Docket No. UT-003013, Part D
Exhibit RJH-12
March 7, 2002

EXHIBIT RJB-1T

BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

In the Matter of the Continued Costing and Pricing of Unbundled Network Elements, Transport, Termination, and Resale	**Docket No. UT – 003013** ***Part B***

REBUTTAL TESTIMONY

OF

DICK BUCKLEY

ON BEHALF OF

QWEST CORPORATION
(formerly known as U S WEST)

FEBRUARY 7, 2001

EXECUTIVE SUMMARY

My name is Dick Buckley, and in my testimony I will respond to the testimony of Thomas Spinks, Richard Cabe, Thomas H. Weiss and John C. Klick. I will discuss Mr. Spinks' claims about the Staff's ability to analyze the Qwest loop model (LoopMod). I will also discuss Mr. Spinks' and Mr. Klick's contention that the Commission has already ruled on the cost of the outside plant facility used to provide DS1 services. I will address Mr. Weiss' statement that Qwest should not use metallic facilities in its feeder plant and his adjustments to the Qwest design weightings. In addition, I will respond to Mr. Cabe's proposal that purchasers of Unbundled Dark Fiber should not pay a full rate for fiber facilities and their supporting structure due to the take-back restrictions.

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IDENTIFICATION OF WITNESS

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Dick Buckley. My business address is 1801 California Street, Room 2040, Denver, Colorado 80202.

Q. PLEASE IDENTIFY YOUR EMPLOYER AND EXPLAIN YOUR POSITION AND RESPONSIBILITIES.

A. I am employed by Qwest Corporation (Qwest) as a Manager in the Marketing Services Economic Analysis group. In this position, I am responsible for providing support for local loop modeling, and preparing testimony and testifying about Qwest's cost studies in a variety of regulatory proceedings.

Q. WHAT IS YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL EXPERIENCE?

A. I have a degree in Business Administration with an emphasis in Finance and Economics from the University of Northern Colorado.

I have more than 20 years experience in service costing in the telecommunications industry. I began my career with Mountain Bell Telephone Company, now Qwest, in 1980. I have been

involved in costing and pricing for customer premise equipment, the development of non-recurring costs and charges, and the development of local loop models. In 1997 I assumed my present position, where I provide regulatory support and testimony with regard to Qwest's local loop investment modeling.

Q. HAVE YOU PREVIOUSLY SUBMITTED TESTIMONY BEFORE THE WASHINTON UTILITIES AND TRANSPORTATION COMMISSION?

A. Yes. I submitted testimony on the Qwest loop program, RLCAP, in UT-960369, et al. in July, 1997.

Q. HAVE YOU TESTIFIED BEFORE OTHER STATE REGULATORY COMMISSIONS?

A. Yes. I have presented testimony on loop investment development before commissions in Arizona, Iowa, Minnesota, Nebraska, New Mexico, Oregon, Utah and Wyoming.

PURPOSE OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. The purpose of my testimony is to respond to testimony provided by Mr. Weiss and Mr. Klick on behalf of the Joint Intervenors and to the testimony provided by Mr. Spinks on behalf of the Staff of the WUTC. I will respond to statements that copper is an obsolete and unreliable feeder

technology. I will also discuss the contention that the Commission addressed the costs for the outside plant facility portion of DS1 and DS3 circuits in the General Cost Docket. Finally, I will respond to Mr. Cabe's proposal regarding dark fiber costs.

LOOPMOD

Q. MR. SPINKS STATES THAT QWEST'S LOOPMOD CONTAINS COMPILED PROGRAMS AND FORMULAE THAT STAFF WAS UNABLE TO ACCESS IN ORDER TO CONDUCT A REVIEW OF THE LOOP COST. IS THIS CHARACTERIZATION OF LOOPMOD CORRECT?

