

**BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF COLORADO**

**DOCKET NO. 97I-198T**

---

**IN THE MATTER OF THE INVESTIGATION INTO U S WEST COMMUNICATIONS, INC.'S  
COMPLIANCE WITH § 271(C) OF THE TELECOMMUNICATIONS ACT OF 1996**

---

**AFFIDAVIT OF**

**MICHAEL G. WILLIAMS**

**U S WEST COMMUNICATIONS, INC.**

**NOVEMBER 30, 1999**

**NOTICE OF CONFIDENTIALITY: THE PORTIONS OF THIS DOCUMENT IDENTIFIED  
BELOW, HAVE BEEN FILED UNDER SEAL.**

## AFFIDAVIT INDEX

	<u>Page</u>
IDENTIFICATION AND QUALIFICATIONS OF AFFIANT .....	1
PURPOSE OF AFFIDAVIT .....	1
EXECUTIVE SUMMARY .....	2
I. THE DEVELOPMENT OF U S WEST'S SERVICE PERFORMANCE INDICATORS.....	4
II. U S WEST'S SERVICE PERFORMANCE RESULTS .....	8
A. Checklist Item 1 – Interconnection .....	8
A1 <i>Trunk Blocking</i> .....	9
A2 <i>Trunk Installation Performance Indicators</i> .....	12
A3 <i>Interconnection and Interoffice Trunk Repair</i> .....	14
A4 <i>Collocation Performance Indicators</i> .....	17
A5 <i>Conclusions for Checklist Item 1 – Interconnection</i> .....	18
B. Checklist Item 2 – Access to Network Elements.....	18
B1 <i>Gateway Availability and Response Times</i> .....	20
B2 <i>Access to Interconnect Provisioning Centers and Repair Centers</i> .....	21
B3 <i>Billing Performance Indicators</i> .....	23
B4 <i>Flow-Through of Local Service Requests</i> .....	24
B5 <i>Conclusions for Checklist Item 2 – Access to Network Elements</i> .....	25
C. Checklist Item 4 – Unbundled Local Loop Transmission .....	26
C1 <i>Installation of Unbundled Loops</i> .....	28
C2 <i>Repair of Unbundled Loops</i> .....	31
C3 <i>Conclusions for Checklist Item 4 – Access to Unbundled Loops</i> .....	32

<b>D. Checklist Items 5 and 6 – Unbundled Transport and Switching .....</b>	<b>33</b>
<b>E. Checklist Item 7 – Access to 911/E911, Directory Assistance, and Operator Services.....</b>	<b>35</b>
<b>F. Checklist Item 11 – Number Portability.....</b>	<b>37</b>
<b>G. Checklist Item 14 – Resale Services.....</b>	<b>38</b>
<i>G1 Installation of Resale Services .....</i>	<i>39</i>
<i>G2 Repair of Resale Services.....</i>	<i>46</i>
<i>G3 Conclusions for Checklist Item 14 – Resale Services.....</i>	<i>51</i>
<b>III. SERVICE PERFORMANCE REPORTING .....</b>	<b>51</b>
<b>A. U S WEST’s Service Performance Indicator Reports .....</b>	<b>51</b>
<i>A1 Reporting Format.....</i>	<i>51</i>
<i>A2 Reporting Frequency.....</i>	<i>52</i>
<b>B. Statistical Tests Used for Determining Statistical Significance.....</b>	<b>52</b>
<i>B1 The Role of Statistical Analyses.....</i>	<i>52</i>
<i>B2 Determining Statistical Significance .....</i>	<i>53</i>
<b>IV. CONCLUSIONS.....</b>	<b>53</b>

1                   **IDENTIFICATION AND QUALIFICATIONS OF AFFIANT**

2           My name is Michael G. Williams. I am employed by U S WEST as Director,  
3 Wholesale Interconnection Operations-Service Performance. My business address is  
4 250 Bell Plaza, Room 1603-B, Salt Lake City, Utah.

5           I have worked for U S WEST since 1981 in various management positions,  
6 including engineering, technical sales, regulatory, new technologies, international  
7 cellular joint venture leadership, and wholesale interconnection operations. I have held  
8 my current position since June 1997. I hold an MBA degree from the University of Utah,  
9 1985, and a bachelors degree in electrical engineering from Brigham Young University,  
10 1976. As a Director of Wholesale Service Performance, my responsibilities include  
11 developing and presenting U S WEST's wholesale performance measures and  
12 performance results in the context of the Telecommunications Act of 1996 (the "Act"). I  
13 also am responsible for negotiating with competitive local exchange carriers ("CLECs")  
14 and other parties in connection with the development of performance measurements  
15 and rules.

16                   **PURPOSE OF AFFIDAVIT**

17           My affidavit presents service performance measurements in support of  
18 U S WEST's application under Section 271 of the Act. I demonstrate that the  
19 measurement data available for U S WEST's Service Performance Indicators confirm  
20 that U S WEST is satisfying checklist items specified in Section 271, that the local

1 exchange market in Colorado is open to competition, and that the market will remain  
2 open.

3 My affidavit serves four fundamental purposes that are important to U S WEST's  
4 Section 271 application: (1) explaining the concepts underlying service performance  
5 measuring; (2) identifying the service performance indicators that U S WEST has  
6 implemented; (3) explaining why the indicators U S WEST has implemented are  
7 appropriate for evaluating compliance with the requirements of Section 271; and (4)  
8 reporting Colorado-specific performance results for the indicators U S WEST is utilizing.

#### 9 **EXECUTIVE SUMMARY**

10 U S WEST has opened its local exchange markets in Colorado to competition  
11 and is offering a wide array of interconnection, network elements, and resale services to  
12 CLECs. The Act requires U S WEST to provide CLECs with a level of service that is  
13 substantially equivalent to the level of service U S WEST provides for itself in its retail  
14 operations, or for wholesale products and services that do not have a retail analogue,  
15 U S WEST must provide efficient CLECs a meaningful opportunity to compete.  
16 U S WEST's service performance indicators are designed to quantify key aspects of  
17 service performance to permit an evaluation of whether U S WEST is meeting these  
18 standards and satisfying the checklist in Section 271. Each of U S WEST's  
19 performance indicators is listed and described in Appendix A of this affidavit.  
20 U S WEST has developed these measurements over a period of years, relying on FCC  
21 orders and rules, input from CLECs and other industry sources, as well as U S WEST's  
22 own experience.

1           On a monthly basis, U S WEST is generating performance results that consist of  
2 thousands of data points resulting from many service performance indicators that are  
3 designed to measure service quality. These performance indicators address key  
4 dimensions of service, primarily involving the timeliness and accuracy of installations  
5 and repairs.

6           In addition to addressing specific aspects of the Act, U S WEST's service  
7 performance indicators address all applicable categories of performance measurements  
8 suggested by the FCC in recent orders in Section 271 applications in other regions.

9           The performance results reported in this affidavit demonstrate that:

- 10           • U S WEST is providing interconnection, collocation, access to network  
11 elements on an unbundled basis, emergency services, number portability,  
12 and resale services in a manner that is either substantially equivalent to the  
13 level of service that U S WEST provides to its retail operations, or that  
14 provides efficient CLECs with a meaningful opportunity to compete. Indeed,  
15 the significant volumes of activity reflected in U S WEST's performance  
16 results demonstrate the vibrant state of competition in the local exchange  
17 market in Colorado.
- 18           • The body of measurements that U S WEST has in place and the data  
19 resulting from these measurements provide a basis for ensuring that  
20 Colorado's local exchange market continues to remain open for competition.

**I. THE DEVELOPMENT OF U S WEST'S SERVICE PERFORMANCE INDICATORS**

Service performance indicators are pre-defined, numerical tools for quantifying specific aspects or dimensions of service quality. Performance indicators and the results they produce allow assessments of whether incumbent local exchange carriers ("ILECs") like U S WEST are providing wholesale services in a nondiscriminatory manner or in a manner that permits an efficient competitor a meaningful opportunity to compete.<sup>1</sup> U S WEST's performance measures are designed to serve this purpose.

U S WEST has developed performance indicators for each checklist item that is amenable to evaluation through the use of quantified data. The checklist items that U S WEST indicators address are:

- Checklist Item 1 – Interconnection (including collocation and network performance).
- Checklist Item 2 – Access to network elements (including gateway availability, pre-order transactions, billing, and repair/provisioning centers).
- Checklist Item 4 – Unbundled local loop transmission.
- Checklist Item 5 – Unbundled local transport.
- Checklist Item 6 – Unbundled local switching.
- Checklist Item 7 – Access to 911/E911, directory assistance, and operator services.
- Checklist Item 11 – Interim number portability.
- Checklist Item 14 – Resale services.

---

<sup>1</sup> FCC's NPRM, April 1998, paragraph 8, last sentence.

1 U S WEST has developed more than 50 different indicators of service quality that  
2 it applies to the checklist items. These measures yield over 250 different monthly  
3 measurements of service performance. When multiplied by the entities for which these  
4 measurements are reported, U S WEST is generating well over 15,000 performance-  
5 related data points every month for Colorado alone.

6 U S WEST developed its performance indicators with substantial guidance and  
7 input from sources in the industry. First, in developing its indicators, U S WEST  
8 carefully considered the requirements set forth in relevant FCC orders, including the  
9 conclusions the FCC preliminarily reached in its Notice of Proposed Rulemaking relating  
10 to performance measures ("FCC NPRM"). The indicators also reflect pronouncements  
11 from the FCC in orders relating to applications of other Regional Bell Operating  
12 Companies ("RBOCs") pursuant to Section 271.

13 Second, U S WEST's indicators reflect the results of a series of meetings and  
14 discussions among U S WEST and several CLECs conducted over a period of over two  
15 years. Those discussions involved a joint effort by U S WEST and CLECs to reach  
16 agreement on a body of performance measures.

17 Third, U S WEST's indicators also reflect the progress achieved in a series of  
18 discussions and negotiations conducted in conjunction with a consolidated arbitration on  
19 performance measurements conducted by the Arizona Commission beginning in early  
20 1997. These discussions involved U S WEST and multiple CLECs, and they resulted in  
21 a body of performance measurements guided by orders issued by the Chief Arbitrator.

22 Fourth, U S WEST's performance indicators also are based on extensive input  
23 U S WEST has received from CLECs and other parties in a series of workshops



1 coordinated by the staff of the Arizona Commission in relation to third-party OSS  
2 testing. These workshops began in September 1999 and are ongoing. U S WEST has  
3 used these workshops to refine its performance indicators and, as the OSS testing in  
4 these workshops continues, U S WEST's indicators will continue to evolve, as needed.  
5 U S WEST believes that the development of performance indicators is an evolving  
6 process, and workshops of the type being conducted in Arizona through a collaborative  
7 process involving multiple industry sources are vital to the evolution of performance  
8 indicators.

9 Finally, U S WEST has been meeting regularly with staff members of the FCC  
10 since early this year to discuss U S WEST's progress in meeting the checklist items in  
11 Section 271. These meetings have included extensive discussion of U S WEST's  
12 performance indicators, and U S WEST has relied on these discussions to refine the  
13 indicators.

14 As this discussion demonstrates, the performance indicators U S WEST is  
15 presenting to the Colorado Commission in this proceeding are the result of an  
16 exhaustive process that has involved thousands of hours. U S WEST has relied  
17 extensively on CLECs, the FCC, the experience of other RBOCs, and its own  
18 experience to develop a comprehensive body of measures that permits a reliable,  
19 accurate assessment of the quality of interconnection and access to unbundled network  
20 elements that U S WEST is providing.

21 Installation and repair are at the core of most issues involving service quality.  
22 Indicators addressing installation and repair answer the following service-related  
23 questions:

- 1 • Installations: How long did it take to install the service? Was it installed on time?  
2 Was the service installed correctly?
- 3 • Repairs: How long did it take to repair the service? Was it repaired on time? Was  
4 the service repaired correctly?

5 Appendix A of this affidavit presents the most recent revision of Exhibit B of the  
6 Arizona Master Test Plan, which provides definitions of U S WEST's performance  
7 indicators as reported in this affidavit. Brief descriptions of the indicators also are  
8 provided in the body of this affidavit along with highlights of month-by-month results for  
9 key indicators. The Arizona Exhibit is used in this affidavit, because it contains the most  
10 current developments in performance measurements from the OSS Testing Workshop  
11 currently being conducted in Arizona. As that workshop and testing progresses, and as  
12 this docket progresses, U S WEST will continue to refine its performance  
13 measurements to reflect the input and knowledge it gains. As that occurs, U S WEST  
14 will supplement its Colorado SGAT with a comprehensive Exhibit B defining  
15 performance indicators and results reporting.

16 To permit a comparison of the FCC's NPRM with U S WEST's indicators,  
17 Appendix B of this affidavit lists the performance measurements from the NPRM and  
18 lists U S WEST's corresponding indicators. That appendix demonstrates that  
19 U S WEST's service performance indicators, as reported in my affidavit, address all  
20 areas of performance that the FCC has identified in the NPRM.

