwest identified and corrected the three described legacy system coding errors that caused the duplication. Qwest further confirmed it would conduct a before/after analysis once a full month of data is available following the system fixes (September 2007 data) and would verify affected sub-measures. Qwest's preliminary analysis using July 2007 data showed a duplication rate of only 0.064 percent for that month.⁶²⁵ Liberty believes Qwest's actions will improve the accuracy of future reporting if properly implemented.

Most recently, Qwest stated that it conducted an analysis of records reported in BI-1A, BI-1C1, and BI-1C2, the three sub-measures affected by this issue. Qwest evaluated September 2007 data, the first full month of data following the fixes for the three previously described legacy coding errors. Qwest believes its research indicates that the fixes successfully corrected those errors, eliminating duplicate records.⁶²⁶

**Finding 14: The BI-3A results included revenue associated with products and services that Qwest should not include in its measure results.
Classification: 1 (Preliminary Finding #15)**

The BI-3 performance measure evaluates the accuracy with which Qwest bills CLECs, focusing on the percentage of billed revenue adjusted due to errors. Qwest measures the billed revenue minus amounts adjusted off bills due to errors as a percentage of total billed revenue. The 2005 ROC Audit focuses on BI-3A, which measures UNEs and Resale.

⁶²² Response to Data Request #394.

⁶²³ Qwest is currently investigating whether one of the issues identified affects 2005 records. Qwest previously processed Retail 800 Calling Card messages through a third party billing vendor (Global Crossing). When Qwest discontinued this arrangement in October 2006, they returned these messages to Qwest's internal processing. During the transition, a coding error occurred causing the data files for 800 Calling Card messages to be processed twice, creating duplicate records that were sent to the PANS data. Qwest corrected the code on August 9, 2007,

⁶²⁴ Response to Data Request #246 (Third Supplement).

⁶²⁵ Response to Data Request #393.

⁶²⁶ Qwest comments on Liberty's Draft Final Report.

During data integrity analysis, Liberty identified an anomaly in the BI-3A Ad Hoc sample data when the billing type was associated with CRIS revenue. Specifically, USOCs were frequently missing in one of the data fields.⁶²⁷ Qwest uses the USOCs to determine whether the billed revenue is associated with products that should be included in BI-3A. When the USOCs were missing, Qwest included the billed revenue amounts in BI-3A. Subsequently, Qwest identified an error in one of its data processing programs that resulted in missing USOCs. This occurred when Qwest merged the usage revenue file and the billed product revenue file. Qwest initially believed that the data anomaly did not affect reported results.⁶²⁸

Qwest later investigated the effect of the coding change. The analysis found that by improving the merging process between the two revenue files and populating the additional USOCs, Qwest could now identify some of the revenue as revenue that Qwest should not report in its measure results.⁶²⁹

Qwest's analysis of the impact shows that the numerator and denominator of BI-3A would be reduced regionally by \$21,644, or about 0.1 percent, based on July 2007 data. Because this affects both the numerator and denominator, both of which are very large, the effect on the result is even smaller. Qwest's PAP analysis shows a decrease of \$161 after the change, which does not require a rerun of previous results.⁶³⁰ Qwest agreed that there was a logic error in the merging process, and stated that it would update its code with the September 2007 data produced in October 2007.⁶³¹ Liberty believes Qwest's actions will improve the accuracy of future reporting if properly implemented.

B. Other Recommendations

Liberty also identified another issue that it feels is not significant enough to warrant a finding, but for which it recommends that Qwest consider making changes. In particular, regarding PO-20 reporting, Qwest still improperly overrides error codes for manual service orders on occasion; however, Liberty found Qwest's performance much improved since the 2004 ROC Audit. Liberty believes that Qwest should continue to self-monitor and evaluate the error code override process and continue to provide feedback to personnel performing overrides. The override activity will continue to be prone to human error and each improper override artificially improves Qwest's PO-20 results.

⁶²⁷ Responses to Data Requests #178 and #251.

⁶²⁸ Response to Data Request #401.

⁶²⁹ Response to Data Request #401 (supplemental). In its response to Data Request #129, Qwest provided a complete list of USOCs, products, and services ineligible for BI-3A reporting (*e.g.*, wideband video service, public access, coin, cell relay, bandwidth management, contract services).

⁶³⁰ Response to Data Request #401 (supplemental).

⁶³¹ Response to Preliminary Finding #15.

C. Status of 2004 ROC Audit Findings

During its 2004 ROC Audit, Liberty identified 26 findings. The scope of the 2005 ROC Audit identified for review those 17 findings that Qwest had addressed through changes implemented before the end of 2005. Qwest had not made any changes to address the nine remaining 2004 ROC Audit findings by the end of 2005. The following table addresses the status of the 2004 ROC Audit findings.⁶³²

| 2004 ROC Audit Finding # | Finding | Re-Audited | Resolved |
|--------------------------------|--|------------|--|
| 1 | Qwest's process for calculating New Service Installation Quality Reported to Repair (OP-5A) may ignore troubles on some auxiliary lines. | Yes | Yes |
| 2 | Qwest is excluding troubles from New Service Installation Quality Reported to Repair (OP-5A) that do not correspond to valid exclusions documented in the PID. | No | Qwest did not agree with this finding. In the 2004 ROC Audit Report, Liberty recommended that Qwest clarify whether exclusion of these trouble reports is compliant with the commissions' expectations for this measure. |
| 3 | Qwest is excluding LSRs with an "unknown state" data entry from LSRs Rejected (PO-4A and PO-4B) which does not correspond to valid exclusions documented in the PID. | Yes | Yes |
| 4 | Qwest did not include all products that should roll up to the "DS3 and Above" product disaggregation when calculating the New Service Installation Quality Reported to Repair (OP-5A) measure. | Yes | Yes |
| 5 | The PID for LSRs Rejected (PO-4) does not clearly address the treatment of LSRs rejected for non-standard reasons. | No | Qwest did not agree with this finding. In the 2004 ROC Audit Report, Liberty recommended that Qwest review its PID interpretation with the commissions for concurrence. |
| 6 | Qwest occasionally classifies retail trouble reports incorrectly as wholesale records with an unknown company ID, and then excludes these records from the calculation of the Repair Appointment Met (MR-9) measure. | No | Yes. Liberty agreed at the conclusion of the 2004 ROC Audit that no further action was necessary. |
| 7 | Qwest did not use the correct retail product as | Yes | Yes |

⁶³² Because the scope of the 2005 ROC Audit did not include investigation of 2004 ROC Audit findings for which Qwest did not take any action by the end of 2005, Liberty can only address the status of the other nine findings as of the conclusion of the 2004 ROC Audit.

