Exhibit No:

Issues:	Outside Plant
Witness:	Dave S. Borders
Type of Exhibit:	Rebuttal Testimony
Sponsoring Party:	Southwestern Bell Telephone Company
Case No:	TO-2000-322

SOUTHWESTERN BELL TELEPHONE COMPANY

CASE NO. TO-2000-322

Rebuttal Testimony

of

Dave S. Borders

January 2000

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Petition of	)	
DIECA Communications, Inc	)	
D/B/A Covad Communications Company	)	TO-2000-322
for Arbitration of Interconnection	)	
Rates, Terms, Conditions and Related	)	
Arrangements with Southwestern	)	
Bell Telephone Company	)	

AFFIDAVIT OF DAVE S. BORDERS

STATE OF TEXAS)
) SS
CITY OF DALLAS)

I, Dave S. Borders, of lawful age, being duly sworn, depose and state:

1. My name is Dave S. Borders. I am presently Director – Planning and Engineering for Southwestern Bell Telephone Company.

2. Attached hereto and made a part hereof for all purposes is my rebuttal testimony.

3. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded are true and correct to the best of my knowledge and belief.

HATTIE C. WYATT
NOTARY PUBLIC
State of Texas
Comm. Exp. 09-17-2000

Dave S. Borders

Subscribed and sworn to before me on this 26th day of January 2000.

Notary Public

Q. WOULD YOU STATE YOUR NAME AND BUSINESS ADDRESS FOR THE RECORD?

A. My name is Dave S. Borders and my business address is One Bell Plaza, room 2312, Dallas, Texas 75212.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT POSTION?

A. I am employed by SBC Operations, Inc, a subsidiary of SBC Communications Inc. (SBC) and I am currently Director-Planning and Engineering (Regulatory Support) for the SBC telephone companies, including Southwestern Bell Telephone Company (SWBT).

Q. PLEASE SUMMARIZE YOUR PROFESSIONAL EXPERIENCE.

A. I was employed by SWBT for over thirty years from August 25, 1969 to December 31, 1999. From 1969 to 1975, I was a stockman, station installer, and a repairman. From 1975 to 1979, I was a supplies foreman, wire chief, and installation manager. From 1979 to 1996, I was an analysis manager, chief deskman, maintenance center manager, and repair manager. From 1996 to 1999, I was a manager responsible for installation/repair quality and installation/repair support. In 1999, I attained my current position of Director-Planning and Engineering (Regulatory Support). Effective January 1, 2000, I became an employee of SBC Operations, Inc in the same capacity. In this position, I am familiar with SWBT's Outside Plant Methods and Procedures.

Throughout my career, I have attended various technical schools to maintain my knowledge of telephone technology.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. The purpose of my rebuttal testimony is to respond to the direct testimonies of Mr. Donovan and Ms. Murray , filed on behalf of Covad, concerning the engineering and construction time estimates used in SWBT'S loop conditioning and loop qualification cost studies presented by SWBT witness Mr. Smallwood.

LOOP CONDITIONING

Q WHAT INFORMATION WAS PROVDED TO SWBT'S COST STUDY GROUP FOR THE LOOP CONDITIONING AND LOOP QUALIFICATION STUDY, AND WHO PROVIDED IT?

A. SWBT's Engineering Group provided the time estimates for loop conditioning necessary to provision xDSL capable loops. The cost study group was provided information concerning the time required to detach Load Coils, Bridged Tap(s), or a Repeater from a cable pair in order to provide DSL service over a standard 8dB loop.

Q. ARE THE TIME ESTIMATES INCLUDED IN THE LOOP CONDITIONING STUDY VALID?

A. Yes, they are valid. The time estimates are based upon SWBT experience and observation in the course of supervising cable repair technicians. I have personally performed the work necessary to condition loops. Additionally, I have supervised cable repair technicians who do such work. I know from my experience that the time estimated is necessary to do the work. Additionally, the time estimates were the same estimates used in SWBT's retail ADSL study. Furthermore, in recent months, visits were made with cable splicers and with cable splicing supervisors in Dallas, Texas; Kansas City, Kansas; and Independence, Missouri to re-verify the time estimates.

Q. DID YOU VERIFY THE ACCURACY OF THESE ESTIMATES?

A. Yes, I have reviewed the work being done for SWBT's wholesale xDSL service and determined that the time required to condition facilities is consistent with the time estimates. I used my own 30 years of experience of supervising the very tasks involved in the time estimates. I recently reviewed the work required with Construction Managers. Construction managers supervise cable splicers, SWBT technicians that perform this type work. I have also visited with a cable splicer that was de-loading 2 cable pairs for a SWBT customer.

