BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

In the Matter of the	)	
	)	DOCKET NO. UT-003013
Continued Costing and Pricing of	)	Part D
Unbundled Network Elements,	)	
Transport, and Termination	)	

DIRECT TESTIMONY OF

SIDNEY L MORRISON

ON BEHALF OF

WORLDCOM, INC.

Dated: December 21, 2001

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I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS FOR THE RECORD.

A. My name is Sidney L Morrison. My business address is 10176 Savannah Sparrow Way, Highlands Ranch, Colorado 80129.

Q. PLEASE SUMMARIZE YOUR PROFESSIONAL EXPERIENCE.

A. I began my telecommunications career in 1966 in Charlotte, North Carolina as a cable helper for Southern Bell Telephone and Telegraph. Southern Bell was an incumbent local exchange carrier managing numerous exchanges throughout North Carolina. My duties involved splicing underground, buried and aerial cable. I also worked as a switching technician and special services technician.

Beginning in August of 1970, I transferred to Mountain Bell in Denver, Colorado as a central office technician. In 1972, I was promoted to supervise main distributing frame operations. My duties included supervising the installation of POTS, Special Services, Central Office area cuts, main distribution frame replacements and many other projects. In 1980 and 1981 I performed time and motion studies for service provisioning on approximately 75 of Mountain Bell MDF operations. These time studies included a components for jumper running and administrative activities on each of these frames. From 1983 until 1986, I was the switching control center and main distributing frame subject matter

expert for US West. In this position I was responsible for staff level support for service provisioning and maintenance including the development of enhancements for operational support systems (OSS) supporting these activities. From 1986 until 1993, I was responsible for the US West AMA teleprocessing organization for the fourteen state US West region.

In 1993, I retired from US West (Mountain Bell) and began contract engineering work and consulting. In 1995 I took an assignment in Kuala Lumpur, Malaysia as a contractor/consultant with a team of specialists to build a CLEC network consisting of a GSM services, fixed network services, cable television services and data services integrated into a common transport backbone.

I had a number of responsibilities in Malaysia the largest of which was organizing and implementing a field operations group (FOG), responsible for the installation and maintenance of all fixed network and cable television services. My responsibilities included the planning, organizing, staffing and implementation of the FOG including an installation and maintenance group, assignment center, dispatch center, test center and a repair center. . I also had the responsibility of developing business processes and OSS system requirements for provisioning and maintenance supporting the FOG.

After launching the FOG I managed the department and project managed the refinement of the organization into an ISO 9002[1] qualified organization. January 1997 the Binariang Maxis FOG became the first certified ISO 9002 service organization in Southeast Asia.

I returned from Malaysia in June of 1997 and worked for approximately two years as a contract OSP/COE engineer, and trained new engineers for US West collocation efforts.

In May 1999, I accepted a contract in Switzerland building a new CLEC under the market name of diAx telecommunications. My responsibilities involved project management to establish operational support systems ("OSSs") supporting all wireless, wireline, and data services offered by diAx. I also provided consulting services developing business processes supporting the establishment of the diAx Internet Provider Operations Center (IPOC) and diAx data services offerings. I established system requirements based on IPOC business processes for fault management systems, provisioning systems, capacity inventory systems, customer service inventory systems and workflow engines controlling overall maintenance and provisioning processes.

[1] International Organization Standards, ISO 9002 is the standard set of requirements for an organization whose business processes range from, production, installation and servicing.

In December 2000, I returned from Switzerland and began working for QSI as a Senior Consultant. I provide telecommunications companies with engineering advice and counsel for direct network planning, management and cost-of-service support. My specific areas of expertise include network engineering, facility planning, project management, business system applications, incremental cost research and issues related to the provision of unbundled network elements.

Years spent as a technician, work stoppage activities, field riding exercises, business process engineering, auditing, and participating in the startup of two international CLECs has provided me with continuous hands-on experience with the work activities associated with the provisioning of, data services, cable television services, wireless networks, switch based services, central office cross connection, field installation and maintenance and outside plant planning and engineering.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND.

A. I completed two years of course work in electrical engineering at Central Piedmont Community College in Charlotte, North Carolina. I also completed four years of course work in business administration at Regis University in Denver, Colorado. I have attended numerous industry seminars and vendor training courses on telecommunications technology. In 1961 I attended the US Air Force Electronics training school and Nuclear Weapons Reentry Vehicle School at Lowry AFB, Denver, Colorado.

II. PURPOSE AND SUMMARY

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

A. WorldCom has asked me to evaluate Qwest's testimony and studies for Unbundled Network Elements (UNEs), which have been submitted to the Washington Utilities and Transportation Commission (Commission) in Docket No. UT-003013 Part D.

I have reviewed and considered all relevant testimony and documentation that Qwest provided in support of its non-recurring charges. I have made recommendations for changes to Qwest NRCs in the text of this testimony. Exhibit SLM-1 compares Qwest's proposed rates with the rates I recommend.