1                   **II. U S WEST'S SERVICE PERFORMANCE RESULTS**

2           In this section of my affidavit, I describe U S WEST's performance indicators and  
3 highlight month-by-month results for key performance indicators that demonstrate how  
4 U S WEST is satisfying the Act. Detailed results for all performance indicators for  
5 Colorado, including relevant comparisons with retail performance, are provided in  
6 graphical form in Exhibit MGW-1 and in detail, complete with statistical parameters, in  
7 Exhibit MGW-2. That exhibit is organized according to checklist items and generally  
8 contains data for the period from January through September 1999. My discussion of  
9 the performance results demonstrates that U S WEST is satisfying the checklist items in  
10 Section 271.

11   **A. Checklist Item 1 – Interconnection**

12           Interconnection refers to the arrangements necessary to provide for the mutual  
13 exchange of traffic between CLECs' networks and U S WEST's network (such as local  
14 interconnection service or "LIS" trunks). U S WEST provides 18 performance indicators  
15 that directly address interconnection.<sup>2</sup> The 18 U S WEST indicators that directly  
16 address interconnection are listed below in Table 1:

---

<sup>2</sup> Performance indicators are described in detail in Appendix A of this affidavit.

**Table 1****U S WEST Performance Indicators for Checklist Item 1, Interconnection**

	<b><i>Indicator Number</i></b>	<b><i>Checklist Item 1 Performance Indicator</i></b>
		<b>Network Performance Indicators</b>
1	NI-1	Trunk Blocking – Interconnection and Interoffice Trunks
2	NP-1	NXX Code Activation (under development)
		<b>Interconnection Trunk Installation Indicators</b>
3	OP-3	Installation Commitments Met
4	OP-4	Installation Interval
5	OP-5	New Service Installation without Trouble Reports
6	OP-6	Average Delayed Days
7	OP-11	Delayed Orders More than 90 days Past Commitment
		<b>Interconnection Trunk Repair Indicators</b>
8	MR-5	All Troubles Cleared within 4 Hours – Designed Repair Products
9	MR-6	Mean Time to Restore
10	MR-7	Repair Repeat Report Rate
11	MR-8	Trouble Rate (under development)
12	MR-10	Customer-caused Trouble Reports
		<b>Collocation Indicators</b>
13	CP-1	Installation Interval
14	CP-2	Installation Commitments Met
15	CP-3	Feasibility Study Interval
16	CP-4	Feasibility Study Commitments Met
17	CP-5	Quote Interval
18	CP-6	Quote Commitments Met

In the following sections, I will discuss the key interconnection performance measures.

**A1 Trunk Blocking**

The occurrence of blocking in interconnection trunks is an important indicator of the quality of interconnection that U S WEST and CLECs, working together, are achieving. Thus, low blocking levels (i.e., less than two percent) can indicate that trunk quality is acceptable, but higher blocking levels alone cannot indicate the reasons for

1 any blocking or whether either party is responsible for them. Trunk blocking can come  
2 from such causes as unexpected traffic patterns, forecasting problems,  
3 installation/repair problems, and uncoordinated shifts in trunk routing or maintenance  
4 activity. U S WEST's trunk blocking measurements include trunk blockage on  
5 interconnection final<sup>3</sup> trunks and trunk blockage on interoffice final trunks within  
6 U S WEST's network.

7 As described in Mr. Weidenbach's affidavit, CLECs interconnect with  
8 U S WEST's network in a variety of ways by connecting their end offices or switches  
9 either to U S WEST's tandem offices<sup>4</sup> or to U S WEST's end offices.<sup>5</sup> The customer  
10 placing a call to another customer has the option of choosing a CLEC or U S WEST to  
11 provide service. In either case, the end office where a call originates, whether a CLEC  
12 end office or a U S WEST end office, can connect to the network via either a tandem  
13 trunk or a direct end office trunk based on how the CLEC decides to order and provision  
14 its trunks. Accordingly, U S WEST's blockage measurements focus on both tandem  
15 and end office connections for CLECs and for U S WEST. U S WEST's indicator for  
16 trunk blocking, NI-1, is defined in detail in Appendix A of this affidavit. This indicator  
17 measures the average percentage of trunks blocking in interconnection final trunks,  
18 reported by interconnection trunks to U S WEST tandem offices and interconnection  
19 trunks to U S WEST end offices. For comparison, U S WEST also reports the

---

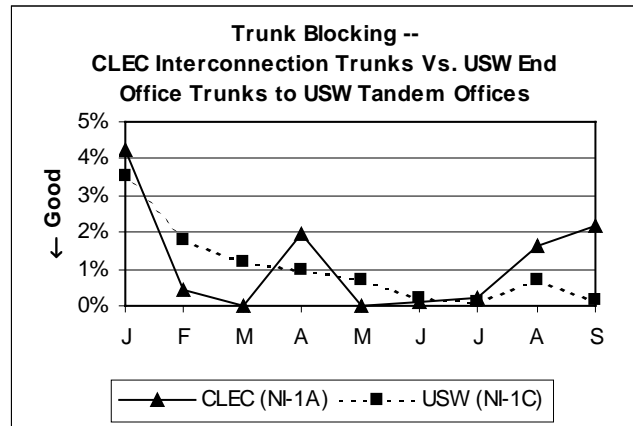
<sup>3</sup> Final trunks are those that do not overflow calls to other trunks when busy.

<sup>4</sup> Tandem offices support a number of end offices and are designed to carry overflow traffic during periods in which direct end office to end office trunks are busy.

<sup>5</sup> End offices serve customers. Every call begins with the end office serving the calling party and goes to its destination through the end office serving the called party.

percentage of trunks blocking in local interoffice final trunks within the U S WEST interoffice network.

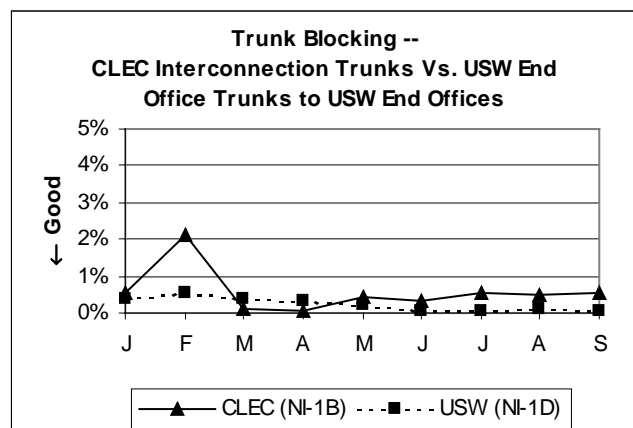
Trunk Blocking performance results for connections to tandem offices for the months of January through September 1999 are shown in the chart to the right.



These results demonstrate that CLECs experienced a very low level of

trunk blockage on their interconnection trunks to U S WEST tandem switches (NI-1A). The nine month weighted average blocking, which I calculated from the detailed results in Exhibit MGW-2, was 1.21 percent, which is below the blocking review level of two percent. The last eight of the nine months reported are near or below the two percent level. Where blocking levels for interconnection trunks are below two percent, quality is acceptable and differences between interconnection and interoffice trunk blocking are incidental and not material.

Trunk Blocking performance results for connections to end offices for the months of January through September 1999 are shown in the chart to the right.



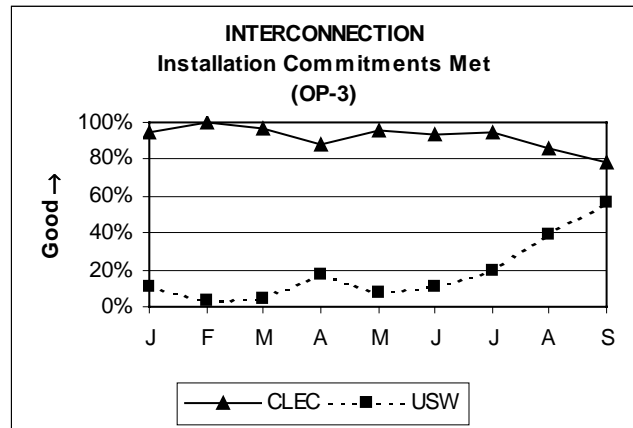
These results also demonstrate a

1 very low level of blockage on CLEC interconnection trunks to U S WEST end offices  
2 (NI-1B). In all months except February, the blocking was below the network design  
3 standard of one percent. In February, blocking was slightly above the blocking review  
4 level, which U S WEST uses to trigger a review of whether trunk capacity should be  
5 increased.

## 6 **A2 Trunk Installation Performance Indicators**

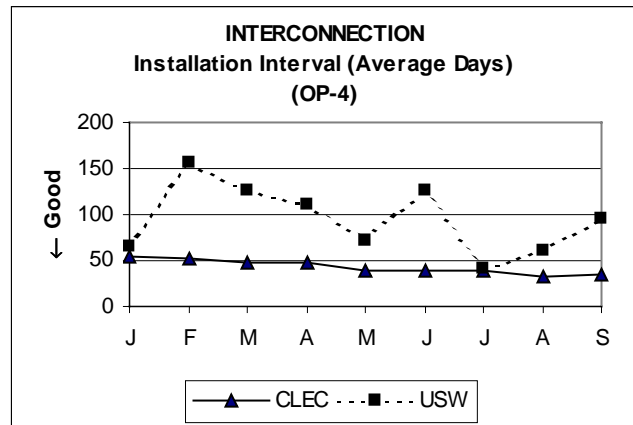
7 U S WEST provides several performance indicators that are designed to  
8 demonstrate whether it is installing interconnection trunks for CLECs in a non-  
9 discriminatory manner. The trunk installation measurements include Installation  
10 Commitments Met, Installation Intervals, New Installations without Trouble Reports, and  
11 Delayed Days. These measurements address whether U S WEST is installing trunks in  
12 compliance with time commitments given to CLECs, the average time required to install  
13 trunks, the accuracy and reliability of trunk installation and, if installations are late, the  
14 average number of days that they are late. U S WEST also reports measurements for  
15 similar performance for U S WEST's interoffice trunks, to permit comparisons between  
16 the quality of trunk installations for CLECs and trunk installations for itself. These  
17 indicators are described in detail in Appendix A.

The Colorado results for interconnection and interoffice Installation Commitments Met for the months of January through September 1999 are shown in the chart to the right.



Over the last nine months, U S WEST has met commitments for CLECs between 93 percent and 100 percent of the time, except for April, August, and September. The percentage of installation commitments that U S WEST met for itself during this period was much lower than the comparable percentage for CLECs.

The indicator for CLEC installation intervals measures the average interval – in business days – between the application date and the completion date for local interconnection trunks. The Colorado results for trunk Installation Interval for the months of



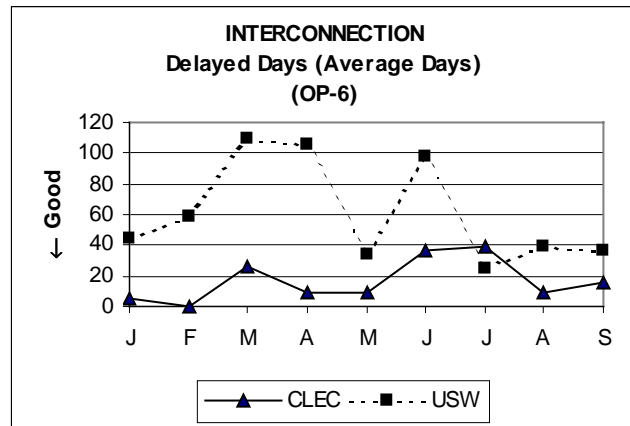
January through September 1999 are shown in the chart.

These results demonstrate that U S WEST recently has been completing interconnection trunk orders in about 32 to 54 days, on average, which is substantially better than the installation intervals for interoffice trunks within U S WEST's network.



1 The Colorado results for trunk  
2 orders that have been delayed are  
3 shown to the right.

4 In all months except July,  
5 Delayed Days for CLECs are  
6 significantly shorter than the Delayed  
7 Days for U S WEST. Without July, the

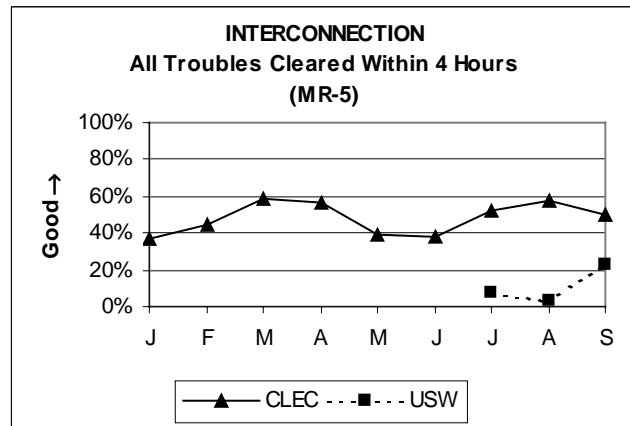


8 eight-month average for Delayed Days was 14.4 days for CLECs and 64.6 days for  
9 U S WEST. In July, CLEC delays were 39.0 days compared with 24.1 days for  
10 U S WEST on average. When viewed with the high percentage of commitments met  
11 for CLECs in all months, including July, the results demonstrate that U S WEST is  
12 providing more responsive installation to CLEC's, than it is providing to itself.