| 2004 ROC Audit Finding # | Finding | Re-Audited | Resolved |
|---|--|-------------------|---|
| | the parity standard for the wholesale "Non-Loaded 2-Wire Loop" product disaggregation when calculating the New Service Installation Quality Reported to Repair (OP-5A) measure. | | |
| 8 | Qwest's documentation of the parity performance standards for the New Service Installation Quality Reported to Repair (OP-5A) measure is unclear and misleading for unbundled loops | No | Qwest did not agree with this finding but indicated that it was willing to clarify the PID language at the next appropriate opportunity. |
| 9 | Qwest did not implement a requirement of the Manual Service Order Accuracy (PO-20) PID that Service Orders created from CLEC Local Service Requests (LSRs) must be received and completed in the same version of IMA-GUI or IMA-EDI. | Yes | Yes |
| 10 | Qwest does not exclude all non-bill impacting records that originate in IABS from the Billing Completeness (Resale and UNE) measure (BI-4A). | Yes | Yes |
| 11 | Qwest has been omitting the UNE-P (Centrex 21) product from the Manual Service Order Accuracy (PO-20) results beginning with the December 2004 reporting month. | Yes | Yes |
| 12 | Qwest did not input the benchmark for the Installation Interval – Dispatches within MSAs (OP-4A & OP-4B) measures for the Line Splitting product. | Yes | Yes |
| 13 | Qwest does not have point-to-point controls in place for the transmission of Business Processing Layer (BPL) data from IMA to PANS. | No | Qwest did not agree with this finding. Because it is a process finding and dealt with PO-4, which is not a QPAP measure, Liberty does not believe that further action is necessary at this point. |
| 14 | Qwest does not correctly calculate the Work Completion Notification Timeliness (PO-6) notification interval for orders originating in northern Idaho. | Yes | Yes |
| 15 | Qwest's implementation of the Nebraska, Iowa, Montana, New Mexico, Wyoming, and South Dakota QPAPs does not allow for escalation of Tier 1 payments beyond 24 months. | Yes | Yes |
| 16 | The Nebraska payment reference table for Tier 2 payments lists payment amounts to state funds that are not consistent with the Nebraska QPAP. | Yes | Yes |

| 2004 ROC Audit Finding # | Finding | Re-Audited | Resolved |
|---|--|-------------------|--|
| 17 | The Washington payment reference table for Tier 1 payments to CLECs for specific products lists "DS1 – LIS-ISP," but that product is not included in the payment input files. | No | Qwest concurred with this finding. In the 2004 ROC Audit Report, Liberty recommended that Qwest and the Washington Utilities and Transportation Commission discuss this issue to clarify the intention of the Washington QPAP. |
| 18 | RRS documentation containing Qwest's processes and methods for calculating its performance measures contains errors and is not up to date. | Yes | Yes |
| 19 | The Service Order Validation (SOV) logic allows some non-inward activity service orders to be included in the calculation of the Manual Service Order Accuracy (PO-20) performance measure. | Yes | Yes |
| 20 | Qwest's manual error code override process requires an error code override before a jeopardy notice can be sent, sometimes resulting in a misreporting of the Manual Service Order Accuracy (PO-20) performance results. | No | Yes. Qwest concurred with this finding but declined to take action because it believed the situation noted in the finding is rare. Liberty concurred that no further action was necessary. |
| 21 | Qwest personnel improperly issue Service Order Validation (SOV) error code overrides in many cases resulting in the inaccurate reporting of the Manual Service Order Accuracy (PO-20) performance results. | Yes | Yes |
| 22 | Qwest software did not properly include all appropriate call center tickets resulting in the inaccurate reporting of the Manual Service Order Accuracy (PO-20) performance results. | Yes | Yes |
| 23 | Qwest does not include all eligible EDI billing notifications in PO-7B results. | Yes | Yes |
| 24 | Qwest does not have point-to-point controls in place for the transmission of CRIS billing information to MCAS. | No | Qwest did not agree with this finding. Because it is a process finding, Liberty does not believe that further action is necessary at this point. |
| 25 | Qwest incorrectly included PID changes in Minnesota that were not yet approved. | No | Yes. This finding is no longer relevant, since it dealt with an earlier version of the MPAP. |

| 2004 ROC Audit Finding # | Finding | Re-Audited | Resolved |
|--------------------------------|--|------------|----------|
| 26 | Qwest did not include the product disaggregation "EEL_DS1 Capable" in its QPAP payments for New Service Installation Quality Reported to Repair (OP-5A). | Yes | Yes |

D. Status of 2004 CPAP Audit Recommendations

The scope of the 2005 ROC Audit required that Liberty review the status of certain 2004 CPAP Audit Recommendations.⁶³³ The table below summarizes that status of these recommendations.

| 2004 CPAP Audit Recommendation | Description | Resolved |
|-----------------------------------|---|----------|
| II-R17 | The Colorado PUC determined that Qwest's RRS documentation must be updated to properly reflect the method Qwest uses to calculate the OP-7 results. | Yes |
| II-R18 | The Colorado PUC determined that Qwest's RRS documentation must be updated to reflect the proper standards for the OP-7 measure. | Yes |
| II-R21 | The Colorado PUC determined that Qwest is required to exclude requests involving non-standard methodologies from the calculation of the OP-13 results. | Yes |
| II-R26 II-R28 | The Colorado PUC determined that Qwest RRS documentation must be updated to properly reflect the method Qwest uses to calculate the OP-8 results. | Yes |
| II-R27 | The Colorado PUC determined that Qwest is required to eliminate the exclusion for CLEC-caused delays from the calculation of the OP-8 measure for the CPAP. | Yes |
| II-R30 | The Colorado PUC determined that Qwest should update the OP-17 and MR-11 PIDs to reflect what happens to requests received right at 8:00 p.m. for the CPAP, and the Colorado PUC also allowed Qwest to determine whether and how to incorporate this change in the 14-state PID document. | Yes |
| II-R31 | The Colorado PUC determined that Qwest needed to reconcile the denominator used for the calculation on the OP-8 measure with the denominator used for the calculation of the OP-17 measure. | Yes |
| II-R32 | The Colorado PUC determined that Qwest needed to identify and exclude LNP trouble reports not determined to be disconnected in error from the calculation of the OP-17 results. | Yes |
| II-R33 | The Colorado PUC determined that Qwest's RRS documentation must be updated to accurately describe the source of the data extracted, formulae, exclusions, and how Qwest performs the calculations to determine the OP-17 results. | Yes |

⁶³³ NorthStar/Vantage's Final Report of Qwest's CPAP 2004 Annual Audit; March 3, 2006.

| | | |
|--------|---|-----|
| II-R51 | The Colorado PUC determined that Qwest's RRS documentation must be updated to properly reflect how Qwest derives the date-related Ad Hoc field to calculate the OP-6 measure. | Yes |
| II-R52 | NorthStar/Vantage recommended that Qwest correct the handling of service orders missed due to customer actions when calculating the OP-6 PID results. | Yes |
| II-R58 | The Colorado PUC asked for a review of Qwest's RRS documentation to verify the correct calculation sequence for PO-2. | Yes |
| II-R68 | The Colorado PUC recommended a revision of Qwest's RRS documentation to accurately state that the total number of circuits in service is contained in the TRKINSVR field. | Yes |
| II-R73 | The Colorado PUC decided that the IPUR should be reviewed for statistical validation. | Yes |

Appendix A: Findings Summaries

This table provides a list of the findings and the states to which they apply.