Q. HOW WERE THE TIME ESTIMATES FORMULATED?

A. The time estimates were formulated based upon outside plant experience. The loop conditioning was separated into two functions. The first part is the engineering function, which includes the time it takes for the Outside Plant Engineer to look at the cable records, the plant location records, and to prepare the information that goes on the work order.

Q. WHAT IS THE ESTIMATED TIME FOR THE ENGINEER TO PREPARE THE WORK ORDER FOR THE REMOVAL OF LOAD COILS AND BRIDGED TAPS?

A. Two hours. The two hour estimate starts from the time the Engineer receives the order and includes the following:

1. Approximately 15 minutes to pull cable reports to identify spare cable pairs in which to select a UNE cable pair.
2. Approximately 30 minutes to investigate Plant Location Records to identify where the loads, bridged tap, etc., are located.
3. Approximately 15 minutes to fill out the loop make up form, which is sent to the Local Facility Assignment Center; the work order face sheet, which describes the work to be done and gives the Technician work specifications; and, an encoding form, which tracks the work operations.
4. Approximately 1 hour for the engineer to design the job which includes specific cable information, manhole information (or aerial or buried), street

address, work operation, safety information, permit (if needed) and a pictorial drawing of each work location.

Some jobs may indeed take less time, but there are some jobs that take longer. The two hours is an estimated average of all jobs regarding loop conditioning.

5. Once the engineer prepares the work order, it is given to the drafting clerk to draw. The estimated time for the clerk to draw a job removing load coils or bridge tap(s) is 30 minutes.
6. The completed work order is then issued and sent to the Construction department to work the order.

Q. WHAT IS THE ESTIMATED TIME TO PREPARE THE WORK ORDER FOR THE REMOVAL OF A REPEATER?

A. One hour. With regard to repeaters, the Engineer performs the functions outlined in steps one through four above in approximately 60 minutes. Once the engineer prepares the work order, it is given to the drafting clerk to draw. The estimated time to draw a job to remove a repeater is fifteen minutes. The completed work order is then issued and sent to the Construction department to work the order.

Q. WHY IS THERE A DIFFERENCE IN THE TIME THAT IT TAKES THE ENGINEER TO PREPARE WORK ORDERS THAT INVOVLE THE REMOVAL OF LOAD COILS AND BRIDGED TAP(S) AND THOSE WORK ORDERS THAT INVOLVE THE REMOVAL OF REPEATERS?

A. The reason there is a time difference between the work orders that involve the removal of load coils and bridged tap(s) and those work orders that involve the removal of a repeater is that there will usually be multiple load coils and bridged tap(s) on a loop that the engineer will check for in the outside plant records, whereas the repeater usually appears at only one location. In my opinion, all of the estimates that we have provided are conservative estimates of the work time required.

Q. WHY IS THERE A DIFFERENCE IN THE TIME IT TAKES A DRAFTING CLERK TO DRAW A JOB INVOLVING THE REMOVAL OF LOAD COILS AND/OR BRIDGE TAP(S) AND THOSE INVOLVING THE REMOVAL OF REPEATERS?

A. Again, it takes less time to draw a job involving a repeater than a load coil or bridged tap(s) because there is usually only one repeater whereas load coils always appear in multiples and bridge tap(s) may appear in multiples. Again, in my opinion these are conservative estimates of the work time required.

Q. AFTER THE WORK ORDER IS DEVELOPED, WHAT IS THE NEXT STEP OR FUNCTION?

A. The second function is the construction phase. It involves the following activities:

- The cable splicing technician receives the order, and familiarizes himself/herself with the work print and what tools and materials he/she will need to perform the work. He/She will call the Maintenance Center for a cable opening number. This notifies the repair department that someone is working in this cable.

Arrival at the job site:

- The cable splicing technician travels to the job site, and sets up the work area protection for safety and traffic control.
- In an underground environment (manhole), the cable splicing technician will place auxiliary air pressure. Most underground cables, and some aerial and buried, have pressurized air inside the cable sheath, which creates an additional step for the cable technician to place auxiliary air tanks at the adjacent manholes to buffer the cable while the work is being performed. The air pressure inside the cable sheath helps keep the water out of the cable and splice cases, so it is important that the cable splicing technician monitor the cable's air pressure during the work operation. Then the technician will clear the manhole of water, gases, etc., before entering the manhole.