Q. PLEASE SUMMARIZE THE FINDINGS THAT YOU PRESENT IN YOUR TESTIMONY.

A. For Qwest's non-recurring cost (NRC) studies and proposed rates for unbundled elements, I have reached the following conclusions:

1. Qwest's NRC studies and calculations are not forward-looking and are inconsistent with the Total Element Long Run Incremental Cost (TELRIC) cost methodology, which requires that costs be measured based on the most efficient telecommunications technology currently available.
2. The activities associated with the provisioning of many unbundled elements are overstated by approximately fifty percent.

3. Other activities that Qwest claims are required, lack adequate documentation to support the suitability of the cost item presented by Qwest.

4. Many of the work item activities involve tasks that should not be considered as NRC work items in a forward looking network.

I recommend that, to remedy these problems associated with Qwest NRC cost studies, the Commission reject Qwest's NRC studies due to their substantive deficiencies and require Qwest to submit new cost studies following the guidelines discussed in my testimony.

Q. DURING THE PROCESS OF REVIEWING AND EVALUATING QWEST'S NRC STUDY DOCUMENTATION AND TESTIMONY, CAN YOU EXPLAIN THE FRAMEWORK YOU UTILIZED?

A. Yes. The TELRIC cost methodology is a forward-looking economic cost model used to determine the provisioning costs associated with unbundled elements utilizing the most efficient technology available. As I understand it, that standard is embedded in the TELRIC rules of the Federal Communications Commission (FCC). Mr. Gates, on behalf of WorldCom, addresses the TELRIC cost standard in his testimony.

I evaluated Qwest's testimony, cost studies and documentation against the backdrop of the Commission's directives and with the understanding that the cost studies must be based on the utilization of the most efficient technology available.

III. TESTIMONY

Q. PLEASE DESCRIBE THE MOST EFFICIENT TECHNOLOGY, AS THAT TERM APPLIES TO THE QWEST NRCS AT ISSUE IN THIS PROCEEDING.

A. In this case, the most efficient technology is that which is deployed to update and make existing processes more efficient. My experience has been that, such technology is deployed in an effort to improve service and increase efficiencies by lowering cost associated with customer service provisioning[2].

The evolution of systems technology and the business processes used to provision services must be considered when taking into consideration the validity of the Qwest NRCs. Business processes and systems have gone through more than a century of development and refinement.

The most relevant history starts in the 1960s, most provisioning processes were manual and highly labor intensive. Following the 1970s and 1980s the mechanization of business processes by using nonintegrated computer systems

[2] The act of supplying telecommunications service to a user, including all associated transmission, wiring, and equipment. Harry Newton, Newton's Telecom Dictionary 17th Edition (New York: CMP Books, 2001) 554. This definition also encompasses connection and disconnection of service as it is referenced in Qwest cost studies.

with singular databases improved accuracy and timeliness in service provisioning business processes. Provisioning processes became less labor intensive with more accurate records and faster access to records residing in data bases instead of paper records in filing bins and manual records in large hard to manage books such as exchange cable records (ECCR). In the late 1980s and 1990s system interfaces developed, allowing for system to system exchanges of information, thus improving records accuracy, by improving records synchronization, and speeding up the businesses processes requiring access to multiple systems records. This technological enhancement lowered labor intensive manual intervention and established the first efforts at flow-through provisioning. Flow-through provisioning in this circumstance means activities that occur within systems interacting directly with each other to produce a desired output.

With the advent of mediation devices[3] and work flow management systems[4] the 1990s produced the next logical progression in mechanization, the integration of the flow-through processes utilizing OSS and system databases, interfaced with intelligent network elements. In other words, all of the activity steps required to connect and disconnect services are mechanized and integrated with new

[3] Computer based systems used for mass or individual system communications with many subordinate network elements. In the case of telecommunications, mediations systems are utilized for provisioning and maintenance efforts. Mediation systems bring flow through provisioning a step closer to reality.

[4] The electronic management of work processes suchas forms processing or project management using a computer network and electronic messaging as the foundation. Harry Newton, Newton's Telecom Dictionary 17th Edition (New York: CMP Books, 2001) 774.

computer systems eliminating or minimizing the need for business processes requiring costly manual intervention.

Qwest's technology and process platforms allow services to be provisioned in this automated and integrated manner. Although detailed process flow diagrams, illustrating points of manual and mechanized interface points, were not provided for all of the services, a review of the expense descriptions and data sources provided by Qwest revealed the existence of Operation Support Systems (OSS) and technology platforms that have the potential of providing efficient service provisioning. Examples of these OSS platforms include:

- Work and Force Administration/Control (WFA/C): manages and automates work assignments required to install facilities, trunks, special service circuits and business/residence lines.
- Work and Force Administration/Dispatch In (WFA/DI): automates work load assignments for technicians who work inside the central office.
- Work and Force Administration/Dispatch Out (WFA/DO): automates work load assignments of technicians who work outside the central office.
- Memory Administration (MARCH): provides mechanized updates to stored program control switches, translating line service order data into recent change messages and transmitting the messages to appropriate CO switches.

- Provisioning Analyst Work Station (PAWS): supports integrated exception handling of work performed in the Circuit Provisioning Center, Loop Assignment Center and Network Administration Center.
- SWITCH: Supports the inventory and assignment of switch ports, providing administration capabilities for the switch resources and associated central office equipment.
- Trunks Integrated Records Keeping System (TIRKS): supports design and provisioning of special service circuits, message trunks and carrier circuits, and management of facility and equipment inventories.