| Finding Number | Finding | Classification | Applicable Measure | Applicable States |
|----------------|---|----------------|--|-------------------|
| 1 | Qwest excludes all of a CLEC's daily usage records from BI-1 results when a CLEC provides delivery instructions mid-month, even those records created after the instructions were received. | 2 | BI-1 | All |
| 2 | Qwest's programming for calculating BI-1B results contains logic errors for certain field value combinations. | 2 | BI-1 | All |
| 3 | Qwest did not change the standard from Diagnostic to Parity for the Line Sharing/Splitting product disaggregation for the performance measure OP-6, as required by the CPAP. | 4 | OP-6 | Colorado |
| 4 | Qwest does not identify and process exclusions for NI-1C and NI-1D according to the PID. | 2 | NI-1 | All |
| 5 | In calculating MR-7 results, Qwest excluded trouble records reported in MTAS for "invalid CLEC" although the records contained sufficient information to make a valid CLEC identification. | 2 | MR-7 | All |
| 6 | Qwest's Summary of Notes document does not accurately reflect all 271 performance results changes that occurred during the 2005 reporting year. | 3 | All | All |
| 7 | The Qwest Summary of Notes documentation appears incomplete for issues that span calendar years. | 3 | All | All |
| 8 | Qwest does not calculate the interval correctly for MR-7 to identify all lines/circuits that had a repeat trouble report within 30 days. | 1 | MR-7 | All |
| 9 | Qwest improperly includes holidays in the elapsed time calculations for BI-1. | 2 | BI-1 | All |
| 10 | Qwest's implementation of the permutation test Z-score calculations for proportion measures that require a permutation test is not the method specified in the QPAP. | 1 | MR-3 MR-5 MR-7 MR-8 OP-3 OP-5 PO-9 | All |
| 11 | Qwest recorded the incorrect Tier 2 payment level for the EEL-DS1 product for MR-7 and MR-8 in Arizona. | 1 | MR-7 MR-8 | Arizona |

| Finding Number | Finding | Classification | Applicable Measure | Applicable States |
|-----------------------|---|-----------------------|---------------------------|--------------------------|
| 12 | The RRS documentation of Qwest's processes and methods for calculating its performance measures contained errors, and was not up to date. | 3 | All | All |
| 13 | The data Qwest used to calculate BI-1 results contained duplicate records. | 1 | BI-1 | All |
| 14 | The BI-3A results include some revenue associated with products and services that Qwest does not need to include in its measure results. | 2 | BI-3A | All |

The following 14 tables summarize the impact of the findings of this audit separately for each of the 14 states participating in the audit. Each table lists the findings that Liberty believes are applicable to the state, and whether they can affect monthly measure reporting and Tier 1 and Tier 2 payments. Each table lists only those findings that are applicable to a given state. For example, Finding 11 is applicable only to Arizona and is therefore included only in the Arizona table. The tables also indicate whether or not Liberty believes that Qwest concurs with the finding and whether Qwest has or plans to take action to resolve the finding. Finally, the tables include additional clarifying comments.

Qwest has either taken action or has stated it will take action to resolve all but one of the findings. Although Liberty generally believes that Qwest's actions will resolve the findings, verification that they actually do so is outside of the scope of this audit. Liberty recommends that those states that have a provision for further QPAP auditing consider including the verification of Qwest's resolution of the findings in a future audit.

An "X" in the relevant columns has the following meanings:

- For the "May Affect Measure Reporting" column, an "X" means Liberty believes that the finding has the potential to affect monthly measure reporting for the measures involved in the finding. A blank indicates that there is not likely to be any impact. An "X" does not imply that there was necessarily a material impact during 2005.
- For the "May Affect Tier 1 Payments" column, an "X" means Liberty believes that the finding has the potential to affect Tier 1 payments for the measures involved in the finding. A blank indicates that there is not likely to be any impact. An "X" does not imply that there was necessarily a material impact during 2005.
- For the "May Affect Tier 2 Payments" column, an "X" means Liberty believes that the finding has the potential to affect Tier 2 payments for the measures involved in the finding. A blank indicates that there is not likely to be any impact. An "X" does not imply that there was necessarily a material impact during 2005.

- For the “Qwest Concur” column, an “X” means Liberty believes that Qwest concurs with the finding. A blank indicates that Liberty believes that Qwest does not concur.
- For the “Qwest Taking Action” column, an “X” means Liberty believes that Qwest has or intends to take some action to resolve the finding. A blank means Liberty does not believe that Qwest intends to take any action. Because the actions occur after the 2005 data months, Liberty cannot verify that the action does, in fact, resolve the finding. Also, in some cases Qwest may concur with a finding but has concluded that no action is necessary or that the impact is too small to justify action. In such cases, Liberty indicates in the Comments column whether it concurs with Qwest’s conclusions.

Finding Applicability and Status: Arizona

| Finding Number | Finding | Classification | Applicable Measure | May Affect Measure Reporting | May Affect Tier 1 Payments | May Affect Tier 2 Payments | Qwest Concurr | Qwest Taking Action | Comments |
|-----------------------|---|-----------------------|---------------------------|-------------------------------------|-----------------------------------|-----------------------------------|----------------------|----------------------------|--|
| 1 | Qwest excludes all of a CLEC's daily usage records from BI-1 results when a CLEC provides delivery instructions mid-month, even those records created after the instructions were received. | 2 | BI-1 | X | X | X | | | Qwest believes its exclusion processing is justified. Liberty notes that Qwest's approach is different from that it has taken for other similar measures, and recommends that Qwest provide clarifying language in the BI-1 PID to support the different approach. |
| 2 | Qwest's programming for calculating BI-1B results contains logic errors for certain field value combinations. | 2 | BI-1 | X | X | X | X | X | Qwest committed to enhancing the code to address the errors even though they have minimal impact. |
| 4 | Qwest does not identify and process exclusions for NI-1C and NI-1D according to the PID. | 2 | NI-1 | X | | | | X | Qwest believes its exclusion processing is justified. However, Qwest has agreed to undertake an analysis to determine the impact of relevant exclusions. Depending on the result, Qwest will either modify the PID "at the next available 14-state regulatory opportunity in those states that specifically address the audit results" or change its exclusion processing. |
| 5 | In calculating MR-7 results, Qwest excluded trouble records reported in MTAS for "invalid CLEC" although the records contained sufficient information to make a valid CLEC identification. | 2 | MR-7 | X | X | X | X | X | Qwest implemented a code change for the August 2007 release to use a secondary measure for identifying the CLEC. This enhancement will allow Qwest to include in the measure results records that it previously excluded as "invalid CLEC." |
| 6 | Qwest's Summary of Notes document does not accurately reflect all 271 performance results changes that occurred during the 2005 reporting year. | 3 | All | | | | X | X | Qwest updated its 2005 and 2006 Summary of Notes documentation to correct the issues identified by Liberty. Qwest has agreed to conduct an internal review of the accuracy of the Summary of Notes for those measures Liberty did not review in this audit. |