- In a buried environment, the cable splicing technician will have to call for a cable locate, arrange for and dig a splice pit if needed, set up the work area protection, and prepare the cable for opening.
- In an aerial environment, the cable splicing technician will have to arrange access to the property, set up the work area protection, and request a bucket truck or place a splicing platform in order to access the aerial cable.

Conditioning the cable pair:

- In an underground environment, the cable splicing technician will identify the cable that is to be accessed. This may require the re-racking of other cables in order to reach the cable the work will be performed in. Once the cable is identified and accessed, the splice case will be opened, the cable pair to be conditioned will be identified (at times a tone from the Central Office will be necessary to identify the cable pair), the load coil, repeater, or bridged tap will be detached, and the cable pair will be tested before the splice case is reinstalled.
- In a buried environment, after digging a splice pit, the cable splicing technician will build a support rack in the splice pit for the cable being conditioned. Again the splice case will be removed. If the cable splice has been encapsulated in sealant the cable must be cleaned to identify the cable pair to be conditioned, the load coil, repeater, or bridged tap detached, and the cable pair will be tested. Once this task is performed,

the cable splicing technician will prepare the cable for a new cable sealant before replacing the splice case.

- In an aerial environment, the cable splicing technician will need a bucket truck or a splicing platform to access the cable. The cable splicing technician will remove the splice case, identify the cable pair to be conditioned, detach the load coil, repeater, or bridged tap, test the cable pair, and replace the splice case. Again, in some cases, the cable splicing technician may have to maintain air pressure on the cable while performing the work operation.

Q. WHAT IS THE TOTAL AMOUNT OF TIME FOR THE OUTSIDE PLANT WORK INVOLVED WITH CONDITIONING AN XDSL CAPABLE LOOP?

A. The estimated time for the cable splicing technician to remove load coils is 12 hours, because there are multiple load coils (usually three at 4 hours each) at different locations on the loop, which requires the cable splicing technician to physically move from one location to another. Estimated time for bridged tap(s) and repeater removal is four hours. The difference is that the cable splicing technician does not require as much set up time to remove bridge tap(s) and repeaters because he/she is not having to handle the larger amount of cable pairs.

A break down of the cable splicing technician's time is as follows:

- Accessing the cable: two hours (includes travel time, set up safety, traffic and work area protection, air pressure, and accessing the cable).

- Splicing time: one hour (includes opening the splice case, accessing and identifying the cable pairs, detaching the load coil, bridged tap, or repeater, and closing the splice case).
- Close down time: one hour (includes removing safety, traffic, work area protection, air pressure, and travel time).

The cost of working in aerial and buried cables is very similar, but the cost to work on underground cables in manholes is more expensive.

Q. WAS ANY OF THE WORK UNDERLYING THE TIME ESTIMATES DONE IN MISSOURI?

A. No. But I have confirmed the estimates with construction managers in Missouri who do supervise technicians that condition cable pairs in Missouri.

Q. ARE THE TIME ESTIMATES DEVELOPED OUTSIDE OF MISSOURI VALID FOR MISSOURI?

A. Yes. The design of SWBT's outside plant, specifically the use of load coils, bridged tap and repeaters, is the same in all five SWBT states. The time that it takes to remove load coils, bridged taps and repeaters is also the same regardless of which state in which those "interferors" may exist. The state differences, as Mr. Smallwood describes in his direct testimony, are in labor rates, and the labor rates used were Missouri specific.

Q. WHY WOULD MS. MURRAY STATE ON PAGE 45 THAT IT TAKES 40 MINUTES TO PROCESS A WORK ORDER BY ENGINEERING TO REMOVE ONE LOAD COIL, BUT 60 MINUTES FOR THE ENGINEER TO REMOVE ONE BRIDGED TAP OR REPEATER AND THAT THIS REVEALS INCONSISTENCIES AND OVERSTATEMENTS FOR TASK TIMES?

A. I do not know. An Engineer knows where load coils will be located on a loop. This knowledge helps to limit the time required to look for their location. Repeaters and bridged tap(s) may be located anywhere. This is why the engineering time estimates are larger for repeaters and bridged taps.

Q. IS SWBT'S COST FOR REMOVAL OF LOADING AND BRIDGED TAP REASONABLE?

A. Yes. The estimates provided to the cost study group are based on many years of experience in the telecommunication business. SWBT has many years of experience in loading, de-loading, placing and removing bridged taps. SWBT's network is dynamic; it is changing all of the time to accommodate customer needs; DSL is just the latest product. For example, SWBT, in Missouri alone, makes over 100,000 changes to circuits in the network every year in the form of cable throws, line station transfers, and conditioning cable pairs for T1 and other digital services. The time estimates are based upon experience in doing exactly what Covad is asking SWBT to do.

