

Exhibit No: _____

Issue: ~~Test study~~ assumptions;

Loop conditioning policies and procedures;

Loop qualification;

Witness: John C. Donovan

Type of Exhibit: Surrebuttal Testimony

Sponsoring Party: Covad Communications Co.

Case No: TO-2000-322

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Missouri Public
Service Commission

**SURREBUTTAL TESTIMONY OF JOHN C. DONOVAN ON BEHALF OF
COVAD COMMUNICATIONS COMPANY FOR ARBITRATION OF
INTERCONNECTION RATES, TERMS, CONDITIONS, AND RELATED
ARRANGEMENTS WITH SOUTHWESTERN BELL TELEPHONE COMPANY**

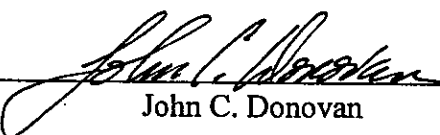
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ORIGINAL

VERIFICATION

STATE OF MISSOURI)
) SS:
COUNTY OF ST. LOUIS)

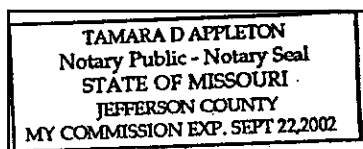
Comes now John C. Donovan, being of lawful age and duly sworn, who states that he is the witness who has provided the foregoing testimony, that he has prepared and read the foregoing testimony, and that the information contained therein is true and accurate to the best of his knowledge and belief.


John C. Donovan

Subscribed and sworn to before me on this 10th day of February, 2000.


Notary Public

My Commission Expires:



BEFORE THE MISSOURI PUBLIC SERVICE COMMISSION

IN THE MATTER OF THE PETITION)	
OF DIECA COMMUNICATIONS, INC.)	
D/B/A COVAD COMMUNICATIONS)	
COMPANY FOR ARBITRATION OF)	
INTERCONNECTION RATES,)	CASE NO. TO-2000-322
TERMS, CONDITIONS AND)	
RELATED ARRANGEMENTS WITH)	
SOUTHWESTERN BELL)	
TELEPHONE COMPANY)	

**SURREBUTTAL TESTIMONY OF
JOHN C. DONOVAN
ON BEHALF OF
DIECA COMMUNICATIONS, INC.
D/B/A COVAD COMMUNICATIONS COMPANY,
FOR ARBITRATION OF INTERCONNECTION RATES, TERMS,
CONDITIONS, AND RELATED ARRANGEMENTS WITH
SOUTHWESTERN BELL TELEPHONE COMPANY**

DATED: February 10, 2000

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1 **I. INTRODUCTION AND SUMMARY**

2 **Q. PLEASE STATE YOUR NAME, TITLE AND BUSINESS ADDRESS.**

3 A. My name is John C. Donovan. I am President of Telecom Visions, Inc. My
4 business address is 11 Osborne Rd, Garden City, NY 11530.

5 **Q. HAVE YOU PREVIOUSLY FILED TESTIMONY IN THIS**
6 **PROCEEDING?**

7 A. Yes, I filed direct testimony on January 7, 2000, and rebuttal testimony on
8 January 28, 2000, on behalf of Covad Communications Company ("Covad")
9 concerning technical and other issues raised by Southwestern Bell Telephone
10 Company, Inc. ("SWBT") in its response to Covad's Petition for Arbitration. My
11 curriculum vita, provided as Schedule JCD-1 to my direct testimony, presents my
12 qualifications and experience as they relate to the issues in this proceeding.

13 **Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?**

14 A. My surrebuttal testimony addresses certain arguments presented in the January
15 28, 2000, rebuttal testimonies of SWBT witnesses Borders, Latham, Lube and
16 Smallwood. I also address statements by the Commission's Telecommunications
17 Department Staff ("Staff"), as presented in Mr. Clark's and Mr. Couch's rebuttal
18 testimonies.

19 In many instances, the SWBT rebuttal testimony merely restates or repeats
20 a SWBT position that I have already addressed in either my direct or my rebuttal
21 testimony. In such cases, I have striven not to burden the record by repeating my

1 previous testimony herein. Therefore, the Commission should not construe my
2 silence on any specific issue raised in SWBT's rebuttal testimony to indicate my
3 agreement with SWBT's position. Instead, lack of comment in this surrebuttal
4 testimony indicates that I have already addressed the content of SWBT's rebuttal
5 in my previous testimony.