Finding Applicability and Status: Arizona

| Finding Number | Finding | Classification | Applicable Measure | May Affect Measure Reporting | May Affect Tier 1 Payments | May Affect Tier 2 Payments | Qwest Concurr | Qwest Taking Action | Comments |
|-----------------------|--|-----------------------|--|-------------------------------------|-----------------------------------|-----------------------------------|----------------------|----------------------------|--|
| 7 | The Qwest Summary of Notes documentation appears incomplete for issues that span calendar years. | 3 | All | | | | X | X | Qwest implemented a change to its process, documenting any applicable reruns for the prior calendar year in the text section of each line item description of the Summary of Notes document. Qwest has agreed to conduct an internal review to determine if there are other past instances of this effect during 2005, 2006, and 2007, and make Summary of Notes changes if they find any. |
| 8 | Qwest does not calculate the interval correctly for MR-7 to identify all lines/circuits that had a repeat trouble report within 30 days. | 1 | MR-7 | X | X | X | X | X | Qwest corrected its coding in RRS for the interval calculation with the August 2007 release. |
| 9 | Qwest improperly includes holidays in the elapsed time calculations for BI-1. | 2 | BI-1 | X | X | X | X | X | Qwest will enhance the code to address this scenario even though the impact is minimal. Liberty believes the change will enhance Qwest's results. |
| 10 | Qwest's implementation of the permutation test Z-score calculations for proportion measures that require a permutation test is not the method specified in the QPAP. | 1 | MR-3 MR-5 MR-7 MR-8 OP-3 OP-5 PO-9 | | X | X | X | X | Qwest concurred that a change would be appropriate but did not agree to retroactively institute the change. Because the change resulted in fewer payments by Qwest, Liberty finds Qwest's actions acceptable. |
| 11 | Qwest recorded the incorrect Tier 2 payment level for the EEL-DS1 product for MR-7 and MR-8 in Arizona. | 1 | MR-7 MR-8 | | | X | X | X | Qwest indicated that it is correcting the problem and retroactively adjusting payments. |
| 12 | The RRS documentation of Qwest's processes and methods for calculating its performance measures contained errors, and was not up to date. | 3 | All | | | | X | X | Qwest provided an updated version of their RRS documentation and described the actions taken for each line item in the Preliminary Finding. Qwest has agreed to perform an expanded review to look at the complete set of measures. |

Finding Applicability and Status: Arizona

| Finding Number | Finding | Classification | Applicable Measure | May Affect Measure Reporting | May Affect Tier 1 Payments | May Affect Tier 2 Payments | Qwest Concurrs | Qwest Taking Action | Comments |
|-----------------------|--|-----------------------|---------------------------|-------------------------------------|-----------------------------------|-----------------------------------|-----------------------|----------------------------|--|
| 13 | The data Qwest used to calculate BI-1 results contained duplicate records. | 1 | BI-1 | X | X | X | X | X | Qwest identified and corrected three legacy system coding errors that caused the record duplication. |
| 14 | The BI-3A results include some revenue associated with products and services that Qwest does not need to include in its measure results. | 2 | BI-3A | X | X | | X | X | Qwest corrected the code and can now properly identify revenue for exclusion. |

Finding Applicability and Status: Colorado

| Finding Number | Finding | Classification | Applicable Measure | May Affect Measure Reporting | May Affect Tier 1 Payments | May Affect Tier 2 Payments | Qwest Concurr | Qwest Taking Action | Comments |
|-----------------------|---|-----------------------|---------------------------|-------------------------------------|-----------------------------------|-----------------------------------|----------------------|----------------------------|--|
| 1 | Qwest excludes all of a CLEC's daily usage records from BI-1 results when a CLEC provides delivery instructions mid-month, even those records created after the instructions were received. | 2 | BI-1 | X | X | | | | Qwest believes its exclusion processing is justified. Liberty notes that Qwest's approach is different from that it has taken for other similar measures, and recommends that Qwest provide clarifying language in the BI-1 PID to support the different approach. |
| 2 | Qwest's programming for calculating BI-1B results contains logic errors for certain field value combinations. | 2 | BI-1 | X | X | | X | X | Qwest committed to enhancing the code to address the errors even though they have minimal impact. |
| 3 | Qwest did not change the standard from Diagnostic to Parity for the Line Sharing/Splitting product disaggregation for the performance measure OP-6, as required by the CPAP. | 4 | OP-6 | | X | X | X | X | Qwest made the required change in June 2007, and confirmed that no retroactive payments were required. |
| 4 | Qwest does not identify and process exclusions for NI-1C and NI-1D according to the PID. | 2 | NI-1 | X | | | | X | Qwest believes its exclusion processing is justified. However, Qwest has agreed to undertake an analysis to determine the impact of relevant exclusions. Depending on the result, Qwest will either modify the PID "at the next available 14-state regulatory opportunity in those states that specifically address the audit results" or change its exclusion processing. |
| 5 | In calculating MR-7 results, Qwest excluded trouble records reported in MTAS for "invalid CLEC" although the records contained sufficient information to make a valid CLEC identification. | 2 | MR-7 | X | X | X | X | X | Qwest implemented a code change for the August 2007 release to use a secondary measure for identifying the CLEC. This enhancement will allow Qwest to include in the measure results records that it previously excluded as "invalid CLEC." |

Finding Applicability and Status: Colorado

| Finding Number | Finding | Classification | Applicable Measure | May Affect Measure Reporting | May Affect Tier 1 Payments | May Affect Tier 2 Payments | Qwest Concurrs | Qwest Taking Action | Comments |
|-----------------------|--|-----------------------|--|-------------------------------------|-----------------------------------|-----------------------------------|-----------------------|----------------------------|--|
| 6 | Qwest's Summary of Notes document does not accurately reflect all 271 performance results changes that occurred during the 2005 reporting year. | 3 | All | | | | X | X | Qwest updated its 2005 and 2006 Summary of Notes documentation to correct the issues identified by Liberty. Qwest has agreed to conduct an internal review of the accuracy of the Summary of Notes for those measures Liberty did not review in this audit. |
| 7 | The Qwest Summary of Notes documentation appears incomplete for issues that span calendar years. | 3 | All | | | | X | X | Qwest implemented a change to its process, documenting any applicable reruns for the prior calendar year in the text section of each line item description of the Summary of Notes document. Qwest has agreed to conduct an internal review to determine if there are other past instances of this effect during 2005, 2006, and 2007, and make Summary of Notes changes if they find any. |
| 8 | Qwest does not calculate the interval correctly for MR-7 to identify all lines/circuits that had a repeat trouble report within 30 days. | 1 | MR-7 | X | X | X | X | X | Qwest corrected its coding in RRS for the interval calculation with the August 2007 release. |
| 9 | Qwest improperly includes holidays in the elapsed time calculations for BI-1. | 2 | BI-1 | X | X | | X | X | Qwest will enhance the code to address this scenario even though the impact is minimal. Liberty believes the change will enhance Qwest's results. |
| 10 | Qwest's implementation of the permutation test Z-score calculations for proportion measures that require a permutation test is not the method specified in the QPAP. | 1 | MR-3 MR-5 MR-7 MR-8 OP-3 OP-5 PO-9 | | X | X | X | X | Qwest concurred that a change would be appropriate but did not agree to retroactively institute the change. Because the change resulted in fewer payments by Qwest, Liberty finds Qwest's actions acceptable. |
| 12 | The RRS documentation of Qwest's processes and methods for calculating its performance measures contained errors, and | 3 | All | | | | X | X | Qwest provided an updated version of their RRS documentation and described the actions taken for each line item in the Preliminary Finding. Qwest has agreed to |