Q. HAVE YOU REVIEWED THE TASK TIMES THAT MR. DONOVAN HAS PROPOSED FOR THE REMOVAL OF LOAD COILS, BRIDGED TAP(S), OR REPEATER AND ARE THEY REASONABLE?

A. Yes. I have reviewed Mr. Donovan's time allotments for the tasks required to remove load coils, bridge tap(s), or repeaters. The times that Mr. Donovan has allowed for the tasks to be performed are not reasonable.

Q. WHAT EXAMPLES CAN YOU GIVE OF THE UNREASONABLENESS OF MR. DONOVAN'S TIME ALLOTTMENTS?

A. An example of this is the task to set up work area protection (step 2). SWBT's safety practice requires that when a work site is in or adjacent to a roadway or street, seven pieces of work area protection (one man working sign, 6 traffic cones) be placed if the speed limit is 45 miles per hour or less. Ten pieces of work area protection (one "men working" sign, 9 traffic cones) are required on roadways or streets when the speed limit is greater than 45 miles per hour. The spacing of the work area protection is determined by the speed limit of the roadway or street, i.e. if the speed limit is 30 miles per hour the work area protection is to be placed 30 feet apart or if the speed limit is 40, placement will be 40 feet apart. The majority of SWBT's cables are located in or adjacent to roadways and streets. Mr. Donovan allows only 5 minutes to perform this task, which is clearly insufficient.

Q. CAN YOU GIVE ANY OTHER EXAMPLES OF ERRORS IN MR. DONOVAN'S TIME ALLOTMENTS?

A. Yes. In step 3 of load coil removal in a manhole are the tasks of ventilating and pumping the manhole, Mr. Donovan allows 15 minutes to perform these functions. Fifteen minutes is not an adequate amount of time for this function. In SWBT's safety practices, the time required for ventilating a manhole is based on its size and the capacity of the air blower being used. The least amount of time required to ventilate a manhole is 5 minutes and the largest amount is 120 minutes. If the technician smells earth gases when removing the manhole cover, the ventilating time is tripled. The average ventilation time involved is greater than 15 minutes. These times also do not include any of the time needed for setting up the equipment and testing the air in the manhole.

Q. WHAT TIME IS REQUIRED TO PUMP WATER FROM A MANHOLE?

A. The time required to pump water from a manhole is determined by the amount of water and the capacity of the pump, but Mr. Donovan states that both ventilating and pumping can be completed in 15 minutes.

Q. ARE SEVERAL MANHOLES SOMETIMES INVOLVED IN THIS PROCESS?

A. Yes. If the manhole that the splice case is located in is in a low spot in relation to the other manholes, water will have to be pumped from the

adjacent manhole or manholes to stop water from flowing into the manhole where the work is to be performed.

Q. **ARE THE FUNCTIONS YOU HAVE DESCRIBED ABOVE SOMETIMES REQUIRED IN COMBINATION?**

A. Yes. Work area protection is required anytime a technician is going to perform a work operation near a roadway. This means protection must be established not only at the splice case location, but also at the locations where air pressure must be augmented. If additional manholes must be pumped in order to perform work at the manhole work location, work area protection is also required at those additional locations. Likewise, work area protection must be placed when the augmented air pressure is removed.

Q. **OVERALL HOW WOULD YOU JUDGE THE REST OF MR. DOVOVAN'S TIME ESTIMATES?**

A. Generally, Mr. Donovan's time estimates are understated even for a best case scenario. He allows 5 minutes to open a splice case. A small stainless steel splice case has 20 bolts that have to be loosened to remove its two locking bars. If a lead sleeve splice closure must be entered, the metal has to be cut length wise to remove the solid metal closure. This can take up to 2 hours or more. All of Mr. Donovan's time estimates represent a best case scenario. SWBT's overall time estimate is an average of best case and worst

case scenarios based upon SWBT's extensive experience in actually performing the type of work at issue.

Q. HAVE YOU REVIEWED THE PROCESSES THAT MR. DONOVAN HAS PROPOSED FOR THE REMOVAL OF LOAD COILS, BRIDGED TAP(S), OR REPEATERS AND ARE THEY APPROPRIATE?