6 **Q. PLEASE SUMMARIZE YOUR SURREBUTTAL TESTIMONY.**

7 **A.** In the remainder of my surrebuttal testimony, I establish the following points:

- 8 • SWBT fails to establish that it cannot or should not provide the minimal loop
9 makeup information that Covad requires, and that it has, or should have
10 reasonably available at virtually no cost to SWBT.
- 11 • SWBT should be ordered to keep its newly developed CLEC loop make-up
12 information database up to date with network changes.
- 13 • Covad merely requires access to loop make-up information so it can analyze
14 that information for itself. Covad does not require an analysis of this
15 information by a SWBT engineer. Thus, a drafting clerk is capable of
16 performing the manual loop qualification. A SWBT engineer does not need to
17 be involved.
- 18 • Both Covad, and Staff agree that SWBT's alleged loop conditioning costs are
19 overstated. Indeed, SWBT's internal engineering policies support Covad's
20 position that SWBT should condition multiple pairs at a time to prevent
21 service degradation.

- 1 • SWBT's claim that load coils that will never be required on loops of less than
2 18,000 feet should not be removed at the first opportunity to do so ignores
3 industry evidence that the presence of load coils degrades modem service.
- 4 • Staff supports Covad's position that SWBT's estimated loop conditioning task
5 times are inflated.
- 6 • SWBT provides no data showing that its estimated task times are based upon
7 alleged forward-looking, most efficient procedures or performance, even
8 though SWBT performs approximately 100,000 such tasks each year and
9 information regarding such performance is uniquely within SWBT's control.
- 10 • Covad believes that SWBT should not be allowed to charge for conditioning
11 of loops under 18,000 feet. If, however, this Commission imposes
12 conditioning costs for such loops, it should limit such charges to 4% of the
13 loops ordered by Covad, as suggested by Mr. Clarke, provided that the
14 Commission carefully crafts such a rule to ensure compliance with its
15 objectives.

16 **II. SWBT'S REBUTTAL TESTIMONY FAILS TO BOLSTER ITS**
17 **ARGUMENTS FOR INAPPROPRIATE LOOP QUALIFICATION**
18 **CHARGES.**

19 **Q. HAS SWBT ADEQUATELY COUNTERED YOUR ARGUMENT THAT**
20 **THE LOOP MAKEUP INFORMATION THAT COVAD REQUIRES**
21 **SHOULD ALREADY BE IN THEIR LFACS DATA BASE?**

22 **A.** No. As I explained in my direct testimony, LFACS has been the repository for
23 loop makeup information for many years. This fact is well known in the industry,

1 and SWBT has provided no rebuttal to that point. The only excuse that SWBT
2 offers is that "LFACS and TIRKS contain proprietary and/or competitively-
3 sensitive information about customers, carriers, and SWBT's network."¹ Mr.
4 Lube refers to such access as, "inappropriate direct access to these systems."² In
5 my direct and rebuttal testimonies, I was not suggesting inappropriate direct
6 access; I was suggesting appropriate direct access to only the information that
7 Covad needs. I know that it is quite possible to allow limited access to LFACS
8 and TIRKS data and to restrict such access to particular "fields" of data, such as
9 presence of load coils, bridged tap, etc.. Technicians routinely have access to
10 LFACS data via their Craft Access Terminal ("CAT"), allowing them to obtain
11 cable and pair information directly. Those technicians, however, generally are
12 prohibited from accessing all information in the database using software programs
13 that have existed for more than a decade. In addition, I have recently spoken with
14 a software developer who provides large ILECS with a system to directly access
15 LFACS and TIRKS data via a mirror database with restrictive access to only
16 certain data fields. He agreed that this software could be immediately applied to
17 an Roc's database to allow CLECs access to limited types of data.

18 **Q. IF SWBT IS ALLOWED TO CHARGE FOR ACTUAL COSTS**
19 **ASSOCIATED WITH MANUAL LOOP QUALIFICATION, WILL IT**
20 **HAVE ANY INCENTIVE TO ENSURE THAT SUCH QUALIFICATION**
21 **PROCEDURES ARE UPGRADED TO THE MOST EFFICIENT**
22 **PROCESSES AVAILABLE IN A COMPETITIVE ENVIRONMENT?**

¹ Lube Rebuttal at 5.