Finding Applicability and Status: Colorado

| Finding Number | Finding | Classification | Applicable Measure | May Affect Measure Reporting | May Affect Tier 1 Payments | May Affect Tier 2 Payments | Qwest Concurs | Qwest Taking Action | Comments |
|-----------------------|--|-----------------------|---------------------------|-------------------------------------|-----------------------------------|-----------------------------------|----------------------|----------------------------|--|
| | was not up to date. | | | | | | | | perform an expanded review to look at the complete set of measures. |
| 13 | The data Qwest used to calculate BI-1 results contained duplicate records. | 1 | BI-1 | X | X | | X | X | Qwest identified and corrected three legacy system coding errors that caused the record duplication. |
| 14 | The BI-3A results include some revenue associated with products and services that Qwest does not need to include in its measure results. | 1 | BI-3A | X | X | | X | X | Qwest corrected the code and can now properly identify revenue for exclusion. |

Finding Applicability and Status: Idaho

| Finding Number | Finding | Classification | Applicable Measure | May Affect Measure Reporting | May Affect Tier 1 Payments | May Affect Tier 2 Payments | Qwest Concurr | Qwest Taking Action | Comments |
|-----------------------|---|-----------------------|---------------------------|-------------------------------------|-----------------------------------|-----------------------------------|----------------------|----------------------------|--|
| 1 | Qwest excludes all of a CLEC's daily usage records from BI-1 results when a CLEC provides delivery instructions mid-month, even those records created after the instructions were received. | 2 | BI-1 | X | X | X | | | Qwest believes its exclusion processing is justified. Liberty notes that Qwest's approach is different from that it has taken for other similar measures, and recommends that Qwest provide clarifying language in the BI-1 PID to support the different approach. |
| 2 | Qwest's programming for calculating BI-1B results contains logic errors for certain field value combinations. | 2 | BI-1 | X | X | X | X | X | Qwest committed to enhancing the code to address the errors even though they have minimal impact. |
| 4 | Qwest does not identify and process exclusions for NI-1C and NI-1D according to the PID. | 2 | NI-1 | X | | | | X | Qwest believes its exclusion processing is justified. However, Qwest has agreed to undertake an analysis to determine the impact of relevant exclusions. Depending on the result, Qwest will either modify the PID "at the next available 14-state regulatory opportunity in those states that specifically address the audit results" or change its exclusion processing. |
| 5 | In calculating MR-7 results, Qwest excluded trouble records reported in MTAS for "invalid CLEC" although the records contained sufficient information to make a valid CLEC identification. | 2 | MR-7 | X | X | X | X | X | Qwest implemented a code change for the August 2007 release to use a secondary measure for identifying the CLEC. This enhancement will allow Qwest to include in the measure results records that it previously excluded as "invalid CLEC." |
| 6 | Qwest's Summary of Notes document does not accurately reflect all 271 performance results changes that occurred during the 2005 reporting year. | 3 | All | | | | X | X | Qwest updated its 2005 and 2006 Summary of Notes documentation to correct the issues identified by Liberty. Qwest has agreed to conduct an internal review of the accuracy of the Summary of Notes for those measures Liberty did not review in this audit. |

Finding Applicability and Status: Idaho

| Finding Number | Finding | Classification | Applicable Measure | May Affect Measure Reporting | May Affect Tier 1 Payments | May Affect Tier 2 Payments | Qwest Concurr | Qwest Taking Action | Comments |
|-----------------------|--|-----------------------|--|-------------------------------------|-----------------------------------|-----------------------------------|----------------------|----------------------------|--|
| 7 | The Qwest Summary of Notes documentation appears incomplete for issues that span calendar years. | 3 | All | | | | X | X | Qwest implemented a change to its process, documenting any applicable reruns for the prior calendar year in the text section of each line item description of the Summary of Notes document. Qwest has agreed to conduct an internal review to determine if there are other past instances of this effect during 2005, 2006, and 2007, and make Summary of Notes changes if they find any. |
| 8 | Qwest does not calculate the interval correctly for MR-7 to identify all lines/circuits that had a repeat trouble report within 30 days. | 1 | MR-7 | X | X | X | X | X | Qwest corrected its coding in RRS for the interval calculation with the August 2007 release. |
| 9 | Qwest improperly includes holidays in the elapsed time calculations for BI-1. | 2 | BI-1 | X | X | X | X | X | Qwest will enhance the code to address this scenario even though the impact is minimal. Liberty believes the change will enhance Qwest's results. |
| 10 | Qwest's implementation of the permutation test Z-score calculations for proportion measures that require a permutation test is not the method specified in the QPAP. | 1 | MR-3 MR-5 MR-7 MR-8 OP-3 OP-5 PO-9 | | X | X | X | X | Qwest concurred that a change would be appropriate but did not agree to retroactively institute the change. Because the change resulted in fewer payments by Qwest, Liberty finds Qwest's actions acceptable. |
| 12 | The RRS documentation of Qwest's processes and methods for calculating its performance measures contained errors, and was not up to date. | 3 | All | | | | X | X | Qwest provided an updated version of their RRS documentation and described the actions taken for each line item in the Preliminary Finding. Qwest has agreed to perform an expanded review to look at the complete set of measures. |
| 13 | The data Qwest used to calculate BI-1 results contained duplicate records. | 1 | BI-1 | X | X | X | X | X | Qwest identified and corrected three legacy system coding errors that caused the record duplication. |

Finding Applicability and Status: Idaho

| Finding Number | Finding | Classification | Applicable Measure | May Affect Measure Reporting | May Affect Tier 1 Payments | May Affect Tier 2 Payments | Qwest Concurrs | Qwest Taking Action | Comments |
|-----------------------|---|-----------------------|---------------------------|-------------------------------------|-----------------------------------|-----------------------------------|-----------------------|----------------------------|---|
| 14 | The BI-3A results include some revenue associated with products and services that Qwest does not need to include in its measure results | 1 | BI-3A | X | X | | X | X | Qwest corrected the code and can now properly identify revenue for exclusion. |

Finding Applicability and Status: Iowa

| Finding Number | Finding | Classification | Applicable Measure | May Affect Measure Reporting | May Affect Tier 1 Payments | May Affect Tier 2 Payments | Qwest Concurr | Qwest Taking Action | Comments |
|-----------------------|---|-----------------------|---------------------------|-------------------------------------|-----------------------------------|-----------------------------------|----------------------|----------------------------|--|
| 1 | Qwest excludes all of a CLEC's daily usage records from BI-1 results when a CLEC provides delivery instructions mid-month, even those records created after the instructions were received. | 2 | BI-1 | X | X | X | | | Qwest believes its exclusion processing is justified. Liberty notes that Qwest's approach is different from that it has taken for other similar measures, and recommends that Qwest provide clarifying language in the BI-1 PID to support the different approach. |
| 2 | Qwest's programming for calculating BI-1B results contains logic errors for certain field value combinations. | 2 | BI-1 | X | X | X | X | X | Qwest committed to enhancing the code to address the errors even though they have minimal impact. |
| 4 | Qwest does not identify and process exclusions for NI-1C and NI-1D according to the PID. | 2 | NI-1 | X | | | | X | Qwest believes its exclusion processing is justified. However, Qwest has agreed to undertake an analysis to determine the impact of relevant exclusions. Depending on the result, Qwest will either modify the PID "at the next available 14-state regulatory opportunity in those states that specifically address the audit results" or change its exclusion processing. |
| 5 | In calculating MR-7 results, Qwest excluded trouble records reported in MTAS for "invalid CLEC" although the records contained sufficient information to make a valid CLEC identification. | 2 | MR-7 | X | X | X | X | X | Qwest implemented a code change for the August 2007 release to use a secondary measure for identifying the CLEC. This enhancement will allow Qwest to include in the measure results records that it previously excluded as "invalid CLEC." |
| 6 | Qwest's Summary of Notes document does not accurately reflect all 271 performance results changes that occurred during the 2005 reporting year. | 3 | All | | | | X | X | Qwest updated its 2005 and 2006 Summary of Notes documentation to correct the issues identified by Liberty. Qwest has agreed to conduct an internal review of the accuracy of the Summary of Notes for those measures Liberty did not review in this audit. |