These legacy systems are examples of provisioning and maintenance OSS, currently deployed by Incumbent Local Exchange Carriers (ILECs) with the objective of increasing flow-through by utilizing mechanization to reduce costly manual intervention.

Q. HAS QWEST UTILIZED THE MOST EFFICIENT SYSTEMS TECHNOLOGY AND PROCESSES AVAILABLE IN CONDUCTING ITS STUDIES?

A. No. I will describe the specific errors and problems with Qwest's NRC studies during my discussion of the business process work items associated with unbundled network elements later in this testimony.

Q. WHY DO YOU INCLUDE THE TERM "PROCESS" WHEN DESCRIBING EFFICIENT TECHNOLOGY?

A. The term "efficient technology," as it applies to service provisioning, means that the "efficient technology" is fully utilized in the provisioning business process. If the supporting business processes ignore the efficiency potential of OSS, the costs associated with the provisioning activities will be significantly higher.

If Qwest has deployed the OSS platforms needed for services to be provisioned automatically as described above, but is not fully utilizing these systems to perform these task or recognizing the efficiencies of the OSS technology in its study, the study exaggerates provisioning costs.

Q. DESCRIBE AN EFFICIENT FORWARD-LOOKING OSS BASED PROVISIONING PROCESS ENABLER.

A. One of the advantages of providing an efficient OSS platform is that efficient OSSs virtually eliminate the requirement for manual intervention when connecting and disconnecting services consequently representing a full flow-through environment. This mechanized flow-through process utilizes systems to electronically link and control all systems and processes required for service provisioning.

This is demonstrated in a Plain Old Telephone Service or (POTS) provisioning situation when a customer calls an ILEC service representative. The customer on the line, the service representative accesses a business office system used to activate vertical features and provision services requested by the customer,

including those services that may require field visits. This information downloads to a service order distribution and control system to determine if line assignment activities or other records updates and task are necessary. If required, a request is generated and sent to a downstream provisioning system which will process and update records and forward information to the necessary OSS. The OSS in turn process messages that are sent to mediation systems to provision the service by communicating with service providing network elements such as switching systems, cross-connect systems, transmission systems, transport systems and field electronics. The forward-looking assumption being that all network elements are processor controlled.

When the flow-through process receives a message confirming the completion of the requested system transactions and task, provisioning is successful without manual intervention. The service representative can inform the customer that service provisioning is completed and the service is available.

Q. WHAT IF A MESSAGE CONFIRMING THAT PROVISIONING IS COMPLETE IS NOT RECEIVED?

A. A fallout message is sent to the appropriate work group, notifying the group of the failure and any information necessary, and the order is processed manually. The term fallout is used to define an event as an error in mechanized flow-through processing. To illustrate, assume a number of OSS are electronically

connected to create a flow-through electronic ordering process. If one of the OSS systems receives invalid or incompatible information from another OSS system, the order will fallout of the electronically interfaced process and will require manual intervention to complete the order.

There are three types of OSS/network element system errors or failures that cause fallout.

1. Database synchronization errors
2. Network element/element manager failures
3. System Communication failures

Database synchronization errors occur when databases in two or more systems of the OSS fail to match data, such as customer names or addresses or the status of system resources such as equipment and facility.

Network element failures occur when a network element (for example, a Local Digital Switch) responds that it cannot complete a task requested by the OSS or EMS network. The most common reason for this type of failure is very similar to the database synchronization errors failure. That is, incorrect information or status in either the network element or the OSS/EMS responsible for initiating provisioning activity.

System communication failures are typically software failures at the application layers or interface layers responsible for the establishment of a communications path and managing interface protocols, resulting in a failure of the network to transmit data between OSS, EMS and network elements.

Effective ILEC users of forward looking OSS technology utilize, as part of their business process, a root cause analysis (RCA) procedure to scrutinize the causes of OSS fallout. The resulting root cause analysis data are used to develop improvements to business processes and develop software features and enhancements to improve flow-through effectiveness.

Another excellent example of the RCA process and its ability to improve flow-through is evident from the transcript of the Operations Support Systems Forum that was held on May 28 and 29, 1997 by the FCC Common Carrier Bureau. During the second day of the forum, Elizabeth Ham from Southwestern Bell described how her company improved the flow-through capability of their EASE (Easy Access Sales Environment) OSS to 99% flow-through. Commenting on how this high flow-through rate was achieved, Ms. Ham stated: “I think we put EASE in, - - -back in the early 1991-92 timeframe. And over that length of time, we have built in a little over a thousand edits. So once that service order is typed in and it’s typed in correctly, then this is where this 99 percent flow-through is achieved.”

In an ideal electronic processing environment, fallout should be negligible. Fallout of the small array outlined by Ms. Ham, while ideal, is not always achievable. However, the Southwestern Bell example above demonstrates the type of flow–through that can be achieved via currently available telecommunications technology and processes.