### 13 **A3 Interconnection and Interoffice Trunk Repair**

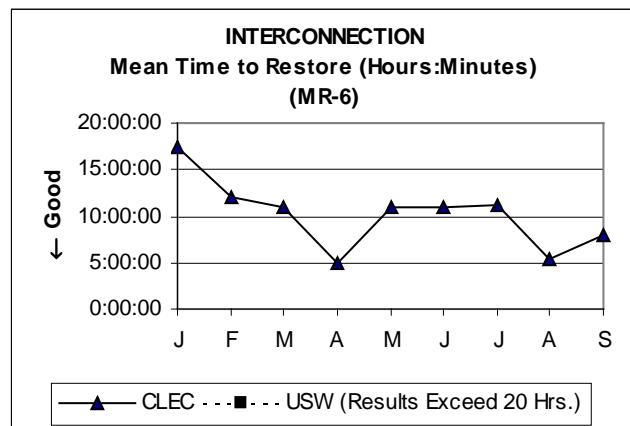
14 U S WEST's performance measurements relating to the quality of service  
15 provided for repairing trunks are: All Troubles Cleared within 4 Hours, Mean Time to  
16 Restore Trunks, and Repair Repeat Report Rate. These measurements show whether  
17 U S WEST is repairing interconnection trunks in a timely manner, how long it takes  
18 U S WEST on average to repair interconnection trunks, and how accurately and reliably  
19 U S WEST is performing these repairs. U S WEST also reports similar measurements  
20 for U S WEST's interoffice trunks to permit comparisons of levels of service quality in  
21 these areas. These measures for CLEC and U S WEST are described in detail in  
22 Appendix A.

The Colorado results for trunks All Troubles Cleared within 4 hours for the months of January through September 1999 are shown in the chart to the right. These results show that all troubles cleared for CLECs within four hours of a call from a CLEC reporting



trouble ranged between approximately 38 percent and 59 percent. Results for U S WEST interoffice trunks All Trouble Cleared within 4 Hours were not available until July 1999. These results should be evaluated in conjunction with other measurements, including mean time to restore and overall trunk blocking, which are discussed below.

The indicator for Mean Time to Restore measures the average time to resolve trouble affecting interoffice trunks. The starting time for the measures is when the trouble is first identified, and the ending time is when the trunk is restored. Colorado results



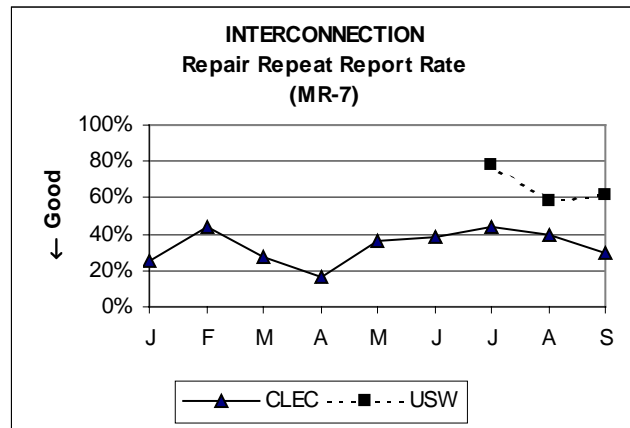
for Mean Time to Restore trunk trouble for January through September 1999 are displayed in the chart.

The results for Mean Time to Restore, ranging from 4 hours 55 minutes to 17 hours 25 minutes and hovering around 11 hours or less in the last several months, demonstrate that U S WEST is restoring interconnection trunks in a timely, reasonable

manner. A comparison of these results with the results for U S WEST interoffice trunks – which are available beginning in July 1999 and are all much greater than 20 hours – shows that U S WEST has provided CLECs with more timely interconnection repair than U S WEST has provided to itself. The adequacy of U S WEST's repair of trunks for CLECs is confirmed further by the results for trunk blocking. The low levels of blocking indicate that repairs are timely and are supporting high quality interconnection.

To assess the quality of repair, U S WEST provides a measure of how often it repairs a trunk and receives a subsequent repair request on the same trunk within 30 days after the initial repair is completed.

The Colorado results for Repair Repeat Report Rate in the months of January through September 1999 are displayed in the chart to the right. This measurement addresses the percentage of repair reports that are repeated within 30 days and is intended to give an



indication of the accuracy and reliability of the repairs that U S WEST performs. Comparable data for repairs to U S WEST's interoffice trunks are available for three months only. Considered with the results showing low interconnection blocking, these results demonstrate that U S WEST's repair activities are supporting a high level of interconnection quality.

1           **A4 Collocation Performance Indicators**

2           The Collocation process involves three distinct steps – feasibility study, quote  
3           preparation, and installation. In the first of these steps, U S WEST responds to an initial  
4           request by a CLEC by preparing a feasibility study. In its proposed SGAT, U S WEST  
5           offers to complete feasibility studies in 10 days for physical collocation and 7 days for  
6           virtual collocation. In the second step, U S WEST prepares a specific price quotation  
7           for the specific arrangement requested by the CLEC. U S WEST's proposed SGAT  
8           offers to provide quotations in 25 days. The final stage of collocation begins when a  
9           CLEC orders the service by submitting a payment of one half of the non-recurring  
10          charges identified on U S WEST's quotation. U S WEST's SGAT provides for a 90-day  
11          interval for collocation installation.

12          U S WEST provides six performance indicators that are designed to permit an  
13          evaluation of whether it is providing collocation to CLECs in a reasonable and non-  
14          discriminatory manner. For each of the three phases of collocation, U S WEST  
15          measures the average interval and the percentage of commitments met. U S WEST  
16          reports results separately for new collocations and augments to existing collocations.  
17          We also report separate results for physical and virtual collocation. All of the indicators  
18          for collocation are described in detail in Appendix A.

19          U S WEST has seen dramatic increases in the level of collocation activity over  
20          the last eight months. In the last four months reported more than 25 new collocations  
21          were implemented each month. In August alone, U S WEST completed 12  
22          augmentations to existing collocations. Faced with this high level of activity, in the  
23          context of the magnitude and complexity of collocation arrangements, U S WEST had

1 some difficulty in recent months meeting collocation installation commitments, as the  
2 results in Exhibit MGW-2 bear out.

3 Overall, in the period of January 1999 through September 1999, as shown in  
4 Exhibit MGW-2, U S WEST completed over 170 collocation arrangements in Colorado.  
5 For new collocations, the average installation days ranged from 52 to 129, with 57 days  
6 in the most recent month. Augmentations of existing collocation arrangements ranged  
7 from 61 to 149 days, with 66 days in the most recent month reported. U S WEST did  
8 not complete any virtual collocations in January through September in Colorado.

9 **A5 Conclusions for Checklist Item 1 – Interconnection**

10 The performance results I have discussed for interconnection trunk blocking,  
11 interconnection installation and repair, network performance, and collocation support a  
12 finding that U S WEST has opened its local exchange market in Colorado. U S WEST  
13 is offering interconnection that is at least equal in quality to that which it provides to  
14 itself. Furthermore, U S WEST's ongoing reporting of interconnection-related service  
15 performance results will help ensure that U S WEST continues to satisfy Checklist  
16 Item 1 and that the marketplace will remain open to facilities-based competitors.

17 **B. Checklist Item 2 – Access to Network Elements**

18 The Act calls for U S WEST to provide “nondiscriminatory access to network  
19 elements on an unbundled basis.”<sup>6</sup> In contrast with the standard of “equal in quality to  
20 that provided by the local exchange carrier to itself,” which the Act applies only to  
21 interconnection, the nondiscrimination standard for purpose of performance

measurements for access to network elements focuses on equal quality only as between and among CLECs to whom U S WEST provides unbundled elements. Nevertheless, U S WEST provides, when possible, a comparison with U S WEST retail as an additional point of reference for determining whether U S WEST is providing CLECs a meaningful opportunity to compete.

U S WEST provides 22 performance indicators that directly address access to network elements. These indicators are as listed below in Table 2:

**Table 2**

**U S WEST Performance Indicators for Checklist Item 2**

**Access to Network Elements**

	<b><i>Indicator Number</i></b>	<b><i>Checklist Item 2 Performance Indicator</i></b>
1	GA-1	Gateway Availability – via IMA
2	GA-2	Gateway Availability – via EDI
3	GA-3	Gateway Availability – via EB-TA (under development)
4	GA-4	Gateway Availability – via EXACT
5	PO-1	Pre-Order/Order Response Times
6	PO-2	Electronic Flow-through
7	PO-3	LSR Rejection Notice Interval
8	PO-4	LSRs Rejected
9	PO-5	Firm Order Confirmation (FOC) Interval
10	PO-6	Completion Notices Transmitted within 24 hours (under development)
11	PO-7	Completion Notice Interval (under development)
12	PO-8	Jeopardy Notice Interval (under development)
13	PO-9	Timely Jeopardy Notices (under development)
14	OP-1	Speed of Answer – Interconnect Provisioning Center
15	OP-2	Calls answered within 20 seconds – Interconnect Provisioning Center
16	MR-1	Speed of Answer – Interconnect Repair Center
17	MR-2	Calls answered within 20 seconds – Interconnect Repair Center
18	BI-1	Mean Time to Provide Recorded Usage Records
19	BI-2	Mean Time to Deliver Invoices (under development)

<sup>6</sup> Section 251(c)(3), as referenced in Section 271(c)(2)(B)(ii).

	<b>Indicator Number</b>	<b>Checklist Item 2 Performance Indicator</b>
20	BI-3	Billing Accuracy – Adjustments for Errors (under development)
21	DB-1	Average Time to Update Databases (under development)
22	DB-2	Percentage of Accurate Database Updates (under development)

A discussion of the results for indicators relating to access to network elements follows.

### **B1 Gateway Availability and Response Times**

Gateway Availability measures the percentage of time that U S WEST's human-to-computer and computer-to-computer interfaces for operational support systems ("OSSs") are available to CLECs for viewing or inputting orders or other information. Colorado results for Gateway Availability for IMA, in the months of January 1999 through September 1999 were outstanding. IMA was available nearly 100 percent of the time. The Gateway Availability for EDI is not reported because the computer-to-computer interface is not yet used by CLECs. The Gateway Availability for EB-TA and EXACT are under development. EB-TA is "electronic bonding" for maintenance transactions, which is a gateway for processing repair transactions. EXACT is a system (not a gateway) by which CLECs submit orders for "trunk side" services, including interconnection trunks.

"Response times" refers to the time it takes for a CLEC to complete each of six (soon to be seven) standard transactions through the specified gateway. Pre-order response times for all six of the reported transactions are generally under 30 seconds for almost all measures throughout the period. For one measurement, Service Availability, there were four months in which results hovered around 40 seconds per

1 transaction; however, in the two most recent months, those results showed  
2 improvement to 35 and 38 seconds. As Ms. Notarianni explains in her affidavit, there  
3 inevitably will be some differences between response times for CLECs and response  
4 times for U S WEST retail transactions because of the computerized processing steps  
5 involved in accepting and formatting CLEC requirements for input and retrieval from  
6 U S WEST's internal systems.

7 Overall, most transactions for CLECs during the reporting period were in the  
8 range of about 7 to 30 seconds each, on average, with none more than 46 seconds. An  
9 efficient CLEC can organize its pre-ordering and ordering customer interactions so that  
10 these transaction times fit conveniently into its customer contact procedures and  
11 reasonably support communications between CLEC service representatives and  
12 customers. All of the indicators relating to gateway availability and response times are  
13 described in detail in Appendix A.

## 14 **B2 Access to Interconnect Provisioning Centers and Repair Centers**

15 U S WEST has developed a body of measurements designed to permit  
16 evaluations of the responsiveness of its Interconnect Provisioning Centers and its  
17 Interconnect Repair Centers. U S WEST has four performance indicators for  
18 provisioning and repair center access. Two of these indicators address the speed with  
19 which U S WEST representatives answer calls in each type of center. The other two  
20 indicators address the percentage of calls to each type of center that are answered  
21 within 20 seconds. The two centers, the Interconnect Provisioning Center and the  
22 Interconnect Repair Center, are the CLECs' front door into U S WEST. Measuring the



1 answer time in these centers measures U S WEST's responsiveness. Results are  
2 provided at a U S WEST level of reporting. Neither CLEC-specific nor state-specific  
3 results are available. These indicators are described in detail in Appendix A.

4 Results for Speed of Answer in the Interconnect Provisioning Center<sup>7</sup> (OP-1)  
5 range from 12.7 to 30 seconds, with the results for all months but February shorter than  
6 the average speed of answer for U S WEST's retail provisioning center. The  
7 percentage of Calls Answered within Twenty Seconds in the Interconnect Provisioning  
8 Center (OP-2) is substantially higher than the comparable percentage for U S WEST's  
9 retail provisioning center. The percentage of calls answered in the Interconnect  
10 Provisioning Center within 20 seconds ranged from a low of 50 percent in August to a  
11 high of 86.6 percent in January, with four of the months above the 80 percent level.