Finding Applicability and Status: Iowa

| Finding Number | Finding | Classification | Applicable Measure | May Affect Measure Reporting | May Affect Tier 1 Payments | May Affect Tier 2 Payments | Qwest Concurr | Qwest Taking Action | Comments |
|-----------------------|--|-----------------------|--|-------------------------------------|-----------------------------------|-----------------------------------|----------------------|----------------------------|--|
| 7 | The Qwest Summary of Notes documentation appears incomplete for issues that span calendar years. | 3 | All | | | | X | X | Qwest implemented a change to its process, documenting any applicable reruns for the prior calendar year in the text section of each line item description of the Summary of Notes document. Qwest has agreed to conduct an internal review to determine if there are other past instances of this effect during 2005, 2006, and 2007, and make Summary of Notes changes if they find any. |
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| 9 | Qwest improperly includes holidays in the elapsed time calculations for BI-1. | 2 | BI-1 | X | X | X | X | X | Qwest will enhance the code to address this scenario even though the impact is minimal. Liberty believes the change will enhance Qwest's results. |
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| 12 | The RRS documentation of Qwest's processes and methods for calculating its performance measures contained errors, and was not up to date. | 3 | All | | | | X | X | Qwest provided an updated version of their RRS documentation and described the actions taken for each line item in the Preliminary Finding. Qwest has agreed to perform an expanded review to look at the complete set of measures. |
| 13 | The data Qwest used to calculate BI-1 results contained duplicate records. | 1 | BI-1 | X | X | X | X | X | Qwest identified and corrected three legacy system coding errors that caused the record duplication. |

Finding Applicability and Status: Iowa

| Finding Number | Finding | Classification | Applicable Measure | May Affect Measure Reporting | May Affect Tier 1 Payments | May Affect Tier 2 Payments | Qwest Concurrs | Qwest Taking Action | Comments |
|----------------|--|----------------|--------------------|------------------------------|----------------------------|----------------------------|----------------|---------------------|---|
| 14 | The BI-3A results include some revenue associated with products and services that Qwest does not need to include in its measure results. | 1 | BI-3A | X | X | | X | X | Qwest corrected the code and can now properly identify revenue for exclusion. |

Finding Applicability and Status: Minnesota

| Finding Number | Finding | Classification | Applicable Measure | May Affect Measure Reporting | May Affect Tier 1 Payments | May Affect Tier 2 Payments | Qwest Concurr | Qwest Taking Action | Comments |
|-----------------------|---|-----------------------|---------------------------|-------------------------------------|-----------------------------------|-----------------------------------|----------------------|----------------------------|--|
| 1 | Qwest excludes all of a CLEC's daily usage records from BI-1 results when a CLEC provides delivery instructions mid-month, even those records created after the instructions were received. | 2 | BI-1 | X | X | | | | Qwest believes its exclusion processing is justified. Liberty notes that Qwest's approach is different from that it has taken for other similar measures, and recommends that Qwest provide clarifying language in the BI-1 PID to support the different approach. |
| 2 | Qwest's programming for calculating BI-1B results contains logic errors for certain field value combinations. | 2 | BI-1 | X | X | | X | X | Qwest committed to enhancing the code to address the errors even though they have minimal impact. |
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| 6 | Qwest's Summary of Notes document does not accurately reflect all 271 performance results changes that occurred during the 2005 reporting year. | 3 | All | | | | X | X | Qwest updated its 2005 and 2006 Summary of Notes documentation to correct the issues identified by Liberty. Qwest has agreed to conduct an internal review of the accuracy of the Summary of Notes for those measures Liberty did not review in this audit. |

Finding Applicability and Status: Minnesota

| Finding Number | Finding | Classification | Applicable Measure | May Affect Measure Reporting | May Affect Tier 1 Payments | May Affect Tier 2 Payments | Qwest Concurr | Qwest Taking Action | Comments |
|-----------------------|--|-----------------------|--|-------------------------------------|-----------------------------------|-----------------------------------|----------------------|----------------------------|--|
| 7 | The Qwest Summary of Notes documentation appears incomplete for issues that span calendar years. | 3 | All | | | | X | X | Qwest implemented a change to its process, documenting any applicable reruns for the prior calendar year in the text section of each line item description of the Summary of Notes document. Qwest has agreed to conduct an internal review to determine if there are other past instances of this effect during 2005, 2006, and 2007, and make Summary of Notes changes if they find any. |
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| 13 | The data Qwest used to calculate BI-1 results contained duplicate records. | 1 | BI-1 | X | X | | X | X | Qwest identified and corrected three legacy system coding errors that caused the record duplication. |

Finding Applicability and Status: Minnesota

| Finding Number | Finding | Classification | Applicable Measure | May Affect Measure Reporting | May Affect Tier 1 Payments | May Affect Tier 2 Payments | Qwest Concurrs | Qwest Taking Action | Comments |
|----------------|--|----------------|--------------------|------------------------------|----------------------------|----------------------------|----------------|---------------------|---|
| 14 | The BI-3A results include some revenue associated with products and services that Qwest does not need to include in its measure results. | 1 | BI-3A | X | X | | X | X | Qwest corrected the code and can now properly identify revenue for exclusion. |

Finding Applicability and Status: Montana

| Finding Number | Finding | Classification | Applicable Measure | May Affect Measure Reporting | May Affect Tier 1 Payments | May Affect Tier 2 Payments | Qwest Concurr | Qwest Taking Action | Comments |
|-----------------------|---|-----------------------|---------------------------|-------------------------------------|-----------------------------------|-----------------------------------|----------------------|----------------------------|--|
| 1 | Qwest excludes all of a CLEC's daily usage records from BI-1 results when a CLEC provides delivery instructions mid-month, even those records created after the instructions were received. | 2 | BI-1 | X | X | X | | | Qwest believes its exclusion processing is justified. Liberty notes that Qwest's approach is different from that it has taken for other similar measures, and recommends that Qwest provide clarifying language in the BI-1 PID to support the different approach. |
| 2 | Qwest's programming for calculating BI-1B results contains logic errors for certain field value combinations. | 2 | BI-1 | X | X | X | X | X | Qwest committed to enhancing the code to address the errors even though they have minimal impact. |
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Finding Applicability and Status: Montana

| Finding Number | Finding | Classification | Applicable Measure | May Affect Measure Reporting | May Affect Tier 1 Payments | May Affect Tier 2 Payments | Qwest Concurr | Qwest Taking Action | Comments |
|-----------------------|--|-----------------------|--|-------------------------------------|-----------------------------------|-----------------------------------|----------------------|----------------------------|--|
| 7 | The Qwest Summary of Notes documentation appears incomplete for issues that span calendar years. | 3 | All | | | | X | X | Qwest implemented a change to its process, documenting any applicable reruns for the prior calendar year in the text section of each line item description of the Summary of Notes document. Qwest has agreed to conduct an internal review to determine if there are other past instances of this effect during 2005, 2006, and 2007, and make Summary of Notes changes if they find any. |
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| 13 | The data Qwest used to calculate BI-1 results contained duplicate records. | 1 | BI-1 | X | X | X | X | X | Qwest identified and corrected three legacy system coding errors that caused the record duplication. |