Q. HOW SHOULD THE OSS FALLOUT IN QWEST NRC STUDIES BE TREATED?

A. In the framework of Qwest NRC cost studies the historic fall-out rates must be adjusted to reflect forward-looking, lower cost, flow-through OSS technological efficiencies. OSS fallout must be viewed in the context of the total provisioning processes rather than viewing process steps individually, viewing steps individually compounds the rate of failure for the business processes.

In demonstration of this point, I offer the example of two parties, both state that a 10% fallout rate is acceptable in provisioning a network element. The first party applies 10% to 100 provisioning orders with 10 work steps each creates 100 additional expense work item computations, compared to the second party applying 10% fallout rate once to provisioning the network element which results in only 10 expense work item computations.

It is very important to distinguish fallout resolution costs and the costs associated with planned manual intervention. The difference is the efficient utilization of forward-looking OSS technology. Orders that fall out of an OSS flow-through

process have the potential to generate a significant amount of manual intervention time to resolve the associated trouble. Viewed over a period of two or three years this amount of work, to resolve service provisioning discrepancies, generates the type of circumstance that is a candidate for elimination by applying basic quality improvement procedures or a forward-looking OSS technology solution.

Manual work that is generated because a systems or business process trigger is installed to create fallout to address low volume, unique situations is part of the business process design and should be a portion of nonrecurring costs. Unfortunately, it is virtually impossible to point toward any evidence of Qwest utilizing basic quality improvement procedures to improve the costs or poor quality issues associated with system fallout reflected in their NRC cost studies.

This approach to fallout management is unacceptable. Instances of fallout should be incorporated into a common fallout factor that is applied to the end to end process in recognition of the forward looking flow-through potential of OSS.

The inclusion of fallout work item times in the calculation of NRCs for the provisioning of services is flawed for four reasons: (1) there is no incentive for improvement; (2) it accepts multiple quality failures as a standard portion of network element provisioning; and (3) there is no way to determine the statistical

validity of the data presented; (4) it guarantees the ongoing acceptance of abnormally high NRCs assocated with manual intervention.

Q. WHY DO YOU BELIEVE THAT THIS FALLOUT FACTOR SHOULD BE APPLIED TO THIS COST STUDY?

A I propose that an administrative fallout factor be incorporated into each network element NRC calculation to recognize the reality that fallout will occur. This factor should be applied once to the entire end-to-end provisioning process in recognition of the basic principle that processes should be viewed in this manner and to avoid the compounding cost effect associated with recognizing fallout at each process step. I propose utilizing a rate of 2% to reflect forward looking quality/cost efficiencies, which in my opinion are reasonable to expect from a progressive company focused on forward looking process improvements.

Qwest obviously considers the present amount of manual intervention reflected in its studies to be forward-looking. This is obviously not a forward-looking assumption.

Q. HAVE OTHER STATE REGULATORY BODIES REVIEWED AND EVALUATED THE PRINCIPLES AND FALL OUT FACTOR APPROACH YOU SUGGEST?

A. Yes. These principles and the fallout factor was presented, evaluated and accepted in three other jurisdictions:

- Massachusetts, D.P.U./D.T.E. 96-73/74, 96-75, 96-80/81, 96-83, 96-94-Phase 4-L consolidated arbitration, ruling dated October 1999;
- Connecticut, Docket 97-04-10, decision dated May 1998 and Docket 98-09-01, decision dated November 1999.
- Michigan, Case U-11280, order issued November 1999.

Q. DID QWEST UTILIZE APPROPRIATE COST STUDY METHODOLOGIES AND PROVIDE ADEQUATE DOCUMENTATION TO SUPPORT THE COST ITEMS PRESENTED?

A. No. It appears that Qwest took short cuts in the data collection process. In addition, Qwest was unable to provide satisfactory supporting documentation for a number of the costs included in the study.

Q. PLEASE EXPLAIN QWEST SHORT CUTS COLLECTING DATA AND DEVELOPING SUPPORTING DOCUMENTATION.

A. The workpapers (TKM-C30) provided by Qwest contains copies of documents provided by Qwest subject matter experts (SME) for the cost studies. These documents are interviews, copies of business process documents and instructions for time estimates and probability of occurrence as determined by SMEs. This documentation provides the basic data, in terms of manual activities, that were used to generate the costs in this study. Very few of the SME interview summaries or other documents contain any forward-looking comments or data. This is not surprising, because generally SMEs are experts in how work is

currently performed, and have limited exposure to new process designs and technology advances prior to their introduction. Consequently, the majority of the data used to calculate the costs in this study is historic rather than forward-looking.

I am certain that the time and fallout estimates are consistent with the individual SMEs experience, however, Qwest did not provide an explanation of how the statistical accuracy of the data was validated. This is especially troubling since Qwest used SMEs as a source for the majority of the activity-related cost data in this study, when more accurate time and motion studies could have been performed.