12 The average Speed of Answer in the Interconnect Repair Center (MR-1) for  
13 CLECs was 30 seconds or less in all but three of the months reported. For all months,  
14 the highest interval was 41 seconds. The percentage of Interconnect Repair Center  
15 Calls Answered within 20 seconds (MR-2) of the first ring in the last nine months was 77  
16 percent to 96 percent. For all but two months, the percentage was above 80 percent.  
17 In all but one month, these results are substantially better than the results for calls  
18 placed to U S WEST retail repair centers. In April, the results were 84.7 percent for  
19 Interconnect Repair Centers and 97.7 percent for U S WEST repair centers.

---

<sup>7</sup> "Provisioning" refers to installation of services. The term specifically applies to arranging the necessary network and technician resources to activate a service for a customer using the integrated network already constructed to support such services.

1           The results for these measures demonstrate that U S WEST is providing CLECs  
2   with access to the Interconnect Provisioning and Repair Centers that is generally  
3   superior to the access U S WEST is providing for itself.

4           **B3 Billing Performance Indicators**

5           Just as the Act does not specifically mention performance measurements, it also  
6   does not mention specific requirements for billing. In the NPRM relating to performance  
7   measures, the FCC suggests measuring “Average Time to Provide Usage Records” and  
8   “Average Time to Deliver Invoices.”<sup>8</sup> U S WEST is preparing to provide these same two  
9   performance indicators for billing and is developing a measurement for Bill Accuracy  
10  (BI-3).

11          Results for Mean Time to Provide U S WEST Recorded Usage Records  
12  (Average Days) (BI -1) are available for CLECs only for the period from January through  
13  August 1999. The U S WEST average, which I calculated from the detailed results in  
14  Exhibit MGW-2, was 5.2 days to provide U S WEST recorded usage records to CLECs  
15  for the eight month period.

16          The measurements for Mean Time to Deliver Invoices (BI-2) and Billing Accuracy  
17  – Adjustments for Errors (BI-3) are under development. Moreover, for BI-3, U S WEST  
18  is currently in discussions with CLECs participating in the Arizona OSS Testing  
19  Workshops to identify appropriate ways to measure Billing Accuracy.

---

<sup>8</sup> FCC’s NPRM on Performance Measurements, CC Docket 98-56, April 1998, Appendix A, p. A12.

**B4 Flow-Through of Local Service Requests**

Local Service Requests (LSRs") are the orders that CLECs submit to U S WEST and other ILECs for local exchange service. A single LSR can contain multiple orders for service. The Act does not specifically set forth requirements for flow-through of LSRs through operational support systems. Nevertheless, in its April 1998 NPRM on performance measurements, the FCC suggests a number of performance indicators addressing various aspects of LSR flow-through, characterizing them as "Order Status Measurements" and "Order Quality Measurements."<sup>9</sup> U S WEST provides four measurements to address the FCC's suggestions in this area. These measurements are: (1) Electronic Flow-through (PO-2); (2) LSR Rejection Notice Interval (PO-3); (3) LSRs Rejected (PO-4); and Firm Order Confirmation ("FOC") Interval (PO-5). These measures are directly responsive to the indicators suggested by the FCC. U S WEST has implemented these measures for both IMA, the human-to-computer interface, and EDI, the computer-to-computer interface.

Electronic Flow-through (PO-2) for orders that flow through without human intervention is "zero" percent through September 1999, because U S WEST has only very recently implemented this type of flow-through for specific service groupings. IMA Release 4.2, which became available in October, provides the capability for electronic flow-through for specified types of products and orders.

Performance results for LSR Rejection Notice Interval (PO-3) are available for IMA at this time. EDI results will be reported when CLECs begin using that gateway. The results for IMA show that rejection notice intervals are relatively short, ranging from

1 0.0 to 0.5 days over the last 9 months, with most months at or below 0.3 days on  
2 average.

3 LSRs Rejected (PO-4) have been very low, with less than one percent rejected in  
4 the each of the last five months. Prior to that, rejection rates were, on average, in the  
5 three percent range. These percentages are well within reasonable ranges, and are  
6 consistent with a conclusion that U S WEST is processing LSRs in a manner that  
7 provides CLECs with a meaningful opportunity to compete.

8 The Colorado results for the Firm Order Confirmation (FOC) Interval (PO-5) for  
9 the months of January through September 1999 are available only for IMA. EDI results  
10 will be reported when CLEC's begin using EDI. In all but one month, FOCs were  
11 processed in 0.5 days or less, which is a very reasonable timeframe. In May, the turn-  
12 around time was 0.6 days. These results demonstrate that, in recent months,  
13 U S WEST is providing FOCs to CLECs in reasonable timeframes. Given that standard  
14 intervals for providing FOC notifications are typically 24 hours and more, U S WEST is  
15 exceeding FOC notification expectations.

## 16 **B5 Conclusions for Checklist Item 2 – Access to Network Elements**

17 The performance results reported on the previous pages for gateway availability,  
18 access to provisioning and repair centers, billing, and flow-through of CLEC's orders  
19 demonstrate that in each of these areas, U S WEST is providing high quality, non-  
20 discriminatory service that supports vigorous competition. In particular, these results  
21 support findings that:

---

<sup>9</sup> *Ibid.*, Appendix A, pp. A4 and A8.

- 1 • U S WEST is providing nondiscriminatory access to network elements, satisfying
- 2 Checklist Item 2;
- 3 • U S WEST is providing CLECs with access to provisioning and repair centers in
- 4 a timely and nondiscriminatory manner;
- 5 • In satisfying this Checklist item 2, U S WEST has established a human-to-
- 6 computer gateway, known as "IMA," which is successfully processing CLECs'
- 7 orders in a timely and nondiscriminatory manner;
- 8 • As established in Ms. Notarianni's affidavit, U S WEST also has developed a
- 9 computer-to-computer EDI gateway that is available to CLECs for submission of
- 10 LSRs;
- 11 • IMA has prompt response times for pre-order and order transactions that are
- 12 sufficient to give an efficient competitor a reasonable opportunity to compete;
- 13 • From a diagnostic standpoint, U S WEST's processing of LSRs, measured by
- 14 flow-through, order rejections, and firm order confirmations, provides CLECs in
- 15 Colorado the opportunity to compete successfully.

#### 16 **C. Checklist Item 4 – Unbundled Local Loop Transmission**

17 The Act calls for U S WEST to provide "local loop transmission from the central  
18 office to the customer's premises, unbundled from local switching or other services."<sup>10</sup>  
19 In addition to this specific network element, the Act generally calls for providing  
20 "nondiscriminatory access to network elements on an unbundled basis."<sup>11</sup>

---

<sup>10</sup> Section 271(c)(2)(B)(iv).

<sup>11</sup> Section 251(c)(3).

This nondiscrimination standard requires U S WEST to give equal treatment to CLECs that obtain unbundled network elements. As discussed earlier, nondiscrimination as it relates to unbundled network elements does not involve evaluating what U S WEST does for itself or its retail customers, since U S WEST does not provide unbundled network elements to itself or its retail customers. In that regard, the FCC has specifically recognized that the provisioning of unbundled loops has no retail analogue.<sup>12</sup>

U S WEST provides the following 14 performance indicators that directly address local loop transmission, unbundled from local switching or other services:

**Table 3**

**U S WEST Performance Indicators for Checklist Item 4, Unbundled Loops**

	<b><i>Indicator Number</i></b>	<b><i>Checklist Item 4 Performance Indicator</i></b>
1	OP-3	Installation Commitments Met
2	OP-4	Installation Interval
3	OP-5	New Service Installation without Trouble Reports
4	OP-6	Average Delayed Days
5	OP-7A	Coordinated Cutover Interval – Unbundled Loop (without number portability)
6	OP-7B	Coordinated Cutover Interval – Unbundled Loop (associated with LNP)
7	OP-11	Delayed Orders More than 90 Days Past Commitment
8	MR-3	Out of Service Cleared within 24 Hours – Non-Designed Repair Products
9	MR-4	All Troubles Cleared within 48 hours – Non-Designed Repair Products
10	MR-6	Mean Time to Restore
11	MR-7	Repair Repeat Report Rate
12	MR-8	Trouble Rate
13	MR-9	Repair Appointments Met (under development)
14	MR-10	Customer-caused Trouble Reports

<sup>12</sup> FCC BellSouth Louisiana II Order, Paragraph 87.

## C1 Installation of Unbundled Loops

The measure, Installation Commitments Met (OP-3), tracks results for the percentage of time that U S WEST provides an unbundled loop within the timeframe it committed to provide it. This measure, along with other indicators related to installation of loops, is described in detail in Appendix A.

The Colorado results for Installation Commitments Met for unbundled loops January through September 1999 are shown to the right.

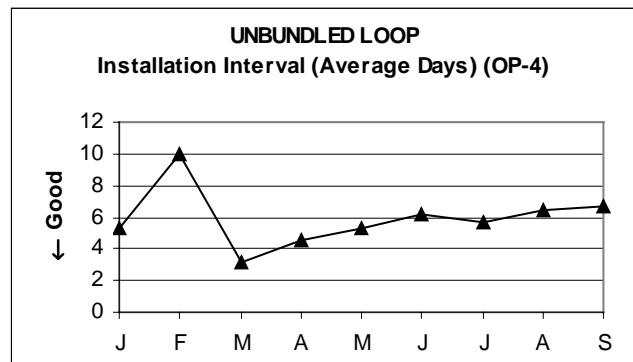
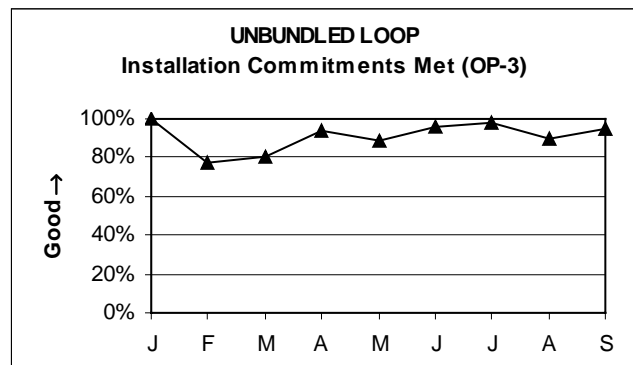
These results demonstrate that U S WEST has been providing

reasonable access to unbundled loops in Colorado. On average, U S WEST met its commitments about 92.6 percent of the time over the last nine months. The results have been particularly strong in the latest six months reported.

Installation Interval for unbundled loops (OP-4) measures the average amount of business days in which U S WEST installs unbundled loops.

The Colorado results for this measure for the period January 1999 through September 1999 are shown to the right.

These results demonstrate that over the last nine months reported, in



1 addition to meeting commitments 92.6 percent of the time as demonstrated above,  
2 U S WEST installed unbundled loops, on average, within about six days of receiving an  
3 order.

4 New Service Installations without Trouble Reports (OP-5) measures the  
5 percentage of unbundled loops U S WEST installs that experience no trouble reports  
6 within 30 days of installation.

7 The results for this measure for  
8 January through September 1999 are  
9 shown to the right.

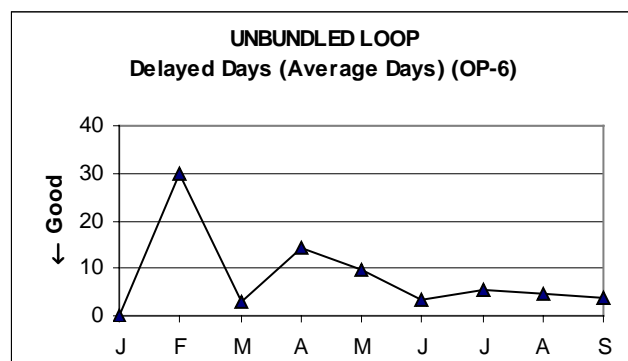
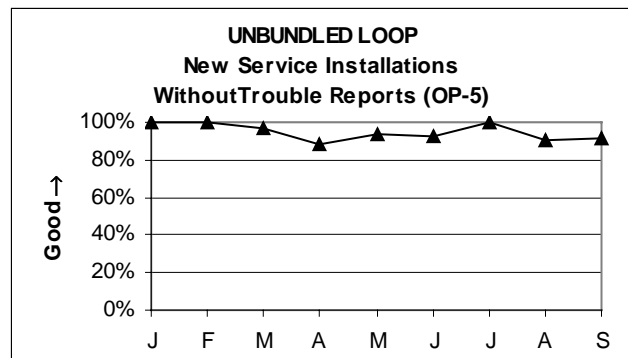
10 These results demonstrate that  
11 U S WEST has been installing  
12 unbundled loops proficiently and with

13 appropriate reliability, as shown by the fact that new services were installed without  
14 trouble reports within thirty days, on average, better than 92 percent of the time.