Finding Applicability and Status: Montana

| Finding Number | Finding | Classification | Applicable Measure | May Affect Measure Reporting | May Affect Tier 1 Payments | May Affect Tier 2 Payments | Qwest Concurrs | Qwest Taking Action | Comments |
|----------------|--|----------------|--------------------|------------------------------|----------------------------|----------------------------|----------------|---------------------|---|
| 14 | The BI-3A results include some revenue associated with products and services that Qwest does not need to include in its measure results. | 1 | BI-3A | X | X | | X | X | Qwest corrected the code and can now properly identify revenue for exclusion. |

Finding Applicability and Status: Nebraska

| Finding Number | Finding | Classification | Applicable Measure | May Affect Measure Reporting | May Affect Tier 1 Payments | May Affect Tier 2 Payments | Qwest Concurr | Qwest Taking Action | Comments |
|-----------------------|---|-----------------------|---------------------------|-------------------------------------|-----------------------------------|-----------------------------------|----------------------|----------------------------|--|
| 1 | Qwest excludes all of a CLEC's daily usage records from BI-1 results when a CLEC provides delivery instructions mid-month, even those records created after the instructions were received. | 2 | BI-1 | X | X | X | | | Qwest believes its exclusion processing is justified. Liberty notes that Qwest's approach is different from that it has taken for other similar measures, and recommends that Qwest provide clarifying language in the BI-1 PID to support the different approach. |
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| 4 | Qwest does not identify and process exclusions for NI-1C and NI-1D according to the PID. | 2 | NI-1 | X | | | | X | Qwest believes its exclusion processing is justified. However, Qwest has agreed to undertake an analysis to determine the impact of relevant exclusions. Depending on the result, Qwest will either modify the PID "at the next available 14-state regulatory opportunity in those states that specifically address the audit results" or change its exclusion processing. |
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| 6 | Qwest's Summary of Notes document does not accurately reflect all 271 performance results changes that occurred during the 2005 reporting year. | 3 | All | | | | X | X | Qwest updated its 2005 and 2006 Summary of Notes documentation to correct the issues identified by Liberty. Qwest has agreed to conduct an internal review of the accuracy of the Summary of Notes for those measures Liberty did not review in this audit. |

Finding Applicability and Status: Nebraska

| Finding Number | Finding | Classification | Applicable Measure | May Affect Measure Reporting | May Affect Tier 1 Payments | May Affect Tier 2 Payments | Qwest Concurr | Qwest Taking Action | Comments |
|-----------------------|--|-----------------------|--|-------------------------------------|-----------------------------------|-----------------------------------|----------------------|----------------------------|--|
| 7 | The Qwest Summary of Notes documentation appears incomplete for issues that span calendar years. | 3 | All | | | | X | X | Qwest implemented a change to its process, documenting any applicable reruns for the prior calendar year in the text section of each line item description of the Summary of Notes document. Qwest has agreed to conduct an internal review to determine if there are other past instances of this effect during 2005, 2006, and 2007, and make Summary of Notes changes if they find any. |
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Finding Applicability and Status: Nebraska

| Finding Number | Finding | Classification | Applicable Measure | May Affect Measure Reporting | May Affect Tier 1 Payments | May Affect Tier 2 Payments | Qwest Concurrs | Qwest Taking Action | Comments |
|-----------------------|--|-----------------------|---------------------------|-------------------------------------|-----------------------------------|-----------------------------------|-----------------------|----------------------------|---|
| 14 | The BI-3A results include some revenue associated with products and services that Qwest does not need to include in its measure results. | 1 | BI-3A | X | X | | X | X | Qwest corrected the code and can now properly identify revenue for exclusion. |

Finding Applicability and Status: New Mexico

| Finding Number | Finding | Classification | Applicable Measure | May Affect Measure Reporting | May Affect Tier 1 Payments | May Affect Tier 2 Payments | Qwest Concurr | Qwest Taking Action | Comments |
|-----------------------|---|-----------------------|---------------------------|-------------------------------------|-----------------------------------|-----------------------------------|----------------------|----------------------------|--|
| 1 | Qwest excludes all of a CLEC's daily usage records from BI-1 results when a CLEC provides delivery instructions mid-month, even those records created after the instructions were received. | 2 | BI-1 | X | X | X | | | Qwest believes its exclusion processing is justified. Liberty notes that Qwest's approach is different from that it has taken for other similar measures, and recommends that Qwest provide clarifying language in the BI-1 PID to support the different approach. |
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Finding Applicability and Status: New Mexico

| Finding Number | Finding | Classification | Applicable Measure | May Affect Measure Reporting | May Affect Tier 1 Payments | May Affect Tier 2 Payments | Qwest Concurr | Qwest Taking Action | Comments |
|-----------------------|--|-----------------------|--|-------------------------------------|-----------------------------------|-----------------------------------|----------------------|----------------------------|--|
| 7 | The Qwest Summary of Notes documentation appears incomplete for issues that span calendar years. | 3 | All | | | | X | X | Qwest implemented a change to its process, documenting any applicable reruns for the prior calendar year in the text section of each line item description of the Summary of Notes document. Qwest has agreed to conduct an internal review to determine if there are other past instances of this effect during 2005, 2006, and 2007, and make Summary of Notes changes if they find any. |
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| 10 | Qwest's implementation of the permutation test Z-score calculations for proportion measures that require a permutation test is not the method specified in the QPAP. | 1 | MR-3 MR-5 MR-7 MR-8 OP-3 OP-5 PO-9 | | X | X | X | X | Qwest concurred that a change would be appropriate but did not agree to retroactively institute the change. Because the change resulted in fewer payments by Qwest, Liberty finds Qwest's actions acceptable. |
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| 13 | The data Qwest used to calculate BI-1 results contained duplicate records. | 1 | BI-1 | X | X | X | X | X | Qwest identified and corrected three legacy system coding errors that caused the record duplication. |

Finding Applicability and Status: New Mexico

| Finding Number | Finding | Classification | Applicable Measure | May Affect Measure Reporting | May Affect Tier 1 Payments | May Affect Tier 2 Payments | Qwest Concurrs | Qwest Taking Action | Comments |
|-----------------------|--|-----------------------|---------------------------|-------------------------------------|-----------------------------------|-----------------------------------|-----------------------|----------------------------|---|
| 14 | The BI-3A results include some revenue associated with products and services that Qwest does not need to include in its measure results. | 1 | BI-3A | X | X | | X | X | Qwest corrected the code and can now properly identify revenue for exclusion. |