This issue of data validity is also of concern to the Commission Staff as indicated by the following excerpt from the Part B Brief of Commission Staff:

> The cost studies that Qwest filed in this case are based on Qwest's actual experience or company practice (TR 1821; Ex. T-1001, page 5; *See also* Ex. 101, pages 7-8), although they purport to yield forward-looking replacement costs. The time estimates for various activities are based on the estimates of subject-matter experts (SMEs). However, as brought out in the cross-examination of Ms. Million by Ms. Steele (*See* TR 1834-1836), the information provided to the SME's to produce those estimates, and the detail of the activities performed, are not in the record. The Commission requested that, in briefs, the parties address the issue of how it can validate the reasonableness of the opinions of the SMEs (Commission Issue No. 1). It is Staff's view that, without time and motion studies or the opportunity to observe the activities that are performed, it is difficult, if not impossible, to obtain such validation.[5]

[5] Before The Washington Utilities and Transportation Commission, In the Matter of the Continued Costing and Pricing of Unbundled Network Elements, Transport, Termination, and Resale., Brief of Commission Staff, Docket No. UT-003013, Part B, May 29, 2001.

Q. HAVE YOU REVIEWED THE NONRECURRING COST THAT QWEST HAS OFFERED IN THEIR COST STUDY ID # 5923?

A. Yes, I reviewed nine services. I analyzed the work items and times for the installation and disconnection of the first service, additional service and the individual disconnection of both first and additional service for the nine Qwest services reviewed.

Q. WHAT CRITERIA DID YOU USE WHEN REVIEWING THE QWEST NONRECURRING COST STUDIES?

A. I reviewed the work items to determine their necessity and the time in minutes for each work items to determine if the times are reasonable and the probability factors 1,2,3 & 4 for reasonableness. My analysis is from the perspective of appropriate business processes for the services being reviewed. I did not attempt to make any economic analysis of the business processes.

Q. WHICH NONRECURRING ELEMENTS DID YOU REVIEW?

A. I reviewed nonrecurring cost elements for the following services:

Switched Transport DS1 Trunk First Install/Disconnect

Switched Transport DS1 Trunk Ea Addl Install/Disconnect

Switched Transport DS3 Trunk First Install/Disconnect

Switched Transport DS3 Trunk Ea Addl Install/Disconnect

UDIT M1-3 Multiplexing Install/Disconnect

UNE-P POTS First Line Mechanized New Service Install/Disconnect

UNE-P POTS Ea Addl Line Mechanized New Service Install/Disconnect

UNE-P POTS First Line Manual New Service Install/Disconnect

UNE-P POTS Ea Addl Line Manual New Service Install/Disconnect

Q. WHAT OBSERVATIONS DID YOU MAKE WHEN REVIEWING QWEST NONRECURRING COST STUDIES?

A. The number or work items and the amount of time spent by various departments and technicians are excessive. For instance, the service delivery coordinator for provisioning Switched Transport DS1 Trunk First Install has to perform 32 work items. My experience tells me that this level of measured detail work items is not realistic. Also I believe the excessive number of work items is being used by Qwest as a method to drive up the total NRC times and consequently the NRC charges.

To illustrate my point, work items are task that are chained together to complete a process. These tasks are the primary functions, usually, of technicians. As such these functions become repetitious for the technician and it is normal and expected for the technician too not only know the detail work items of his job well. It is also normal and expected for the technician to know how the task impact individual customers. All of this is based on an experienced technician. In performing the day-to-day job the technician does not need, to nor do

expectations mandate that, every bit of information relative to the job be verified over and over.

Also a closer look at the work items uncovers a pattern of work items that are redundant in nature. The service delivery coordinator and design technician have work items involving process terminologies of verify, check and validate, 12 of 32 work items in one case. Also, other work items incorporate terms such as validate into the description and I am sure that this term also involves some amount of measured work, resulting in the inflation of work item times in the NRC studies. With the information provided by Qwest, it is impossible to determine how much of the work item time involves the process of validation.

For ease of reference, I will refer to verify, check, validate and similar work items as *validation work items* in the remainder of my testimony.

The Service Delivery Implementor has six work items, of these, the *Test Circuit* work item has, in my experience, an unusually high time for testing. When contacts are made between technicians, it has been my experience that testing of circuits goes rapidly. Qwest offered no detail level information on what tests are being run in the time allotted for testing and what other activities might be involved in the testing. I propose that this time be adjusted to ten minutes per circuit as I have indicated in Exhibit SLM-1.

The work item *Intra-CO calls* consisting of 5 minutes per install is an unnecessary work item. I found this *Intra-CO calls* work item in the service delivery coordinator's work item section in six of nine services. In a forward-looking network with OSS flow through and data bases maintained at a reliable level, the OSS should be relied upon to communicate all of the necessary information to provision services to all organizations and calls for provisioning purposes would be at an absolute minimum, if needed at all, and certainly not a planned event in the provisioning process.

Q. HOW IS THE FOLLOWING TABLE (Exhibit SLM-1) USED IN YOUR ANALYSIS OF QWEST NRC STUDIES?

A. The table illustrates the number of Qwest departments, column A, and business process work items, column B, utilized by the department in the provisioning process design for each service analyzed. Column C indicates the number of validation work items found in the business process work items. Qwest NRC work times in minutes from the NRC study are in Column D for comparison purposes. Column E and F are for adjustments I have made to Qwest total work times per department and total for each service. Column E is specifically for validation work items, while Column F is for time adjustments made to other work items.

Q. WHY DID YOU CHOOSE TO ANALYZE VALIDATION WORK ITEMS?

A. Using the definition I established earlier in this testimony, validation work items are those work items that involve verifying, validating, and checking information, and occasionally other terms are used synonymously with these terms.