A. I have reviewed Mr. Donovan's processes and they are flawed. He has not provided for the maintenance of air pressure on the cable that is being worked on, or the removal of load coils and bridged taps that are buried

Q. WHY DOES SWBT PLACE AIR PRESSURE IN ITS CABLES?

A. SWBT places air pressure on large cables to prevent water from entering into the cable and causing a service outage.

Q. WHY WOULD AIR PRESSURE BE REQUIRED FOR THE REMOVAL OF LOAD COILS, BRIDGED TAPS, OR REPEATER?

A. When a splice case is opened to remove a load coil, bridged tap, or a repeater, the air pressure in the cable escapes through the open splice case. The air pressure is decreased in the cable between the central office and the open splice case, and is completely cut off in the cable going beyond the open splice case. To prevent this loss of air pressure in the cable, the air pressure must be augmented to both the central office side and field side of

the cable splice case before the case is opened. This is necessary so that air pressure can be maintained on the cable at all times.

Q. HOW IS THE AIR PRESSURE ON CABLES AUGMENTED?

A. The technician uses a nitrogen bottle with a flow regulator or a maintenance air tube attached by a rubber hose to the cable to be opened. These attachments would be placed at locations that are easily accessed by the technician on both sides of the splice to be opened. Many times the only location for access to augment the air pressure will be in a manhole.

Q. WHAT OTHER WORK RELATED TO AIR PRESSURE IS REQUIRED WHEN OPENING A SPLICE CASE TO REMOVE LOAD COILS, BRIDGE TAPS OR A REPEATER?

A. After the work in the cable splice case is completed and closed, the auxiliary air pressure must be removed at each location.

Q. WHAT ADDITIONAL TASKS ARE REQUIRED TO REMOVE A BURIED LOAD COIL OR BRIDGED TAP?

A. The buried splice cases in the cable would have to be located and splice pits dug. The buried cables may have air pressure on them and will require the augmenting of the air pressure as stated above. A rack must be constructed in the pit to support the splice case being entered. If the cable does not have air pressure on it, the cable splice will be encapsulated in a rubbery type

material to prevent water from entering the splice. This must be removed to access the cable pairs. After the work has been completed, encapsulating material would be replaced before closing of the splice case. Performing work on buried splices can be very costly and time consuming due to the time required to locate the cable and prepare the site.

LOOP QUALIFICATION

Q. WHEN IS MANUAL LOOP QUALIFICATION REQUIRED FOR AN XDSL CAPABLE LOOP?

A. A manual loop qualification is necessary when the information required is not in the mechanized database .

Q. WHO WOULD PERFORM THE MANUAL LOOP QUALIFICATION?

A. SWBT uses an engineer to process a manual loop qualification.

Q. WHY WOULD SWBT NOT USE A DRAFTING CLERK FOR THIS WORK AS STATED BY MR. DONOVAN?

A. A drafting clerk would be able to determine the loop makeup and list any load coils, bridged tap(s) or repeaters that were found. However, the clerk has neither been trained nor is it in the drafting clerk's job description to analyze the loop or cable makeup. This analysis is useful to determine if a better pair

can be found in the cable for the service requested. The engineer uses his training and experience to study the available cable binder groups in an attempt to produce a pair that will require no conditioning. Often this can be done by a service rearrangement. The drafting clerk would not be able to perform this analysis.

Q. DOES THE TIME CHARGED FOR THE "PARTIALLY MECHANIZED" LOOP QUALIFICATION HAVE SPECTRUM MANAGEMENT ANALYSIS TIME INCLUDED IN IT AS MS. MURRAY STATES.

A. Yes. When the cost study was done, SWBT had planned to analyze the effect of disturber technologies in the same and adjacent binder groups. However, I have had conversations with engineers to discuss whether the elimination of this function has affected the time to do "partially mechanized" loop qualification. What I learned was that the elimination of this function has not affected the time estimated for the cost study. These conversations took place with engineers from Dallas, Fort Worth, Independence, and Wichita.

Q. WHAT WAS THE AMOUNT OF TIME USED IN THE COST STUDY?

A. SWBT used 60 minutes in the cost as the engineering time required to perform the "partially mechanized" loop qualification.

Q. IS 60 MINUTES STILL A VALID TIME ESTIMATE FOR THE ENGINEERING TIME REQUIRED TO PERFORM THE "PARTIALLY MECHANIZED" LOOP QUALIFICATION?

A. Yes. The 60 minutes is still a good conservative time estimate for the engineering time required to perform this function. The engineers I spoke with gave me a range of 45 minutes to 90 minutes to complete a request for loop qualification that was handled manually.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.