15 "Delayed Days" (OP-6) is a measure that U S WEST applies only to orders that  
16 have been delayed. It measures the average number of days these orders have been  
17 delayed.

18 The Colorado results for Delayed  
19 Days for January through September  
20 1999 are displayed in the chart to the  
21 right.

22 These results should be



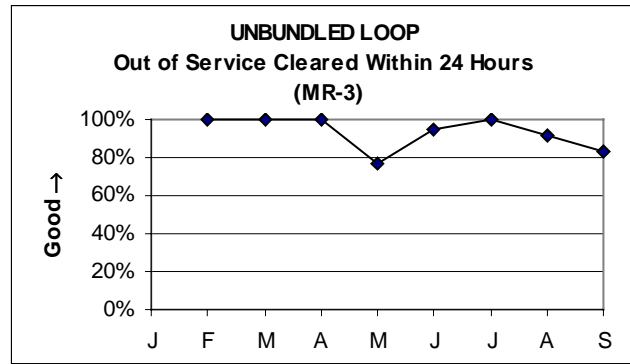


1 evaluated in the context of the results showing that U S WEST met about 92.6 percent  
2 of its commitments in a timely manner, meaning that the number of delayed orders has  
3 been relatively small. For orders that have been delayed, in five of the last nine months,  
4 the average number of delayed days was less than five.

5 Coordinated Cutover Interval for Unbundled Loop (OP-7) measures the average  
6 time to complete coordinated cutovers of unbundled loop cutovers, both without local  
7 number portability (LNP) and with it. The interval begins with a technician's lift of the  
8 loop and ends upon U S WEST's completion of tests associated with cutovers. The out-  
9 of-service benchmark performance measurement is under ten minutes. Sampling has  
10 shown that U S WEST routinely meets this objective; however, due to a change in how  
11 the measurement is defined, results for the OP-7A and 7B measurement are not  
12 available. The data collected do not reflect the time for an individual unbundled loop  
13 cutover, as defined in Appendix A, and, therefore, that result is not reportable. Changes  
14 to the data gathering process are underway to permit this reporting.

## C2 Repair of Unbundled Loops

To permit evaluation of the promptness of repair for unbundled loops, U S WEST developed the indicator, "Out of Service Trouble Cleared within 24 hours." The Colorado results for the months of January

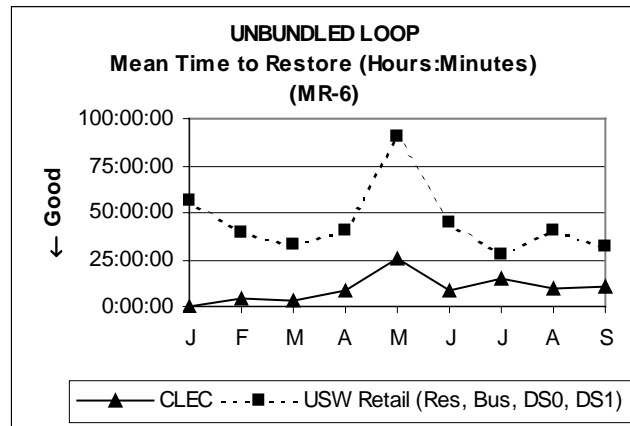


through September 1999 are shown in the chart. These results relate only to out-of-service trouble reports, which are defined as the inability to initiate or receive calls. This measure is described in detail in Appendix A.

These results demonstrate that U S WEST has been responsive in resolving trouble reports on unbundled loops provided to CLECs by resolving them within 24 hours more than 91 percent of the time for all but two of the last nine months. Further, in comparison to similar services, results for Out of Service Trouble Cleared within 24 Hours for unbundled loops have consistently been better than U S WEST's retail residence and business services, which ranged from 18.7 to 86.1 percent. In terms of how this compares with repair of U S WEST's retail services that use loops, we can look at the overall average time it takes to repair retail POTS and designed services, via the Mean Time to Restore performance indicator.

"Mean Time to Restore for unbundled loops and non-designed services" differs from "Out of Service Cleared within 24 Hours" in that this measure provides the average number of hours required to restore a service.

1 The Colorado results for Mean Time to  
2 Restore for unbundled loops and non-  
3 designed services for the months of  
4 January through September 1999  
5 (shown in the chart) are generally less  
6 than about ten hours in all but three of  
7 the recent nine months. In comparison,



8 I used detailed data from Exhibit MGW-2 to calculate a combined POTS/designed  
9 services repair result for this indicator. As illustrated in the chart, U S WEST's retail  
10 services are consistently repaired in greater than ten hours, on average.

11 "Repair Repeat Report Rate" (MR-7) measures the frequency of repairs that are  
12 repeated on unbundled loops. The Colorado results for this measurement for January  
13 through September 1999 demonstrate that, in recent months, U S WEST has had  
14 relatively few repeated trouble reports. In six of the last nine months, the repeat reports  
15 were four or less. On an overall nine-month basis, of the 194 repair reports, there were  
16 only 40 that were repeated reports, for an overall average of 20.6 percent.

### 17 **C3 Conclusions for Checklist Item 4 – Access to Unbundled Loops**

18 The performance results for installation and repair of unbundled loops, support  
19 findings that:

- 20 • U S WEST is providing CLECs in Colorado with nondiscriminatory access to  
21 local loop transmission on an unbundled basis;

- U S WEST's actual performance in providing unbundled loops is sufficient to permit an efficient competitor a meaningful opportunity to compete. Specifically, U S WEST's installation commitments met and intervals are within reasonable ranges and repairs are completed in a timely manner, with more than 92.6 percent of them completed within 24 hours.

**D. Checklist Items 5 and 6 – Unbundled Transport and Switching**

The Act calls for U S WEST to provide “local transport from the trunk side of a wireline local exchange carrier switch unbundled from switching or other services”<sup>13</sup> and “local switching unbundled from transport, local loop transmission, or other services.”<sup>14</sup> In addition to these specific network elements, the Act generally calls for providing “nondiscriminatory access to network elements on an unbundled basis.”<sup>15</sup> As discussed previously, this nondiscrimination standard for purposes of performance measurements refers to providing equal quality as between and among CLECs to whom U S WEST provides access to network elements on an unbundled basis.

U S WEST provides the following 10 performance indicators that directly address unbundled switching and transport:

---

<sup>13</sup> Section 271(c)(2)(B)(v).

<sup>14</sup> Section 271(c)(2)(B)(vi).

<sup>15</sup> Section 251(c)(3).

**Table 4****U S WEST Performance Indicators for Checklist Items 5 and 6****Unbundled Transport and Switching**

	<b><i>Indicator Number</i></b>	<b><i>Checklist Items 5 and 6 Performance Indicator</i></b>
1	OP-3	Installation Commitments Met
2	OP-4	Installation Interval
3	OP-5	New Service Installation without Trouble Reports
4	OP-6	Average Delayed Days
5	OP-11	Delayed Orders Completed More than 90 days Past Commitment
6	MR-5	All Troubles Cleared within 4 Hours – Designed Repair Products
7	MR-6	Mean Time to Restore
8	MR-7	Repair Repeat Report Rate
9	MR-8	Trouble Rate
10	MR-10	Customer-caused Trouble Reports

U S WEST has recently begun seeing activity in Unbundled Transport. However, volumes are too low to permit conclusions to be drawn. There has been limited demand for unbundled transport and no demand for shared transport or unbundled switching in Colorado, or anywhere else in U S WEST's region. The only one of these items that has generated any demand is unbundled dedicated interoffice transport (UDIT), which as of September 30, 1999, had only resulted in 12 units ordered in Colorado. As a result of this limited demand, U S WEST conducted a "Bench Test" which demonstrates that it can provision, repair and bill for dedicated and shared transport as well as unbundled switching upon request.

Because U S WEST has not had any requests from CLECs in Colorado for unbundled switching, there are no results to report at this time for this element. However, both unbundled switching and transport are available and U S WEST has the

processes and indicators in place to ensure that the market will remain open once CLECs begin ordering these services.

**E. Checklist Item 7 – Access to 911/E911, Directory Assistance, and Operator Services**

The Act calls for U S WEST to provide “nondiscriminatory access to (I) 911 and E911 services; (II) directory assistance services; and (III) operator call completion services.”<sup>16</sup> U S WEST provides six performance indicator that directly address Checklist Item 7. These indicators are:

- ALI Database Updates Within 24 Hours (percent) [ES-1];
- 911/E911 ES Trunk Installation Intervals (average) [ES-2];
- Speed of Answer for Directory Assistance and Operator Services (average) [DA-1 and OS-1]; and
- Calls Answered to Directory Assistance and Operator Services within 10 seconds (percent) [DA-2 and OS-2]. These indicators are described in detail in Appendix A.

The relevant measures for 911/E911 are ES Trunk Installation and ALI Database Updates Completed within 24 hours. The first indicator addresses the average number of business days required to install 911 trunks, measured from the date of order, until installation. The second measure addresses the percentage of ALI database updates that U S WEST completes within 24 hours.

As testified in the affidavit of Ms. Bumgarner, results of the 911/E911 Trunk Installation Interval performance measure ES-2 for the months of January to September

1 1999 show only one month, February with reportable activity. In February, the average  
2 interval was 101 business days. U S WEST completed orders for 911 trunks in all but  
3 two of the nine months included in the reporting periods. In six of the seven months it  
4 received orders for 911 trunks, U S WEST met 100 percent of its commitments. With  
5 respect to the second indicator, U S WEST completed 100 percent of ALI database  
6 updates within 24 hours.

7 Results relating to access to operator services and directory assistance show  
8 that in the last seven months reported, U S WEST answered 91 percent or more of calls  
9 within ten seconds. Average speed of answer was around eight seconds for directory  
10 assistance and operator services in that same period. For U S WEST to provide results  
11 specific to CLECs, a CLEC must make special trunking and other arrangements. No  
12 CLEC in Colorado has chosen to do so, which means U S WEST does not have CLEC-  
13 specific results.

14 Actual results for U S WEST's performance relating to this checklist item show  
15 that:

- 16 • U S WEST is providing CLECs with access to 911/E911, DA, and OS in  
17 Colorado; and
- 18 • The quality of access that U S WEST is providing is high and is sufficient to give  
19 an efficient competitor a meaningful opportunity to compete.

---

<sup>16</sup> Section 271(c)(2)(B)(vii).

**F. Checklist Item 11 – Number Portability**

Pursuant to Section 271(c) (2) (B) (XI), U S WEST and other ILECs are required to provide number portability on an interim basis using interim methods. Specifically, the Act requires: “until the date by which the Commission issues regulations pursuant to section 251 to require number portability,” ILECs must provide “interim telecommunications number portability through remote call forwarding, direct inward dialing trunks or other comparable arrangements, with as little impairment of functioning, quality, reliability, and convenience as possible. After that date, full compliance with such regulations.”<sup>17</sup>

U S WEST provides six performance indicators for this checklist item. U S WEST’s indicators for number portability are as follows:

**Table 5****U S WEST Performance Indicators, Checklist Item 11****Number Portability**

	<b><i>Indicator Number</i></b>	<b><i>Checklist Item 11 Performance Indicator</i></b>
1	OP-3	Installation Commitments Met – INP
2	OP-4	Installation Interval – INP
3	OP-5	New Service Installation without Trouble Reports – INP
4	OP-8B	Coordinated Local Number Portability (LNP) Timeliness
5	OP-8C	All LNP Triggers Activated on Time (under development)
6	OP-11	Delayed Orders More than 90 Days Past Commitment

---

<sup>17</sup> Section 271(c)(2)(B)(xi).



1        These indicators relating to number portability are described in detail in  
2    Appendix A. With the advent of local number portability ("LNP"), volumes of interim  
3    number portability orders in Colorado have dropped to zero in July through September  
4    1999. For months preceding that, U S WEST always met commitments more than 90  
5    percent of the time, and installation intervals for INP were always less than two days.

6        The foregoing results for installation and repair of number portability support  
7    findings by the Commission that:

- 8        • U S WEST is providing Number Portability in a manner that satisfies Checklist  
9        Item 11; and
- 10       • U S WEST's installation and repair performance indicators for INP/LNP provide  
11       efficient CLECs a meaningful opportunity to compete.

#### 12    **G. Checklist Item 14 – Resale Services**

13       In the area of resale services, the Act calls for U S WEST (1) to ensure that  
14    "telecommunications services are available for resale," and (2) "not to impose  
15    unreasonable or discriminatory conditions or limitations on, the resale of such  
16    telecommunications service." With respect to performance measures, these  
17    requirements establish a need for measures that allow for evaluations of whether  
18    service quality is non-discriminatory. In this sense, the measures are different from  
19    those associated with some other checklist items that focus on nondiscriminatory terms  
20    and conditions, not nondiscriminatory service quality.