² *Ibid.* at 5.

1 A. Absolutely not. If SWBT is allowed to charge actual costs associated with
2 providing loop make-up information manually, it will never have an incentive to
3 upgrade its systems to provide appropriate mechanized, electronic access to loop
4 make-up information. Indeed, because the costs for manual access to loop make-
5 up information are higher than mechanized, electronic access, allowing SWBT to
6 charge for such manual access will actually discourage SWBT from upgrading its
7 systems to modern competitive standards. Although I address SWBT's
8 assumptions regarding the manual loop qualification process in the alternative,
9 my primary recommendation, as explained in more detail by the testimony of Ms.
10 Murray, is that the Commission should disallow any charges for manual loop
11 qualification.

12 Q. MR. LUBE STATES, "ANY INFORMATION IN THESE TWO SYSTEMS
13 RELEVANT TO XDSL PROVISIONING WILL BE MADE AVAILABLE
14 TO CLECS VIA ... ELECTRONIC ACCESS ...".³ IS THIS ADEQUATE
15 FOR COVAD'S REQUIREMENTS?

16 A. In one way it is "overkill" in that there are several pieces of information that Mr.
17 Lube says are difficult to provide, and will sometimes not be in the database, such
18 as actual loop length by gauge, number of load coils, location of load coils,
19 location of bridged tap, and location of repeaters, thereby creating the need
20 manual loop qualification. As stated in my rebuttal testimony, Covad needs
21 information regarding only the *presence* of load coils, bridged tap, repeaters, DLC
22 and similar devices, not the location of such interferors. Information regarding
23 the location of these devices is information that a SWBT engineer could use to

1 create his or her engineering work order to complete conditioning. The cost of
2 retrieving such information presumably is recovered in SWBT's charges for that
3 work. SWBT should not be able to double-recover those costs through both loop
4 qualification charges and conditioning charges. Covad only needs a few simple
5 things to make its own determination of the suitability of the loop for Covad's
6 services: actual loop length, presence or absence of load coils, presence or
7 absence of excessive bridged tap, and presence or absence of repeaters or other
8 devices that do not belong on a POTS line⁴.

9 **Q. WILL SWBT ACTUALLY HAVE TO PULL PAPER PLANT LOCATION**
10 **RECORDS TO CREATE A LENGTH AND GAUGE CABLE**
11 **DESCRIPTION?**

12 A. No. Based on information provided by SWBT, as supported by statements made
13 by Mr. Borders in his February 9, 2000 deposition⁵, SWBT has a mechanized
14 plant location record database, that has existed for many years. Documents
15 provided in response to Data request 69 regarding a system called MPLR
16 ("Mechanized Plant Location Records") indicate that this mechanized system uses

3 *Ibid.* at 5.

4 This includes the existence of any mid-span ISDN repeaters, which are not necessary on
ISDN loops of less than 30,500 feet, despite the fact that Mr. Smallwood's comments
(Smallwood Rebuttal at 12) could be construed to indicate that such ISDN mid-span
repeaters could frequently be found on such loops.

5 In response to the question as to whether Mr. Borders knows what the acronym MPLR
[Mechanized Plant Locations Records] stands for, Mr. Borders replied, ***BEGIN
HIGHLY CONFIDENTIAL*** [REDACTED] ***END HIGHLY CONFIDENTIAL*** In
response to the question as to whether Mr. Borders was is aware that Plant Location
Records are mechanized, he replied, ***BEGIN HIGHLY CONFIDENTIAL*** [REDACTED]
[REDACTED] ***END HIGHLY CONFIDENTIAL*** Borders Depo at
_____. At the time of this surrebuttal testimony, final copies of transcripts had not yet

1 information contained in its Section Of Plant ("SOP") database that may be used
2 to determine automated cable length, gauge, and the presence of Load Coils and
3 Bridged Tap in the outside plant. This information is in contrast to that provided
4 by SWBT in this proceeding that for manual loop qualification an engineer must
5 pull paper records and expend a significant amount of time to trace a cable pair to
6 perform length and gauge. No consideration has been given to the MPLR
7 database that SWBT has available for this purpose.