Finding Applicability and Status: North Dakota

| Finding Number | Finding | Classification | Applicable Measure | May Affect Measure Reporting | May Affect Tier 1 Payments | May Affect Tier 2 Payments | Qwest Concurr | Qwest Taking Action | Comments |
|-----------------------|---|-----------------------|---------------------------|-------------------------------------|-----------------------------------|-----------------------------------|----------------------|----------------------------|--|
| 1 | Qwest excludes all of a CLEC's daily usage records from BI-1 results when a CLEC provides delivery instructions mid-month, even those records created after the instructions were received. | 2 | BI-1 | X | X | X | | | Qwest believes its exclusion processing is justified. Liberty notes that Qwest's approach is different from that it has taken for other similar measures, and recommends that Qwest provide clarifying language in the BI-1 PID to support the different approach. |
| 2 | Qwest's programming for calculating BI-1B results contains logic errors for certain field value combinations. | 2 | BI-1 | X | X | X | X | X | Qwest committed to enhancing the code to address the errors even though they have minimal impact. |
| 4 | Qwest does not identify and process exclusions for NI-1C and NI-1D according to the PID. | 2 | NI-1 | X | | | | X | Qwest believes its exclusion processing is justified. However, Qwest has agreed to undertake an analysis to determine the impact of relevant exclusions. Depending on the result, Qwest will either modify the PID "at the next available 14-state regulatory opportunity in those states that specifically address the audit results" or change its exclusion processing. |
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Finding Applicability and Status: North Dakota

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| 7 | The Qwest Summary of Notes documentation appears incomplete for issues that span calendar years. | 3 | All | | | | X | X | Qwest implemented a change to its process, documenting any applicable reruns for the prior calendar year in the text section of each line item description of the Summary of Notes document. Qwest has agreed to conduct an internal review to determine if there are other past instances of this effect during 2005, 2006, and 2007, and make Summary of Notes changes if they find any. |
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Finding Applicability and Status: Oregon

| Finding Number | Finding | Classification | Applicable Measure | May Affect Measure Reporting | May Affect Tier 1 Payments | May Affect Tier 2 Payments | Qwest Concurr | Qwest Taking Action | Comments |
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| 2 | Qwest's programming for calculating BI-1B results contains logic errors for certain field value combinations. | 2 | BI-1 | X | X | X | X | X | Qwest committed to enhancing the code to address the errors even though they have minimal impact. |
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Finding Applicability and Status: South Dakota

| Finding Number | Finding | Classification | Applicable Measure | May Affect Measure Reporting | May Affect Tier 1 Payments | May Affect Tier 2 Payments | Qwest Concurr | Qwest Taking Action | Comments |
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Finding Applicability and Status: Utah

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Finding Applicability and Status: Wyoming

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Appendix B: Glossary of Acronyms

| | |
|-------|--|
| ACNA | Access Carrier Name Abbreviation |
| ADSL | Asynchronous Digital Subscriber Line |
| APRIL | Automated Provisioning Infrastructure Layer |
| ASR | access service request |
| BAN | Billing Account Number |
| BOSS | Billing and Order Support System |
| BPL | Business Process Layer |
| BRI | Basic Rate Interface |
| CARS | Customer Account Retrieval System |
| CCDB | Customer Contact Data Base |
| CDW | Corporate Data Warehouse |
| CFA | Customer Facility Assignment |
| CLEC | competitive local exchange carrier |
| CPAP | Colorado Performance Assurance Plan |
| CPE | Customer Provided Equipment or Customer Premises Equipment |
| CRIS | Customer Records Information System |
| CRM | Customer Request Management |
| CSIE | Customer Service Inquiry and Education Center |
| DID | Direct Inward Dial |
| DIE | Disconnect in Error |
| DS0 | Digital Signaling Level 0 |
| DS1 | Digital Signaling Level 1 |
| DS3 | Digital Signaling Level 3 |
| DSL | Digital Subscriber Line |
| DUF | Daily Usage File |
| EDI | Electronic Data Interchange |
| EEL | Enhanced Extended Link |
| EFT | electronic funds transfer |
| EXACT | Exchange Access Control & Tracking |
| FGD | Feature Group D |
| FOC | firm order confirmation |
| FTP | File Transfer Protocol |
| GUI | graphical user interface |
| IABS | Integrated Access Billing System |
| ICB | individual case basis |

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| ICM | Issue Change Management |
| IMA | Interconnect Mediated Access |
| IMA-EDI | Interconnect Mediated Access-Electronic Data Interchange |
| IMA-GUI | Interconnect Mediated Access-Graphical User Interface |
| IPUR | IMA Production Usage Report |
| IRTM | IMA Response Time Measure |
| ISC | Interconnect Service Center |
| ISDN | Integrated Services Digital Network |
| IXC | Inter-Exchange Carrier |
| JPSA | Jointly-Provided Switched Access |
| LERG | Local Exchange Routing Guide |
| LMOS | Loop Maintenance Operating System |
| LNP | local number portability |
| LSA | Line Side Attribute |
| LSNP | local service number portability |
| LSR | local service request |
| MCAS | Mechanized Administration System |
| MEL | Market Expansion Line |
| MOU | minutes of use |
| MSA | Metropolitan Statistical Area |
| MTAS | Mechanized Trouble Analysis System |
| NPA | Numbering Plan Area ("area code") |
| NXX | telephone number prefix ("exchange") |
| OCC | Other Charges and Credits |
| OCN | Optical Capacity Network |
| OSS | Operational Support Systems |
| OTN | Out Telephone Number |
| PANS | Performance Analysis System |
| PIA | Provider Initiated Activity |
| PID | Performance Indicator Definitions |
| PON | purchase order number |
| POTS | plain old telephone service |
| PUC | Public Utilities Commission |
| QPAP | Qwest Performance Assurance Plan |
| QPARS | Qwest Performance Assurance Reporting System |
| QPP | Qwest Platform Plus |
| RFS | Ready for Service |

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| ROC | Regional Operating Committee |
| RRS | Regulatory Reporting System |
| RSOLAR | Regional Service Order Logistics and Reference |
| RSOR | Regional Service Order Repository |
| SAS | Statistical Analysis System |
| SDC | Service delivery coordinator |
| SGAT | Statement of Generally Available Terms and Conditions |
| SO | Service Order |
| SOCD | service order completion date |
| SOEBD | Service Order Effective Billing Date |
| SOLAR | Service Order Logistics and Reference |
| SOP | Service Order Processor |
| SOPAD | Service Order Processing and Distribution |
| SOV | Service Order Validation |
| SPID | service provider ID |
| TAG | Technical Advisory Group |
| TCBH | Time-Consistent Busy Hour |
| TGSN | Trunk Group Serial Number |
| TGSR | Trunk Group Service Request |
| TN | Telephone Number |
| TRDB | Trunk Record Data Base |
| TSS | Trunk Servicing System |
| UDIT | Unbundled Dedicated Interoffice Transport |
| UNE | Unbundled Network Element |
| UNE-P | Unbundled Network Element – Platform |
| USOC | Universal Service Order Code |
| VCCD | Virtual Call Center Database |
| WFA | Work Force Administration |
| WFA-C | Work Force Administration – Control |
| xDSL | Digital Subscriber Line products (for example, Asynchronous Digital Subscriber Line or ADSL) |