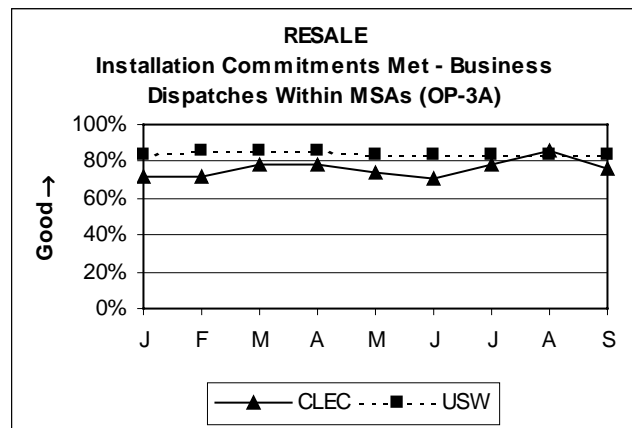
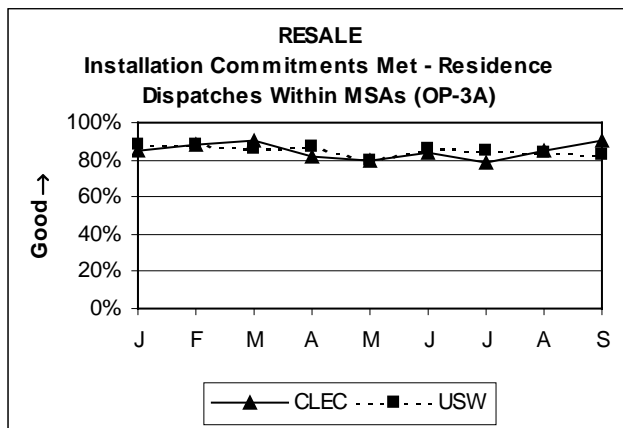
21       U S WEST provides 13 performance indicators that directly address resale  
22    services. These indicators are as follows:

**Table 6**

**U S WEST Performance Indicators for Checklist Item 14 – Resale**

	<b>Indicator Number</b>	<b>Checklist Item 14 Performance Indicator</b>
1	OP-3	Installation Commitments Met
2	OP-4	Installation Interval
3	OP-5	New Service Installation without Trouble Reports
4	OP-6	Average Delayed Days
5	OP-11	Delayed Orders Completed More than 90 Days Past Commitment
6	MR-3	Out of Service Cleared within 24 hours - Non-Designed Repair Products
7	MR-4	All Troubles Cleared within 48 hours - Non-Designed Repair Products
8	MR-5	All Troubles Cleared within 4 hours – Designed Repair Products
9	MR-6	Mean Time to Restore
10	MR-7	Repair Repeat Report Rate
11	MR-8	Trouble Rate
12	MR-9	Repair Appointments Met (under development)
13	MR-10	Customer-Caused Trouble Reports

**G1 Installation of Resale Services**

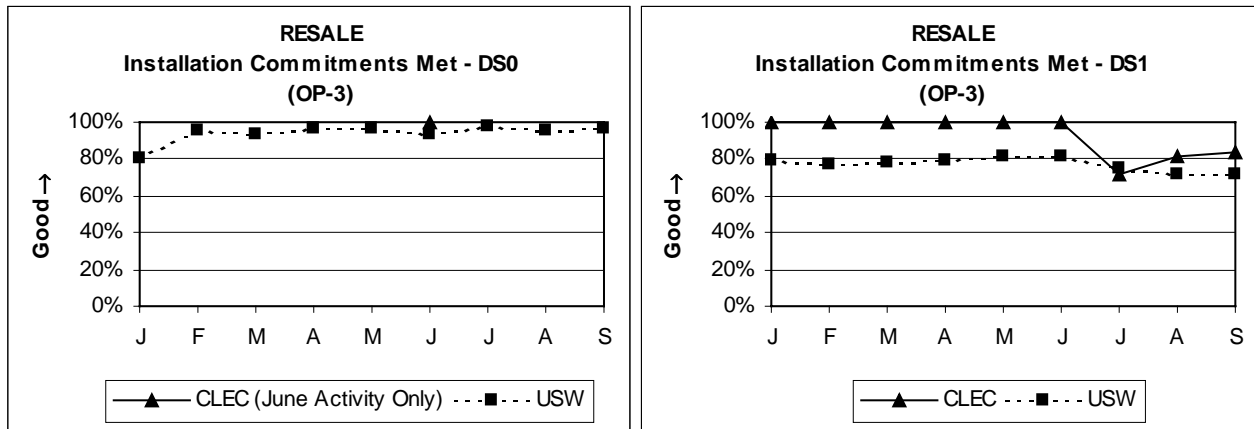


U S WEST reports results for installation of resale services by providing performance data relating to resale services for CLECs and data relating to retail services provided to U S WEST's end user customers. These side-by-side

1 presentations facilitate a ready comparison of these services. The results for resale are  
2 shown as "CLEC" and the results for U S WEST's end user customers are shown as  
3 "USW."

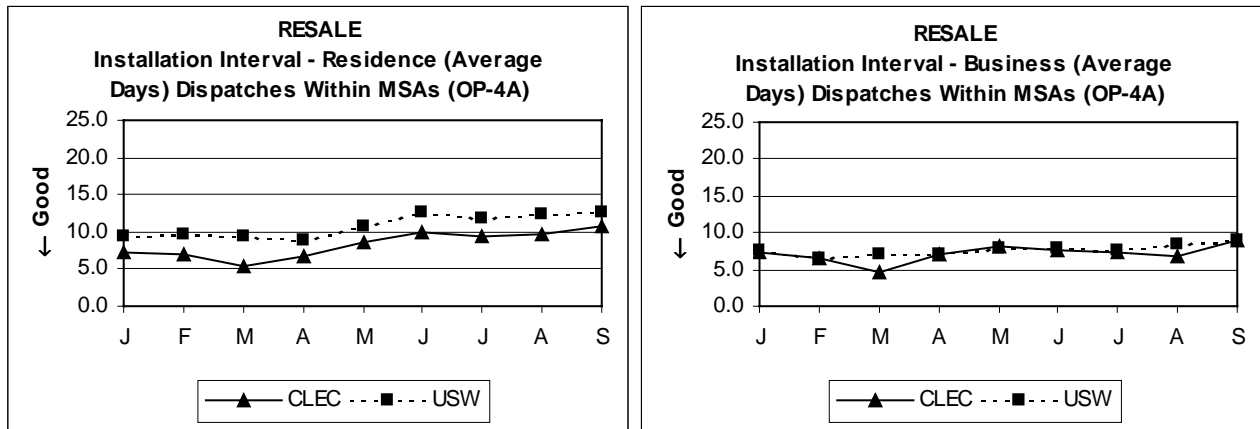
4 The results, shown in these charts for Installation Commitments Met,  
5 demonstrate that for non-designed services, U S WEST consistently meets due dates  
6 more than 71 percent of the time. In the nine months reported, results for commitments  
7 met for non-designed services have satisfied this checklist item and generally have not  
8 reflected significant differences adverse to CLECs. The only exception is Business  
9 service. In February and June, there were positive statistical scores for this service.  
10 However, looking at the Installation Intervals (OP-4) for those same two months, while  
11 the commitments met resulted in statistically significant differences between CLECs and  
12 U S WEST, CLEC intervals nevertheless were slightly better than U S WEST's retail  
13 intervals. CLEC intervals in February averaged 6.5 days compared to 6.6 days for  
14 U S WEST retail. Likewise, in June, the average was 7.5 days for CLECs compared to  
15 7.9 days for U S WEST. These results demonstrate that the service levels were  
16 substantially the same despite the differences in commitments met.

1           The Colorado results for Installation Commitments Met (OP-3) for designed  
2   services for January 1999 through September 1999 are:



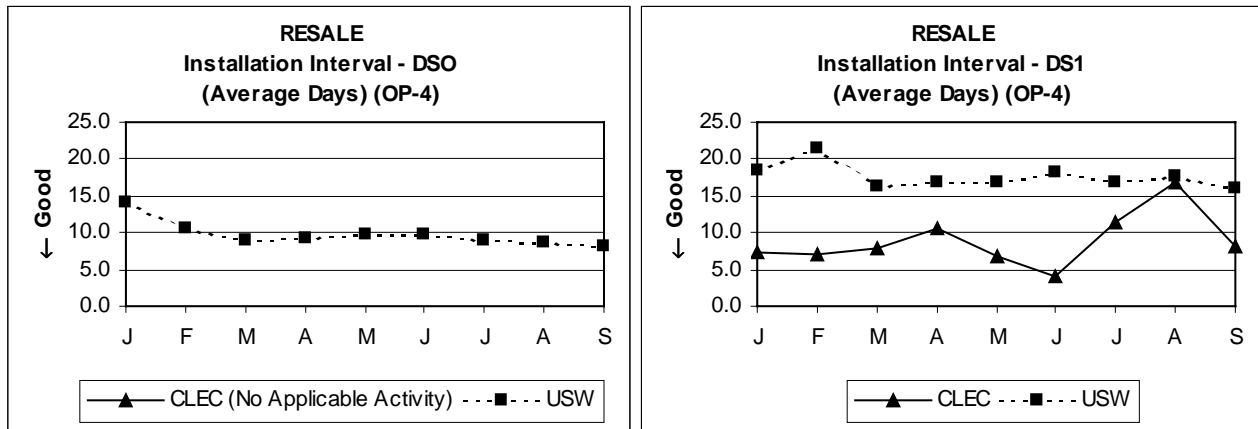
3           These results demonstrate that U S WEST generally has met its resale  
4   commitments to CLECs in a nondiscriminatory manner. In general, the percentage of  
5   commitments met has been higher for CLECs than for U S WEST retail the majority of  
6   the time. The only exceptions are the results for commitments met reported for resold  
7   Primary ISDN in February 1999, the results for DS1 in July 1999, and the results for  
8   resold DS3 service for August 1999. In these months for these services, the  
9   commitments met were higher for U S WEST than for CLECs. However, because these  
10   results involve only one month for each service and low volumes for each service, the  
11   results are not statistically or materially significant.

- 1           The Colorado results for Installation Interval (OP-4) for non-designed services for  
2   January 1999 through September 1999 are:



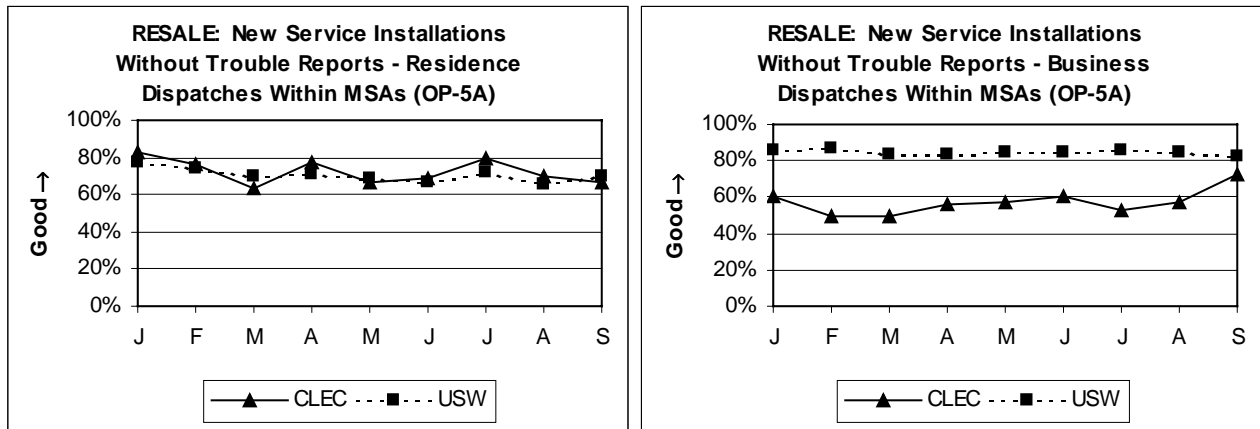
- 3
- 4           These results generally demonstrate that installation intervals for non-designed  
5   resale services were shorter for CLECs than for U S WEST in two or more of the last  
6   three quarters reported. The lone exception is Centrex. As shown in Exhibit MGW-2,  
7   U S WEST has provided reasonable and nondiscriminatory installation intervals to  
8   CLECs. With respect to Centrex, it is important to note that while the intervals  
9   exceeded U S WEST intervals in the majority of months, the percentage of  
10   commitments met is higher for CLECs reselling Centrex than for U S WEST retail  
11   Centrex. This supports a non-discriminatory view.