8 **Q. DO YOU ACCEPT SWBT'S CLAIM THAT COVAD CHARGES FOR**
9 **LOOP QUALIFICATION SHOULD BE BASED ON 20% FALLOUT?**

10 A. No. SWBT's loop qualification charges are calculated on the assumption that
11 20% of loop information requests will not be in the database. SWBT has
12 provided no evidence to substantiate that allegation, and their estimate of 20% is
13 pure guesswork. In addition, SWBT's contention that information regarding the
14 *location* of interferors, such as load coils and bridged tap, is not available is a red
15 herring. Covad has made it clear that it simply needs to know that interferors
16 either exist or do not exist – it does not the actual location of such interferors. In
17 addition, as Ms. Murray points out in her surrebuttal testimony, documents
18 produced by SWBT show that expected fallout should be a small fraction of that
19 alleged by SWBT.

20 **Q. WHEN SWBT CREATES THEIR MECHANIZED DATABASE ACCESS**
21 **SYSTEM, WILL THIS MEET COVAD'S REQUIREMENTS?**

been received. Covad will supplement this testimony with citations to the final transcripts when they become available.

1 A. It should meet Covad's requirements. However, I am both concerned and puzzled
2 by statements made by Mr. Lube that would indicate to me that the database will
3 not be updated, and will soon fall into disrepair. Although SWBT indicates that it
4 will update the loop qualification database for a loop that undergoes manual loop
5 qualification, it would appear that SWBT only intends to update one record for
6 one pair – a pair that most likely will then be placed in service for xDSL service.
7 As a working, non-spare line, that is of little value to Covad. Also, this approach
8 violates generally accepted practices in the industry. Normally, when a length
9 and gauge study is done, all pairs in the same serving terminal should be updated
10 with their length and gauge attributes as well. This has been the standard industry
11 LFACS practice since at least 1987. SWBT's approach appears to be a reluctant,
12 minimalist approach to sparsely populating a potentially useful database.

13 In addition, I was shocked by Mr. Lube's rebuttal testimony statement that, "as
14 new loops are engineered, or existing loops are re-engineered, the actual loop
15 qualification information for these loops will not be available [to CLECs] via
16 electronic access."⁶ Based on my considerable experience as an engineer,
17 supervisor of engineers, and as an engineering methods writer, this flies in the
18 face of logic and established practice. By such logic, if an engineer were to call
19 for the placement of a new distribution cable with block terminals for service, that
20 information would never be entered into the loop assignment systems. Engineers
21 are responsible for keeping this type of information up to date, either through their
22 own actions, or through the actions of facilities assistants. In addition, if this loop

1 qualification database policy stands, it will rapidly become out of date and useless
2 to CLECs. That will in turn require additional manual loop qualification in an
3 endless spiral intended to stifle competition by refusing to provide reasonable
4 loop makeup information. The remaining statements on page 6 of Mr. Lube's
5 rebuttal testimony appear to say that SWBT is required to set up the database, but
6 is not obligated to keep it up to date.

7 **Q. DO YOU AGREE WITH TESTIMONY BY THE COMMISSION STAFF**
8 **REGARDING LOOP QUALIFICATION?**

9 A. Yes. Mr. Couch provides excellent insight into how SWBT can mechanize the
10 loop testing process to obtain accurate data in ways that are impossible for Covad
11 to achieve on its own⁷. Mr. Couch's statements also reminded me of efforts
12 normally performed by major telephone companies engaged in *Defective Pair*
13 *Recovery* programs. I was personally involved in creating methods for such
14 programs ten years ago at the NYNEX Corporation. Equipment exists on the
15 market to perform massive testing of outside plant pairs on a programmed basis.
16 SWBT may likely be using such methods for its internal programmed efforts
17 under the *Pronto* project. I completely concur with Mr. Couch regarding his
18 opinions on this portion of loop qualification. I also note that Mr. Clark expands
19 upon the work done by Mr. Couch, and cites the excellent work done prior to this
20 case by the Texas Commission which ordered that the information is to include
21 those items critical for CLECs to know, and also called for capturing additional

⁶ *Ibid.* at 6.