A. No. All calculations performed by the LoopMod are open and available to the model's users. LoopMod is made up of Microsoft Excel spreadsheets that use Visual Basic macros to run calculations. There are no compiled programs in LoopMod. If a user wants to access those macros to see how they are functioning in the model, the user must simply have an understanding of how to navigate in Excel. In addition, just as in any model, there are inputs to LoopMod that come from outside sources. For example, the LoopMod has inputs for material costs, placement costs, and drop lengths that come from equipment contracts, vendor contracts, and subject matter expert studies and experience. Other industry models use the same types of inputs. AT&T's HAI model has inputs for material cost and placement cost similar to those in Qwest's LoopMod. The HAI model also contains inputs for a customer location algorithm that AT&T obtains from a source

outside its model. Furthermore, LoopMod calculates loop investment, not loop cost. The loop cost is calculated in WinPC3, copies of which were included in Qwest's filing.

UNBUNDLED LOOP RATES

Q. MR. SPINKS AND MR. KLICK CLAIM THAT THE DS1 LOOP FACILITY COST HAS ALREADY BEEN SET BY THE COMMISSION WHEN IT ADOPTED LOOP RATES IN DOCKET NOS. UT-960369, ET AL. ARE THEY CORRECT?

A. No. They have misinterpreted the effect of adjustments to line counts provided by the Commission in the Eighth Supplemental Order.[1] As the Commission stated at pages 44-45:

> U S WEST [Qwest] maintains that the Hatfield treatment of special access DS-1 and DS-3 lines is improper, because these non-switched digital lines are not the functional equivalent of, and not the same TELRIC element as, a narrow band unbundled loop.
>
> We have adjusted the Hatfield Model loop cost for U S WEST [Qwest] upward by $0.66. As the telecommunications industry increasingly relies on digitally derived circuits, it is essential that a model developer distinguish between the number of physically derived circuits and the number of equivalent voice channels that are in-service.

Thus the Commission recognized that counting the DS1 and DS3 circuits on a DS0 equivalent basis overstated the number of physical copper pairs or the number of Digital Loop Carrier derived channels, resulting in a false economy of scale. The line adjustment

[1] In the Matter of the Pricing Proceeding for Interconnection, Unbundled Elements, Transport and Termination, and Resale for U S WEST Communications, Inc. Docket No. UT-960369, et al.

was a compromise that provided for a reduction in the Loop UNE placement costs in light of the fact that the same cable sheath may deliver DS0s or voice grade service (single pairs) and DS1s (two pairs). By stating the line counts on a physical pair basis the Commission attempted to share the placement cost in the way that it actually occurred (e.g., 1/100th of the placing costs to each of the 98 1FRs in a 100 pair cable and 2/100ths of the placing costs to the two pair DS1 in the 100 pair cable.) The inclusion of the high bandwidth demand on a physical pairs-required basis reduces the placing costs that would be assigned to Loop UNEs if the network were built for purely DS0 demand. The Commission's adjustment to Hatfield assured that the portion of the trench cost assigned to each copper pair took into account that a cable could include both DS0 and DS1 circuits. The DS0s could be one or two pair circuits. The DS1s were adjusted to two pair rather than the 24 pairs originally proposed by the Hatfield sponsors. The adjustment resized the cable to include the number of physical pairs that were required to provision both voice grade and high capacity copper-based circuits. The $0.66 increase in the Loop UNE cost in the Eighth Supplemental Order was a correction of the HAI overstatement of DS0 demand and was in no way intended to estimate DS1 or DS3 facility costs. None of the loop models considered by the Commission addressed the equipment required to provision high capacity circuits. Mr. Klick, at pages 35 and 36 of his October 23, 2000 testimony, quotes from the Seventeenth Supplemental Order with regard to two wire versus four wire loops and how the structure costs were assigned. However, this passage from the Seventeenth Supplemental Order does not address how DS3

circuits are provisioned. DS3s are provided using fiber cables and unique electronics. Mr. Klick's cite is irrelevant to the costing of DS3 circuits.