A forward looking OSS platform assumes stable synchronized systems data. This being the case, there should be no reason to repetitively verify, validate or check data after its initial establishment in the system or systems. I find the time spent on verification, validation and checking to be unnecessary as it is practiced. In a forward-looking OSS business process environment, these work items would either not exist or would be performed as an incidental task by the technician doing the specific manual intervention activity associated with the UNE, or would be replaced by an OSS software feature. I have eliminated these unnecessary verification, validation and checking in my analysis of Qwest NRC studies.

I also find that by looking at what I call validation work items, I am illustrating a basic problem with the NRC cost study methodology and study data collection.

Q. ARE YOU OFFERING NEW COST STUDIES AS A PART OF YOUR TESTIMONY?

A. No. My intent is to demonstrate the technical short comings of the current Qwest NRC cost studies and as a result, recommend to the Washington Commission

the need for Qwest to revisit these cost studies and come back with results that are consistent with the FCC TELRIC model.

IV WORK ITEM ANALYSIS TABLE

				Adjusted Work Times and NRC rate	
A	B	C	D	E	F
	# Qwest Work Items	# Validation Work Items Note 1	Qwest NRC Work Times Minutes	Adjustment to NRC Work Times Minutes Note 2	Adjustment to Other Work Item Times Adjusted Minutes Note 3
Switched Transport DS1 Trunk First Install					
Service Delivery Coordinator	32	12	123	-60.5	-20.20
Design	8	4	1.39	-.33	-.53
Translations	4	0	30	0	-15
Central Office Frames	2	0	0.88	0	.44
Service Delivery Implementor	6	2	65	0	-40
TEST CIRCUIT			25	0	-12.5
TOTAL MINUTES for all work items			245.27M	D-(E+F) **95.77M**	
Total for Service Adjusted Cost for NRC Labor rate/work item X Work Item Minutes			$170.17	**$64.13**	
Switched Transport DS1 Trunk First Disconnect					
Service Delivery Coordinator	24	11	89.25	-51.25	-19
Design	7	0	.78	0	-.39
Central Office Frames	2	0	.31	0	-.16
Service Delivery Implementor	4	0	35	0	-17.5

				Adjusted Work Times and NRC rate	
A	B	C	D	E	F
	# Qwest Work Items	# Validation Work Items Note 1	Qwest NRC Work Times Minutes	Adjustment to NRC Work Times Minutes Note 2	Adjustment to Other Work Item Times Adjusted Minutes Note 3
TOTAL MINUTES for all work items			125.34M	D-(E+F) **55.85M**	
Total for Service Adjusted Cost for NRC Labor rate/work item X Work Item Minutes			$85.90	**$42.95**	

				Adjusted Work Times and NRC rate	
A	B	C	D	E	F
	# Qwest Work Items	# Validation Work Items Note 1	Qwest NRC Work Times Minutes	Adjustment to NRC Work Times Minutes Note 2	Adjustment to Other Work Item Times Adjusted Minutes Note 3
Switched Transport DS1 Trunk Ea Addl Install					
Design	8	4	1.39	0	-.70
Central Office Frames	2	0	.88	0	-.44
Service Delivery Implementor	4	1	2.20	-.40	-.90
TOTAL MINUTES for all work items			4.47M	D-(E+F) **2.03M**	
Total for Service Adjusted Cost for NRC Labor rate/work item X Work Item Minutes			$3.27	**$0.82**	
Switched Transport DS1 Trunk Ea Addl					
Design	7	4	.78	-.19	-.30
Central Office Frames	2	0	.31	0	-.16
TOTAL MINUTES for all work items			1.09M	D-(E+F) **.44M**	
Total for Service Adjusted Cost for NRC Labor rate/work item X Work Item Minutes			$0.80	**$0.33**	

				Adjusted Work Times and NRC rate	
A	B	C	D	E	F
	# Qwest Work Items	# Validation Work Items Note 1	Qwest NRC Work Times Minutes	Adjustment to NRC Work Times Minutes Note 2	Adjustment to Other Work Item Times Adjusted Minutes Note 3
Switched Transport DS3 Trunk First Install					
Service Delivery Coordinator	32	12	123.0	-60.5	-32.5
Design	9	4	3.07	-.33	-1.37
Translations	4	0	30	0	-15
Central Office Frames	2	0	1.46	0	-.73
Service Delivery Implementor	7	1	67.94	-10	-38.94
TEST CIRCUIT		1	25.0		-12.5
TOTAL MINUTES for all work items			250.47M	D-(E+F) **127.54M**	
Total for Service Adjusted Cost for NRC Labor rate/work item X Work Item Minutes			$173.98	**$53.27**	
Switched Transport DS3 Trunk First Disconnect					
Service Delivery Coordinator	24	11	89.25	-51.25	-19
Design	8	0	1.18	0	-.59
Central Office Frames	2	0	.53	0	-.27
Service Delivery Implementor	5	0	35.63	0	
TOTAL MINUTES for all work items			126.58M	D-(E+F) **74.28M**	