1 information, such as location of load coils, bridged taps, and repeaters, if it was
2 readily available in records.⁸

3 **Q. IS THE SOFTWARE USED TO CAPTURE AND DISPLAY LOOP**
4 **QUALIFICATION INFORMATION DIFFICULT FOR SWBT TO**
5 **ACCOMPLISH IN MISSOURI?**

6 A. No. As Mr. Clark clearly indicates, SWBT has been ordered to do this in Texas,
7 so the software will already exist. To offer anything less in Missouri would put
8 consumers and competitors in Missouri at a disadvantage compared with those in
9 Texas. I concur with Mr. Clark that SWBT should be ordered to provide identical
10 handling of loop conditioning information, as it is required to do in Texas.

11 **Q. DO YOU HAVE ANY EXPERIENCE IN SOFTWARE DEVELOPMENT**
12 **THAT WOULD SUPPORT YOUR CONTENTION THAT ONCE A**
13 **SOFTWARE PLATFORM IS CREATED FOR TEXAS, IT SHOULD BE**
14 **PORTABLE TO OTHER SWBT STATES?**

15 A. Yes. As my curriculum vita indicates (Attachment JCD-1 to Direct Testimony of
16 John C. Donovan), I have had project management responsibilities for large
17 software development projects. Software development, using tools that have been
18 available for several years, allow developers to create ubiquitous platforms that
19 should be portable across areas with similar characteristics. That software
20 portability comes at virtually no additional cost.

⁷ Couch Rebuttal at 3 (regarding the use of the Harris 105A Remote Test Unit, and other systems).

⁸ Clark Rebuttal at 5.

1 **Q. IS MISSOURI DISSIMILAR FROM OTHER SWBT STATES IN A WAY**
2 **THAT WOULD PREVENT SOFTWARE PORTABILITY?**

3 A. No. In fact Mr. Borders indicates that operations are identical from state to state,
4 with the only difference being labor rates.⁹

5 **Q. WILL LOOPS "FALL OUT OF THE PROCESS" ANYWAY, AS MR.**
6 **LUBE SUGGESTS?**

7 A. A small number probably will. However, that is part of SWBT's obligation
8 regarding database maintenance. I think Mr. Lube equivocates, by careful
9 wording, that SWBT only has to provide information if it is already mechanized,
10 and that things such as location of load coils do not exist in a mechanized
11 database. As I have stated repeatedly, Covad does not care where the interferors
12 are physically located, it only needs to know if such interferors are present. This
13 Commission should order SWBT to provide the mechanized system.

14 **Q. DOES MR. COUCH DISAGREE WITH YOU ON THE WORKFORCE**
15 **NECESSARY TO DO LOOP QUALIFICATION, BETWEEN ENGINEERS**
16 **VERSUS DRAFTING CLERKS?**

17 A. Yes, Mr. Couch disagrees with my position as stated in my direct testimony.
18 After further review, I would be willing to modify my position somewhat to agree
19 with Mr. Couch. My specific use of words indicated that I would not waste an
20 engineer to "perform and analyze what is known as a 'length & gauge' study. That
21 type of work is done by engineering studies clerks or drafters."¹⁰ That opinion
22 was based on my personal experience of training my engineering studies clerks to

⁹ Borders Rebuttal at 10-11.

1 perform those functions when I supervised a 35-person outside plant planning
2 organization, and my later experience in training drafters as part of a 55-person
3 outside plant administrative control and drafting group. Experienced drafters can
4 do much of the same work as an engineer, thereby freeing up engineers for more
5 intensive decision-making work. However, I believe that Mr. Couch agrees, Mr.
6 Borders agrees, and I agree, that the collection of length & gauge data, including
7 all interferor items mentioned in these proceedings, even including the locations
8 along the loop of components such as load coils, bridged taps, and repeaters, are
9 captured in tabular form by the engineering studies clerk or engineering drafting
10 clerk. An engineer is needed only to conduct an analysis of the data, which
11 Covad neither requires nor desires. Covad has its own engineers to analyze such
12 data to determine whether the loop is suitable for Covad's services.

13 Mr. Couch specifically limits his criticism of my direct testimony to that of
14 making the decision that a loop is qualified (see Couch rebuttal at 3). Mr. Borders
15 states, "A drafting clerk would be able to determine the loop makeup and list any
16 load coils, bridged tap(s) or repeaters that were found." Borders rebuttal at 18.
17 This is all that Covad asks, and all that should be captured in the appropriate
18 database information that Covad seeks. Covad does not wish to rely on or pay
19 SWBT engineers to determine the suitability of the loop for Covad's services.
20 Covad engineers will make that judgment, based on accurate facts, for Covad's
21 services in the same manner as would SWBT engineers for SWBT's DSL
22 services. Indeed, in some cases, Covad engineers would determine the

1 qualification of a loop differently from SWBT engineers. For example, SWBT
2 does not have xDSL equipment that will operate over lengths longer than 17,500
3 feet, where Covad may decide to use equipment that will function beyond 17,500
4 feet.