1           The Colorado results for Installation Interval (OP-4) for designed services for  
2   January 1999 through September 1999 are:

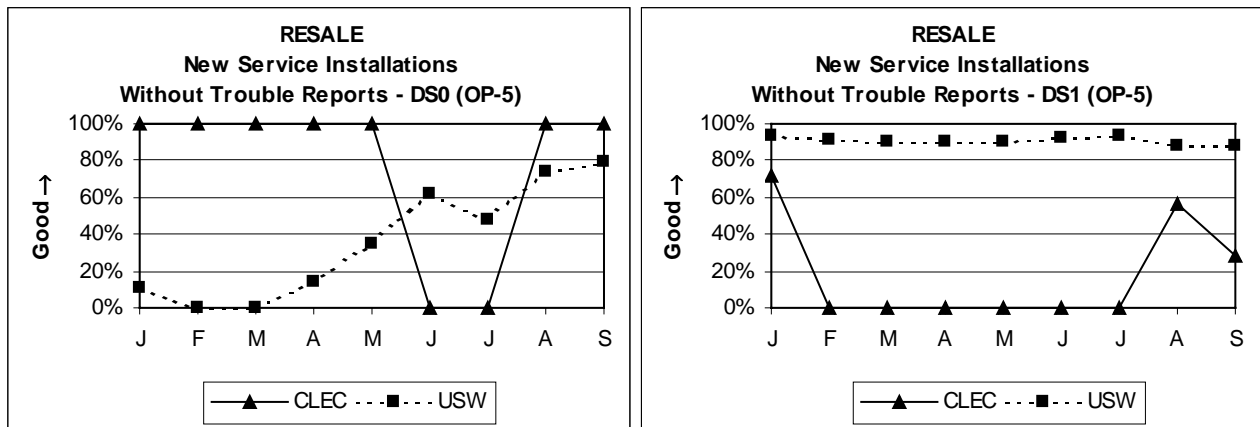


3  
4           These performance results demonstrate that for designed resale services,  
5   U S WEST has provided reasonable and nondiscriminatory installation intervals to  
6   CLECs throughout the nine-month period reported. There are no significant differences  
7   adverse to CLECs in any of the nine months. Of the designed services, only one, Basic  
8   Designed ISDN, had a statistically significant difference in one month, August 1999.  
9   However, that result was based on a single occurrence and, therefore, cannot be  
10   deemed statistically or materially significant.

- 1 The Colorado results for New Service Installation without Trouble Reports (OP-5)  
2 for non-designed services January through September 1999 are:



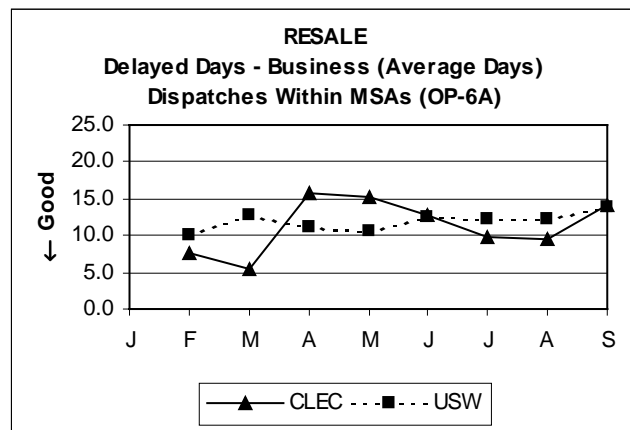
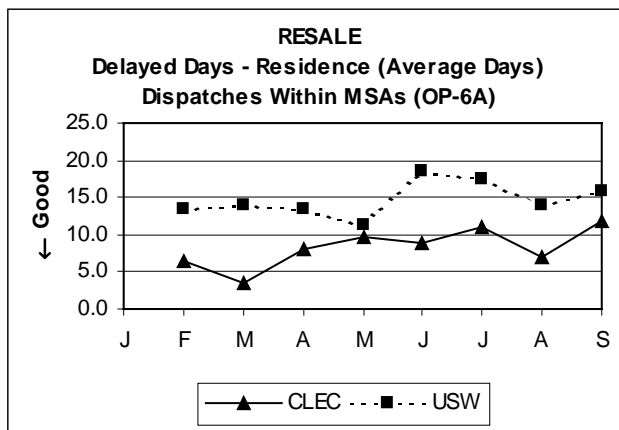
- 3  
4 The Colorado results for New Service Installation without Trouble Reports (OP-5)  
5 for designed services for January 1999 through September 1999 are:



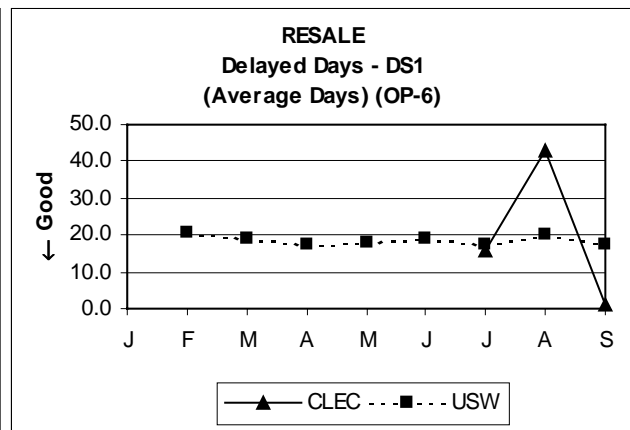
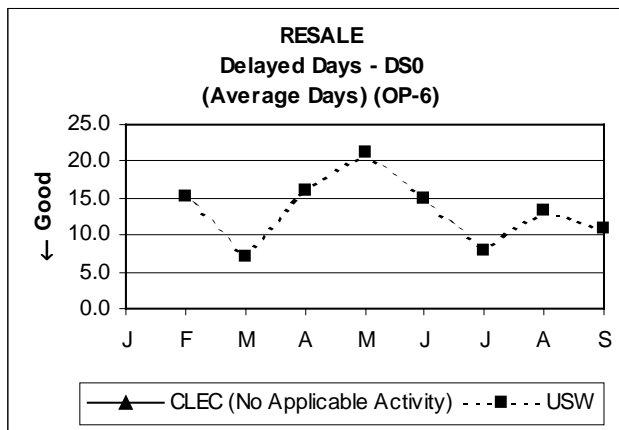
- 6  
7 The results for residence and Centrex show that in six of nine months, the  
8 percentage of installation accuracy for CLECs was higher than it was for U S WEST  
9 retail services. U S WEST consistently performed service installations for CLECs'  
10 customers with an accuracy level that is reasonable and nondiscriminatory in

comparison to installation accuracy levels associated with these retail services installations. Results for other services, including Business and PBX, were not as positive. Research is underway to determine the reasons for these high report rates.

Colorado results for Delayed Days (OP-6) for non-designed services for January through September 1999 are:



Colorado results for Delayed Days (OP-6) for designed services for January through September 1999 are:

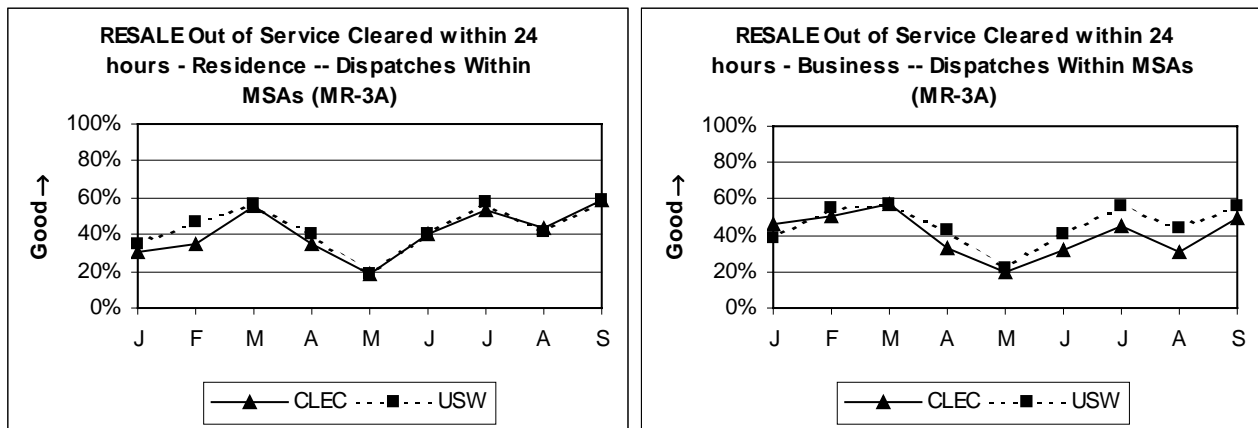




These results demonstrate that CLECs are receiving nondiscriminatory treatment in terms of average delayed days. There are no significant differences in results for average delayed days. Differences in results for PBX and DS1 were statistically significant in one month each; however, in both cases, volumes were so low that the results cannot be viewed as statistically or materially significant.

## G2 Repair of Resale Services

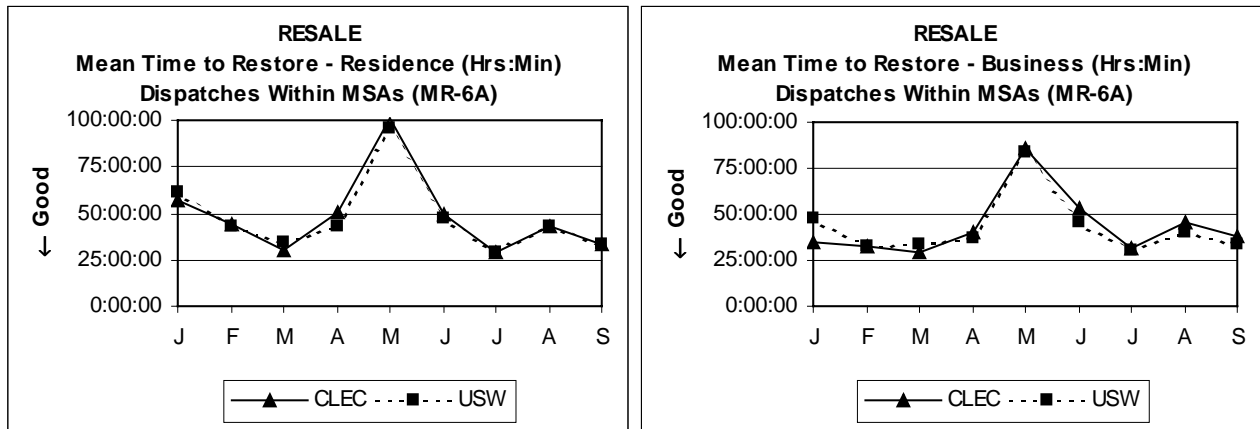
Colorado Resale results for Out of Service Cleared within 24 Hours for January 1999 through September 1999 are:



These results demonstrate that, from the perspective of clearing out-of-service troubles within the standard estimated time of twenty-four hours, U S WEST is achieving better results for CLECs the majority of the time for all services than it is achieving for its end user customers. In the nine months reported, there were random occurrences of Business, Centrex, and PBX experiencing significant differences in CLEC versus U S WEST performance – each in isolated months – and the situation was not repeated in following months.

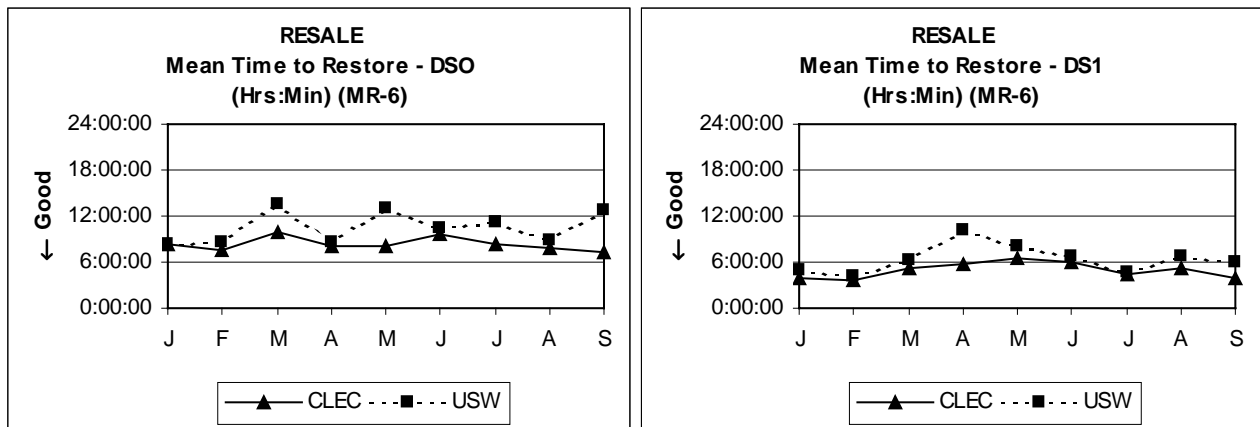
1 Colorado results for All Troubles Cleared within 48 hours (MR-4) for January  
2 through September 1999 also demonstrate that, from the perspective of clearing all  
3 troubles within the standard estimated time of forty-eight hours, U S WEST is achieving  
4 better results for CLECs than it is achieving for its end user customers the majority of  
5 the time for all services. In one month, for Residence, Business and PBX, there was a  
6 significant difference but, in each case, the situation was not repeated in subsequent  
7 months. For Centrex dispatched within the MSA, there were two consecutive months  
8 with significant differences – June and July 1999. However, in August and September  
9 1999, there were no longer significant differences. Centrex non-dispatched troubles  
10 also had two intermittent months with significant differences but seven months where  
11 the differences were not significant. As displayed in Exhibit MGW-2, the results for All  
12 Troubles Cleared within 4 hours for January to September 1999 for designed resold  
13 services demonstrate that U S WEST is providing CLECs with nondiscriminatory repair.  
14 There were no instances of any statistically significant differences in the entire nine  
15 months reported. In fact, in most months, CLEC results exceeded U S WEST results  
16 for all services.