				Adjusted Work Times and NRC rate	
A	B	C	D	E	F
	# Qwest Work Items	# Validation Work Items Note 1	Qwest NRC Work Times Minutes	Adjustment to NRC Work Times Minutes Note 2	Adjustment to Other Work Item Times Adjusted Minutes Note 3
Total for Service Adjusted Cost for NRC Labor rate/work item X Work Item Minutes			$86.81	**$26.31**	
Switched Transport DS3 Trunk Ea Addl Install					
Design	9	4	3.07	-2.74	-.17
Central Office Frames	2	0	1.47	0	-.74
Service Delivery Implementor	5	1	5.14	-.40	-2.37
TOTAL MINUTES for all work items			9.68M	D-(E+F) **3.26M**	
Total for Service Adjusted Cost for NRC Labor rate/work item X Work Item Minutes			$7.10	**$3.43**	
Switched Transport DS3 Trunk Ea Addl Disconnect					
Design	8	4	1.18	-.19	-.50
Central Office Frames	2	0	.53	0	-.27
Service Delivery Implementor	1	0	.63	0	-.32
TOTAL MINUTES for all work items			2.33M	D-(E+F) **1.05M**	
Total for Service Adjusted Cost for NRC Labor rate/work item X Work Item Minutes			$2.33	**$0..50**	

				Adjusted Work Times and NRC rate	
A	B	C	D	E	F
	# Qwest Work Items	# Validation Work Items Note 1	Qwest NRC Work Times Minutes	Adjustment to NRC Work Times Minutes Note 2	Adjustment to Other Work Item Times Adjusted Minutes Note 3
UDIT M1-3 Multiplexing Install					
Service Delivery Coordinator	19	10	661	-166	-247.5
Design	12	0	348.85	0	-174.43
Central Office Frames	12	0	372	0	-186.0
Service Delivery Implementor	8	2	185	-20	-92.5
TOTAL MINUTES for all work items			1566.85	D-(E+F) **700.42M**	
Total for Service Adjusted Cost for NRC Labor rate/work item X Work Item Minutes				**$463.79**	
UDIT M1-3 Multiplexing Disconnect					
Service Delivery Coordinator	16	9	746.0	-150	-373
Design	10	0	30.30	0	-15.15
Central Office Frames	4	0	145	0	-72.5
Service Delivery Implementor	5	0	127	0	-63.5
TOTAL MINUTES for all work items			1048.30M	D-(E+F) **524.15M**	

				Adjusted Work Times and NRC rate	
A	B	C	D	E	F
	# Qwest Work Items	# Validation Work Items Note 1	Qwest NRC Work Times Minutes	Adjustment to NRC Work Times Minutes Note 2	Adjustment to Other Work Item Times Adjusted Minutes Note 3
Total for Service Adjusted Cost for NRC Labor rate/work item X Work Item Minutes			$718.69	**$207.33**	

				Adjusted Work Times and NRC rate	
A	B	C	D	E	F
	# Qwest Work Items	# Validation Work Items Note 1	Qwest NRC Work Times Minutes	Adjustment to NRC Work Times Minutes Note 2	Adjustment to Other Work Item Times Adjusted Minutes Note 3
UNE-P POTS First Line Mechanized New Service Install					
Interconnect Service Center	2	0	.75	0	-.38
Loop Provisioning Center	1	0	1.69	0	-.85
Central Office	1	0	1.8	0	-.9
Dispatch	6	0	6.37	0	-3.19
Installation & Maint.	10	0	44.11	0	-22.06
TOTAL MINUTES for all work items			54.72	D-(E+F) **27.34M**	
Total for Service Adjusted Cost for NRC Labor rate/work item X Work Item Minutes			$38.26	**$19.13**	
UNE-P POTS First Line Mechanized New Service					
Interconnect Service Center	2	0	.50	0	-.25
Loop Provisioning Center	1	0	1.69	0	-.85
Central Office	1	0	.6	0	-.3
TOTAL MINUTES for all work items			2.79M	D-(E+F) **1.39M**	

				Adjusted Work Times and NRC rate	
A	B	C	D	E	F
	# Qwest Work Items	# Validation Work Items Note 1	Qwest NRC Work Times Minutes	Adjustment to NRC Work Times Minutes Note 2	Adjustment to Other Work Item Times Adjusted Minutes Note 3
Total for Service Adjusted Cost for NRC Labor rate/work item X Work Item Minutes			$1.83	**$0.92**	

				Adjusted Work Times and NRC rate	
A	B	C	D	E	F
	# Qwest Work Items	# Validation Work Items Note 1	Qwest NRC Work Times Minutes	Adjustment to NRC Work Times Minutes Note 2	Adjustment to Other Work Item Times Adjusted Minutes Note 3
UNE-P POTS Ea Addl Line Mechanized New Service Install					
Interconnect Service Center	1	0	.15	0	-.08
Loop Provisioning Center	1	0	1.69	0	-.85
Central Office	1	0	1.8	0	-9
Installation & Maint.	4	0	10.58	0	-5.3
TOTAL MINUTES for all work items			14.22M	**7.09M**	
Total for Service Adjusted Cost for NRC Labor rate/work item X Work Item Minutes			$10.00	D-(E+F) **$5.00**	
UNE-P POTS Ea Addl Line Mechanized New Service					
Loop Provisioning Center	1	0	1.69	0	-.85
Central Office	1	0	.6	0	.3
TOTAL MINUTES for all work items			2.29	1.14M	
Total for Service Adjusted Cost for NRC Labor rate/work item X Work Item Minutes			$1.50	D-(E+F) **$0.75**	