5 **Q. IN MR. LUBE'S REBUTTAL, SWBT CONTENDS THAT YOUR**
6 **PORTRAYAL OF "RED", "YELLOW", AND "GREEN" LOOP**
7 **QUALIFICATION AS MISLEADING TO CLECS IS INACCURATE. DO**
8 **YOU AGREE?**

9 A. No. SWBT mischaracterizes my testimony. As my Rebuttal testimony states, a
10 "Red" indication from SWBT's loop qualification system implies that the
11 requested loop is unsuitable for DSL. That type of information is misleading and
12 totally inadequate. CLECs need the types of information outlined in Mr. Clark's
13 testimony, accessible in real time from a database that is timely updated to include
14 all engineering changes to the network.

15 Indeed, both the Texas PUC and the FCC have determined that SWBT's
16 "Red, Yellow, Green" system is discriminatory. The Texas Arbitration Award
17 ordered CLEC access to "any operations support systems utilized by SWBT's
18 service representatives and/or SWBT's internal engineers and/or by SWBT's
19 advanced services affiliate to provision its own retail xDSL service."¹¹ In doing
20 so, the Award firmly concluded that "competitive parity *can only be reached* with

¹¹ Texas Arbitration Award at 60. *See also id.* at 65 ("SWBT must provide actual, real-time loop makeup information to CLECs rather than a pre-qualification or loop qualification process because SWBT's back office personnel have the ability to access relevant actual loop makeup information in real time through the back office databases.").

1 respect to loops used to provide xDSL services if CLECs are provided with *real-*
2 *time access to actual loop makeup information . . .*”¹² The Award also stated
3 that SWBT’s current pre-qualification and loop qualifications systems are “*not* a
4 reasonable substitute for the provision of actual loop makeup information”¹³ and
5 ordered SWBT to revise those systems. In the *UNE Remand Order*, the FCC
6 specifically pointed to SBC’s “red-yellow-green” pre-qualification system and
7 said that such a system would permit an ILEC “to discriminate against other
8 xDSL technologies in favor of their own xDSL technology.”¹⁴

9 **III. SWBT’S CLAIM THAT XDSL INTERFERORS ARE NOT**
10 **DETRIMENTAL TO EXISTING 8DB POTS LOOPS IS INCORRECT**

11 **Q. IS MR. LUBE CORRECT WHEN HE STATES THAT INTERFERORS**
12 **SHOULD BE REMOVED ONLY ONE AT A TIME, SPECIFICALLY AT**
13 **THE REQUEST OF A CLEC BECAUSE THEY ARE NOT HARMFUL TO**
14 **WORKING LINES?**

¹² Texas Arbitration Award at 74 (emphasis added).

¹³ Texas Arbitration Award at 74.

¹⁴ *Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, Third Report and Order and Fourth Further Notice of Proposed Rulemaking, CC Docket No. 96-98, FCC 99-238 (rel. Nov. 5, 1999) (*UNE Remand Order*) at ¶ 428 (“Under our nondiscrimination requirement, an incumbent LEC cannot limit access to loop qualification information to such a ‘green, yellow, or red’ indicator. Instead, the incumbent LEC *must provide access to the underlying loop qualification information* contained in its engineering records, plant records, and other back office systems so that requesting carriers can make their own judgments about whether those loops are suitable for the services the requesting carriers seek to offer.”).

1 A. No, Mr. Lube is incorrect. Mr. Lube makes the statement that, "First, unlike
2 water in a splice, these devices [load coils, bridged tap or repeaters] are not
3 impairing working services on any other pairs in that binder group."¹⁵ I disagree
4 with Mr. Lube, and I believe the industry disagrees with Mr. Lube.

5 First, no party disagrees that repeaters on a copper cable pair render it unusable
6 for normal 8 dB POTS service. Therefore, it is inappropriate from both a service
7 and fiscal basis to leave such an unused device on lines.