Q. DID THIS ADJUSTMENT BY THE COMMISSION PROVIDE A RESULT THAT COULD BE USED IN COSTING HIGH CAPACITY CIRCUITS?

A. No. The adjustment was designed to assign structure costs to pairs (and ultimately voice grade unbundled loops). The objective was to assure that neither voice grade nor high capacity circuits were assigned more than their fair share of the structure supporting the cable facility. The Commission's HAI adjustment does not affect the Qwest DS1/DS3 cost studies. First, the adjustment was made to the Hatfield model. The Hatfield model included basic exchange and special access line counts on a DS0 equivalent basis. Thus, the Hatfield model sized a cable to allow for 24 pairs for a DS1 when it only needed two pairs. A Digital Loop Carrier system, as modeled by Hatfield, had channel cards for 24 basic exchange lines where it actually needed a single DS1 channel unit. The DS1 circuits are often provided via fiber and DS3 circuits are always on fiber. The copper pair adjustment does not address this. It is unlikely that the DS1s and DS3s are served out of the same remote terminal as basic exchange DS0s. The remote terminals in the models that developed Unbundled Loop UNE costs are serving voice grade demand and use equipment designed for that purpose (Hatfield has cards for POTS and Coin services). Within the same sheath for a portion of a route that serves voice grade customers there may be fibers that connect to DS1 or DS3 level equipment. Thus a cable may provide four fibers to a terminal

deriving ten DS1s and four fibers to another terminal deriving 500 DS0s. In the fiber portion of the network, the placing costs should be assigned on a per fiber basis. Remote electronics are designed to provide specific types of services and typically require unique fibers. The Commission adjustment was an assignment of structure cost to the units within the facility (1/100th of the trench cost to each pair in a 100 pair cable). The resulting unbundled loop cost did not attempt to reflect the cost of building a fiber cable to a customer location and connecting it to equipment that provided the customer a high capacity circuit. Nor did it estimate the copper cable and equipment necessary to deliver DS1 circuits to a customer location.

Q. DO YOU AGREE WITH MR. KLICK'S "CORRECT APPROACH" TO DETERMINING THE DS1 AND DS3 LOOP COSTS?

A. No. Mr. Klick ignores the fact that the Commission ruled on models that were designed to produce the average cost for voice-grade loops. These models used a mix of copper and fiber facilities. The digital loop carrier (DLC) systems were configured to deliver DS0s to the end users. Mr. Klick now contends that this cost, which includes a weighting for pure copper loops, is a good starting point for the development of DS3 costs. Subtracting the "implicit" channel unit cost from the TELRIC of an unbundled local loop and adding a DS3 channel unit cost to the remainder will not provide an estimate of DS3 costs. DS3s cannot be provided on copper pairs, regardless of channel unit cost adjustments. The local loop studies include a percentage of the loops on DLC systems. Certain locations used remote terminals capable of providing 672 DS0s. At a simplistic

level, the models assumed that the cost for those loops include the costs for 1/672nd of four fibers and their structure, 1/672nd of the remote terminal cabinet and common cards, and 1/4th of the four line channel unit. Mr. Klick's calculation removes the 1/4th of the POTS channel unit cost and replaces it with the cost for a DS3 channel unit, assuming that the other cost allocations will remain the same. In fact, the DS3 will use all the bandwidth in the remote terminal. There is no room left for the DS0s. The fiber and the electronics will only support one circuit. Consequently, the DS3 should be responsible for the cost of all four fibers and their structure, all the cabinet cost, and all the common card costs (although a DS3 would use different electronics than those included in the loop models). Mr. Klick's cost calculations are incorrect and should be disregarded by the Commission.

METALLIC FACILITIES

Q. MR. WEISS STATES THAT METALLIC CABLE IS OBSOLETE AND UNRELIABLE AND WOULD NOT BE INCLUDED IN A FORWARD-LOOKING FEEDER NETWORK. DO YOU AGREE?