				Adjusted Work Times and NRC rate	
A	B	C	D	E	F
	# Qwest Work Items	# Validation Work Items Note 1	Qwest NRC Work Times Minutes	Adjustment to NRC Work Times Minutes Note 2	Adjustment to Other Work Item Times Adjusted Minutes Note 3
UNE-P POTS First Line Manual New Service Install					
Interconnect Service Center	3	0	18	0	-9
Loop Provisioning Center	1	0	1.69	0	-.85
Central Office	1	0	1.8	0	-.9
Dispatch	6	0	6.37	0	-3.19
Installation & Maint.	10	0	44.11	0	-22.06
TOTAL MINUTES for all work items			71.97M	**36.82M**	
Total for Service Adjusted Cost for NRC Labor rate/work item X Work Item Minutes			$49.51	D-(E+F) **$54.76**	
UNE-P POTS First Line Manual New Service Disconnect					
Interconnect Service Center	3	0	13	0	-6.5
Loop Provisioning Center	1	0	1.69	0	-.85
Central Office	1	0	.6	0	-.3
TOTAL MINUTES for all work items			15.29M	7.64M	
Total for Service Adjusted Cost for NRC Labor rate/work item X Work Item Minutes			$9.98	D-(E+F) **$4.99**	

				Adjusted Work Times and NRC rate	
A	B	C	D	E	F
	# Qwest Work Items	# Validation Work Items Note 1	Qwest NRC Work Times Minutes	Adjustment to NRC Work Times Minutes Note 2	Adjustment to Other Work Item Times Minutes Note 3
UNE-P POTS Ea Addl Line Manual New Service Install					
Interconnect Service Center	1	0	3.00	0	-1.5
Loop Provisioning Center	1	0	1.69	0	-.85
Central Office	1	0	1.8	0	-.9
Installation & Maint.	4	0	10.58	0	-5.29
TOTAL MINUTES for all work items			17.07M	**8.53M**	
Total for Service Adjusted Cost for NRC Labor rate/work item X Work Item Minutes			$11.86	D-(E+F) **$5.93**	
UNE-P POTS Ea Addl Line Manual New Service					
Loop Provisioning Center	1	0	1.69	0	-.85
Central Office	1	0	.6	0	-.3
TOTAL MINUTES for all work items			2.29	**1.14M**	
Total for Service Adjusted Cost for NRC Labor rate/work item X Work Item Minutes			$1.50	D-(E+F) **$0.75**	

Column A: List the service type followed by the department performing work items.
Column B: The number of work items listed in the Qwest cost study
Column C: The number of work items described in my testimony as *Validation work items* see page 33
Column D: The total time Qwest applied to the cost study labor rate to calculate the NRC.
Column E: The recommended adjusted work item times Column D work items.
Column F: This column covers work items that fall out of the boundries of those in Column D.

Note 1: Validation work items are original Qwest work items with descriptions using verify, check and validate.

Note 2: Work times minus the verify, check and validate work times.

Note 3: Work items with time adjustments other than those in Note 2

V. CONCLUSION

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. This concludes the analysis portion of my testimony.

The body of my testimony describes a multitude of issues linked with Qwest's studies. Many of the flaws discussed above can be attributed to two related issues that introduce major flaws into Qwest's basic calculations:

1. Qwest has failed to apply a forward-looking OSS technology overlay to existing business processes. The large number of work items, requiring manual intervention, associated with many of the cost study services is a key indicator that forward looking OSS technology is not appropriately deployed. Additionally there is no indication in any of the data that forward looking OSS technology is in the foreseeable future. Qwest will most likely argue that SMEs tempered their estimates with forward-looking adjustments, as this was part of their instructions. However, I submit that it is highly unlikely that the SMEs used to document the costs associated with Qwest's current business processes are also subject matter experts in the areas of OSS evolution, technology advancements, industry forum resolutions and the associated cost/benefit points for each existing OSS that generates fall out.

2. In order to provision network elements a series of linked activities must be completed. Some of these activities require manual work while others are performed by systems. The combination of the required activity steps constitutes a complete process. Qwest makes no distinction between the manual resolution of system fallout as compared to planned/designed manual process intervention. Applying this definition to each workgroup individually and calculating costs by individual process step regardless of whether the fallout was planned or created due to quality or system based errors, totally ignores the efficiency potential imbedded in existing OSSs and compounds the costs associated with the end to end process. I have proposed applying a fallout rate once to an entire process as opposed to Qwest's cost compounding methodology. This is a standard quality approach that is used in the industry and has been accepted by regulators.

3. To provide validation of SME work item time estimates and to develop confidence in the reported times, I recommend that Qwest utilize time and motion studies as an accuracy tool in reestablishing work item times in the NRC cost studies. This is a standard quality approach and has been accepted by regulators.

Q. Does this conclude your testimony?

Y Yes, at this time.