1 The Colorado results for Mean Time to Restore (MR-6) for non-designed  
2 services for January 1999 through September 1999 are:



3  
4 The results, shown in “hours: minutes” format, for CLEC Residence ranges from  
5 28:48 to 101:23, with the majority of months below 50 hours. Business CLEC results  
6 ranged from 29:07 to 86:17, with the majority of months below 46 hours. These results  
7 compare favorably with Mean Time to Restore for U S WEST retail.

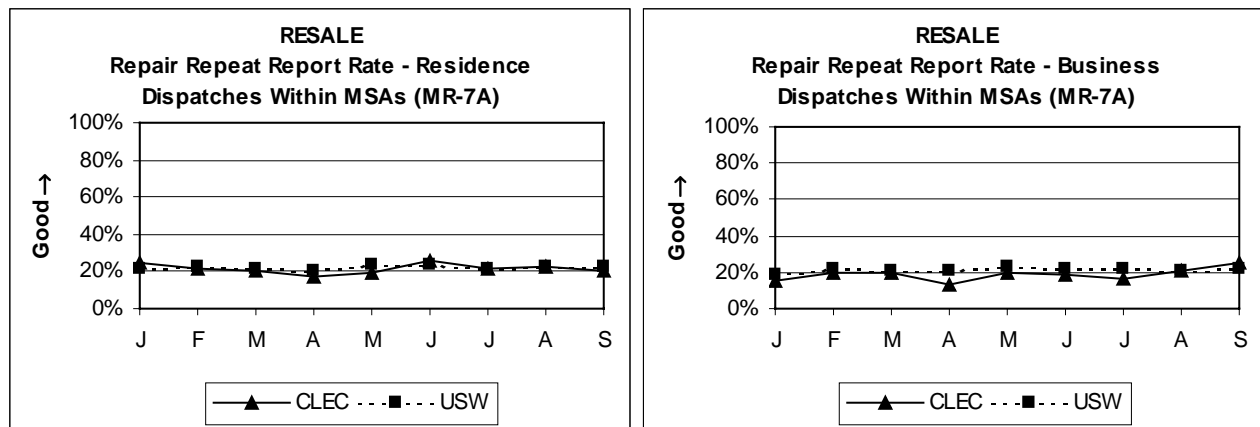
8 The Colorado results for Mean Time to Restore (MR-6) for designed services for  
9 January 1999 through September 1999 are:



For CLEC Designed Services, DS0 ranged from 7:11 to 10:02 and DS1 from 3:35 to 6:39. Both of these were usually higher than their retail counterparts.

These results demonstrate that from the overall repair perspective of average time to resolve all trouble reports, U S WEST is providing CLECs with nondiscriminatory repair. Only Centrex service had a statistically significant difference in results, and that difference occurred in only one of all the months reported. In fact, in the majority of months for all services, the mean time to restore for CLECs was lower than the mean time to restore for U S WEST, indicating that CLECs are receiving equal or better trouble restoration.

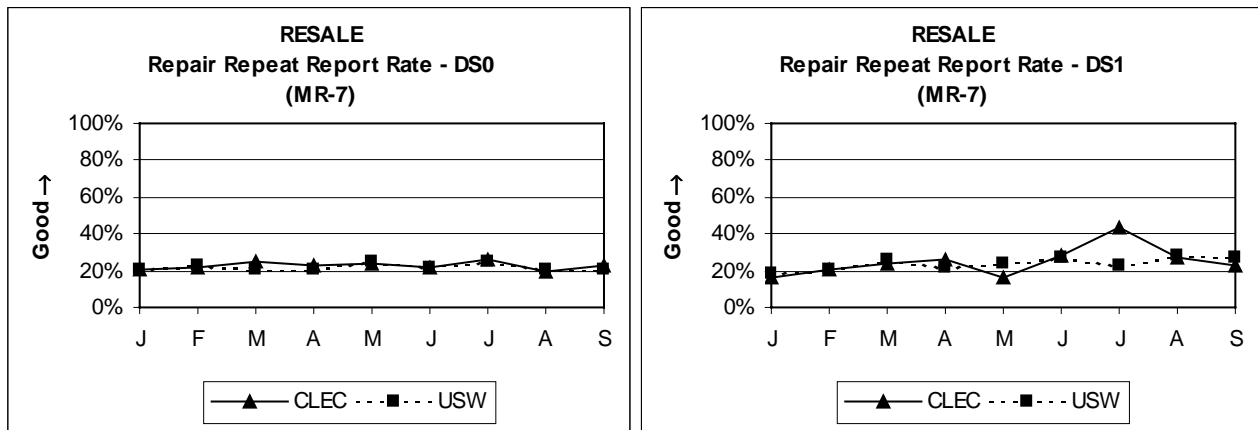
The Colorado results for Repair Repeat Report Rate (MR-7) for non-designed services for January through September 1999 are:



The results for CLEC Residence ranged from 16.9 percent to 26.1 percent; the results for U S WEST retail ranged from 20.6 to 23.3 percent. The CLEC Business service repair rate ranged from 12.9 to 25.7 percent; the results for U S WEST retail

1 ranged from of 19.0 to 23.3 percent. As can be seen from the graph, repair repeat  
2 report rates were in a similar range for both services.

3 The Colorado results for Repair Repeat Report Rate (MR-7) for designed  
4 services for January through September 1999 are:



5  
6 The Repair Repeat Report Rates for CLEC designed services ranged from 19.5  
7 to 25.7 percent for DSO, compared to a range of 20.2 to 24.8 percent for U S WEST's  
8 designed services. Again, the range for CLECs and U S WEST were similar. For DS1  
9 service, there was one month – July – where there was a statistically significant  
10 difference, with a 43.5 percent rate for CLEC designed services. This was not repeated  
11 in the subsequent month. All other months were in the 15.9 to 28.1 percent range. In  
12 six of the nine months, the results for CLECs were equal to or better than the results for  
13 U S WEST's end user customers.

14 These results demonstrate that U S WEST is repairing trouble reports in a  
15 nondiscriminatory manner. Only three services, Centrex, DS1, and DS3, had a

1 statistically significant difference in a single month, and that also was not repeated in  
2 the months following.

### 3 **G3 Conclusions for Checklist Item 14 – Resale Services**

4 The performance results for Checklist Item 14, Resale Services, support the  
5 following conclusions:

- 6 • U S WEST has opened its local exchange markets in Colorado to competition by  
7 providing telecommunications services for resale to CLECs in a manner that is  
8 nondiscriminatory, as compared to U S WEST's provisioning of its retail services;
- 9 • U S WEST is providing CLECs with reasonable and timely installation and repair of  
10 residence, business, and designed (or special) resale services; and
- 11 • The service performance indicators U S WEST is reporting in Colorado are sufficient  
12 to ensure that the local market for resale services will remain open.

## 13 **III. SERVICE PERFORMANCE REPORTING**

### 14 **A. U S WEST's Service Performance Indicator Reports**

#### 15 **A1 Reporting Format**

16 As shown in Exhibits MGW-2 and MGW-3, U S WEST reports the "Quantity Meeting  
17 Criteria," the "Sample Size," and the "Indicator Result," along with appropriate statistical  
18 parameters, described below. The statistical parameters include standard deviations

1 and statistical scores.<sup>18</sup> The statistical score provides a quick way to determine whether  
2 an observed difference in performance is statistically significant. A positive statistical  
3 score indicates that the difference in results being compared is statistically significant at  
4 the 99 percent confidence level.

## 5 **A2 Reporting Frequency**

6 U S WEST generates results for performance indicators monthly and reports  
7 them as requested or required in contracts. U S WEST's proposed Colorado SGAT will  
8 offer monthly reporting.

## 9 **B. Statistical Tests Used for Determining Statistical Significance.**

### 10 **B1 The Role of Statistical Analyses**

11 Comparisons of service performance may require statistical analyses, because  
12 all behaviors of systems have inherent degrees of variability. Statistical tests may be  
13 needed to determine whether any differences observed in comparisons of performance  
14 come from random variations in service or from some other source. While an average  
15 may be calculated from a number of observations, the individual events contributing to  
16 the overall calculation naturally fall on either "side" of the average, above or below it.  
17 The degree to which the events vary from each other, overall, is measured by an aptly  
18 named statistic called "variance." In this context, the purpose of statistical tests is to  
19 determine whether two averages come from two different sets of performance or

---

<sup>18</sup> The statistical score is calculated by subtracting the Z-score (or permutation test result) for the actual results from the critical value (based on 99 percent confidence level) and dividing the result by the critical value (as a method of scaling the score to the critical value).

1 whether they simply lie within the usual ranges of variance of the events being  
2 measured.

### 3 **B2 Determining Statistical Significance**

4 The specific statistical methods used in Exhibits MGW-2 and MGW-3 to evaluate  
5 differences in reported results are the modified Z-test,<sup>19</sup> for sample sizes above 600,  
6 and the permutation test<sup>20</sup> for sample sizes less than 600. A difference in results is  
7 shown by the statistical score in the exhibits to be statistically significant if the  
8 appropriate one-tailed test indicates, with 99 percent confidence that the performance  
9 indicator results being compared appear to be from different populations of  
10 performance. (In other words, that service being provided to CLECs appears to be  
11 inferior to that represented by the comparable results such as, results representing  
12 service provided to CLECs in aggregate or to U S WEST retail).

## 13 **IV. CONCLUSIONS**

14 U S WEST has opened its local exchange markets in Colorado to competition, as  
15 demonstrated by the tens of thousands of service performance data U S WEST has  
16 provided. These data points represent literally millions of work activities over the period  
17 reported.

---

<sup>19</sup> As described in rules recently published by the Colorado Commission, **Decision No. C99-1116, Mailed Date October 14, 1999; Docket No. 97R-153T; Rule (4CRR) 723-43-7 "Statistical Analysis Requirements and Interpretation," pages 70-72).**

<sup>20</sup> The permutation test is a "non-parametric" statistical test used for evaluating relatively small sample sizes. It consists of making random pairings of the actual raw data to determine whether the observed differences are statistically significant. The result is a statistical score equivalent to that reported from the modified Z test. A positive statistical score represents a statistically significant difference.



1 Further, U S WEST's implementation of detailed performance indicators and its  
2 reports of performance results based on those indicators demonstrates that there is an  
3 appropriate mechanism in place to ensure that the local exchange market in Colorado  
4 remains open to competition.

5 Finally, U S WEST's proposed SGAT Terms will ensure that the performance  
6 measurements reported herein are available to CLECs who desire to have them  
7 reported under legally binding terms and conditions. The SGAT will include provisions  
8 for self-executing service improvement to ensure that, if problems arise, U S WEST will  
9 take immediate action to allow CLECs to continue to receive nondiscriminatory service  
10 and to continue to have a meaningful opportunity to compete in Colorado's local  
11 exchange market.

**BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF COLORADO**

**DOCKET NO. 97I-198T**

---

IN THE MATTER OF THE INVESTIGATION INTO U S WEST COMMUNICATIONS,  
INC.'S COMPLIANCE WITH § 271(C) OF THE TELECOMMUNICATIONS ACT OF 1996

---

**APPENDICES TO THE AFFIDAVIT OF**

**MICHAEL G. WILLIAMS**

**U S WEST COMMUNICATIONS, INC.**

**NOVEMBER 30, 1999**

## INDEX OF APPENDICES

<u>DESCRIPTION</u>	<u>APPENDIX</u>
U S WEST Arizona Master Test Plan Performance Measures Version 4.0.....	MGW-APP-A
Comparison of U S WEST Performance Indicators with the FCC NPRM.....	MGW-APP-B

**BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF COLORADO**

**DOCKET NO. 97I-198T**

---

**IN THE MATTER OF THE INVESTIGATION INTO U S WEST COMMUNICATIONS,  
INC.'S COMPLIANCE WITH § 271(C) OF THE TELECOMMUNICATIONS ACT OF 1996**

---

**EXHIBITS OF**

**MICHAEL G. WILLIAMS**

**U S WEST COMMUNICATIONS, INC.**

**NOVEMBER 30, 1999**

**NOTICE OF CONFIDENTIALITY: THE FOLLOWING EXHIBITS ARE FILED UNDER  
SEAL.**

## INDEX OF EXHIBITS

### DESCRIPTION

### EXHIBIT

U S WEST's Graphical Presentation of Service Performance Results .....	MGW-1
U S WEST's Service Performance Results, Combined CLEC and U S WEST .....	MGW-2
U S WEST's Service Performance Results, CLEC-Specific .....	MGW-3