A. No. Every model I have seen used in interconnection and universal service fund proceedings includes copper facilities for a portion of the feeder network. These models include the FCC Synthesis Model, the Benchmark Cost Proxy Model, and the HAI model. It is interesting that Mr. Klick uses the Unbundled Loop TELRIC as a starting point for his calculations of DS1 and DS3 costs. Thus, he uses copper costs in conjunction with a DS3 that must be provided on fiber. On

the other hand, Mr. Weiss objects to the Qwest use of copper in the DS1 studies, when that is a technically feasible and economically justifiable design. Where demand levels do not support the use of remote electronics or where the distance does not produce enough copper cable cost to outweigh the cost of the remote terminal, physical copper pairs are still an economically efficient, forward-looking solution. Combinations of DS0 demand and small quantities of DS1 demand can be accommodated through the use of copper facilities and copper-based digital electronics (such as HDSL). Use of fiber and larger capacity digital loop carrier (DLC) systems would result in low utilizations and higher per unit (DS1 or DS0) costs than the copper designs.

Q. MR. WEISS ELIMINATES THE WEIGHTINGS GIVEN THE COPPER-BASED HDSL DS1 SYSTEMS AND ASSIGNS THEIR PERCENTAGE OCCURRENCE TO THE SONET FIBER MUX SYSTEM. IS THIS A REASONABLE ADJUSTMENT?

A. No. As I stated above copper is still an economically efficient and forward-looking technology in certain parts of the network. It appears Mr. Weiss eliminated them based on their per DS1 cost level and his belief that copper is obsolete. He then assigned their percentages to the lowest cost alternative. The SONET Fiber Mux produces lower costs per working DS1 than the copper HDSL systems due the its capacity. The HDSL designs are suited to locations where the demand is unlikely to exceed three or four DS1s. The SONET Fiber Mux has a capacity of 84 DS1s. With that capacity and suitable demand, it can achieve economies of scale and lower per unit costs. Mr. Weiss advocates adjusting the Qwest studies to reflect a utilization of 85%. If he places

equipment with a capacity of 84 DS1s in locations where demand potential is three or four DS1s, Qwest will never be able to achieve the desired 85% utilization. Planning engineers and equipment vendors would recommend the copper-based, low capacity HDSL systems as the most cost efficient network solution for low demand locations. They would not suggest the use of a high capacity SONET Fiber MUX, because this would not be the least cost, forward looking design. Thus, it would not be used in a TELRIC study.

DARK FIBER

Q. IN HIS DECEMBER 20, 2000 TESTIMONY, MR. CABE PROPOSES A DISCOUNT FROM THE FULL RATE FOR UNBUNDLED DARK FIBER. IS IT APPROPRIATE FOR A CLEC TO PAY ONLY THE OPERATING EXPENSES FOR AN ELEMENT BECAUSE THAT ELEMENT HAS SPARE CAPACITY?

A. No. Any long run cost calculation includes a recognition that the cost object will not be fully utilized. For the provider to recover the costs for the product or service, the costs for the unused capacity must be covered by the in-service portion. The level of utilization will vary over time and it will vary from location to location within the network. Thus, the costs are based on a snapshot in time for the network utilization. The economic value of the facility is the same even if it that particular fiber strand was spare capacity at the time of the study. At some point in the future the element will be restudied and changes in utilization will be incorporated into a new long run cost. Mr. Cabe seems to be suggesting that anyone who purchases a facility that was not in service at the

time the study was conducted should receive a rate based on avoidable costs. This would result in the existing customers providing a subsidy to the new customers.

Q. IF UNBUNDLED DARK FIBERS (UDF) ARE BY DEFINITION UNUSED CAPACITY, ARE THEY NOT INCLUDED IN SPARE CAPACITY PERCENTAGE AND COVERED BY THE 65% WORKING CALCULATION?

A. The UDF costs are based on the average cable utilization throughout the network. From a planner's perspective, when the available capacity is measured any status that causes a strand or a copper pair to not qualify for future use will put that count in the "used" category. The utilization reports will include fiber for DS0 DLCs, fiber for end-user DS1s and UDF in the quantity used to derive the 65%. If the calculation was modified so that UDF was counted as spare capacity, then his claim would be appropriate. The effect would then be that other customers would, in theory, pay the capital costs for the facility and the UDF customer would have access to the fiber for only operating costs. With or without the modification, the UDF customer who pays only operating costs for use of Qwest fibers is being subsidized.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.