8 Second, I have indicated clearly in prior testimony why bridged tap is detrimental
9 on lines for several reasons, including unnecessary exposure to service failure off
10 of the direct path between the customer and the central office, the faulty "phantom
11 trouble" location indicated with bridged taps on the line, and the increased
12 capacitance and potential for induced noise associated with creating an "antenna-
13 like" connection on a line. Mr. Lube's argument that bridged tap is a good
14 economic decision fails, and flies in the face of established industry practice and
15 his own company's engineering guidelines. Bridged tap provides no
16 enhancements to a working line, and only provides detriments.

17 Third, Mr. Lube's claim that load coils on a line of less than 18,000 feet do not
18 harm the line is incorrect. A very large segment of the population – hundreds of
19 thousands of consumers in the State of Missouri – utilize their POTS service for
20 modems as well as voice calls. There is considerable literature in the industry
21 regarding the detrimental effect of load coils on modem performance. I was

¹⁵ Lube Rebuttal at 14-15.

1 personally involved in this argument before the FCC, and I know that SWBT is
2 well aware of such discussions leading to the FCC's banning of load coils in a
3 forward looking model. While the precise degradation of modem performance
4 may be debatable, no party to those discussions disagreed that some significant
5 degradation takes place when load coils are on the line. Although 56 kbps
6 modems are commonplace today, scientific tests indicate that 33 kbps is
7 impossible with load coils on a line, 28 kbps is questionable, and the consensus is
8 that 21.6 kbps may be the highest speed attainable with three load coils on a line.
9 SWBT is doing its customers a disservice by not removing unnecessary load
10 coils, and other interferors, from all lines at its first opportunity.

11 I recommend that this Commission direct SWBT to remove all such interferors
12 from customer lines if such devices are unnecessary in the provision of service.

13 **IV. SWBT'S REBUTTAL TESTIMONY FAILS TO BOLSTER ITS**
14 **ARGUMENTS FOR INAPPROPRIATE LOOP CONDITIONING**
15 **CHARGES.**

16 **Q. IS THERE NOW TESTIMONY ON THE RECORD SUPPORTING YOUR**
17 **POSITIONS ON THE AMOUNT OF TIME THAT IS REQUIRED TO**
18 **CONDITION LOOPS?**

19 **A.** Yes. Both Messrs. Clark and Couch support my positions that SWBT's task times
20 are overstated. In addition, Mr. Clark expresses the concern that by not
21 conditioning multiple pairs at one time, even Staff's costs may be overstated.

22 Q. Would Staff's proposed conditioning charges, with the
23 proposed [4%] limit, result in non-recurring charges that are
24 unreasonably low for the work involved in conditioning loops for
25 DSL service?

1 A. No. Staff is concerned that Staff's proposed charges may
2 actually still be too high. Staff is aware of other incumbent LECs
3 that charge CLECs nothing for conditioning loops for DSL (e.g.,
4 Sprint, as testified to in Case No. TO-99-461). The Texas
5 arbitrator required SWBT to incorporate 'efficient conditioning'
6 practices in its charges for loop conditioning. The Texas arbitrator
7 found that for loops between 12,000 and 18,000 feet, SWBT would
8 be required to use a unit size of 50 in calculating costs, and a unit
9 size of 25 for loops greater than 18,000 feet. This was because the
10 Texas arbitrator found that SWBT's internal practices called for
11 conditioning of at least 50 pairs in a binder group at a time.¹⁶

12
13 In addition, regarding task times to remove interferors, Mr. Couch tends to
14 disagree with SWBT's time estimates as being excessive, and provides some
15 support for my time estimates. Mr. Couch estimates an average time of 120
16 minutes to remove interferors, versus SWBT's time estimate of 240 minutes. That
17 compares with my estimate of 120 minutes to remove a 50-pair count of load coils
18 in an underground environment (100 minutes to deload the first 25-pairs).

19 **Q. IS THERE ANY QUESTION THAT CABLES HAVE 50-PAIR BINDER**
20 **UNITS?**

21 A. Other than SWBT's statements that they would deload only one pair at a time, I
22 do not believe that any challenge has been presented. However, I have included a
23 copy of an industry reference that specifically identifies the layout of a typical
24 600-pair cable in 50-pair units as Attachment JCD-5.

25 **Q. DOES STAFF AGREE THAT REPEATED SPLICE REENTRY WILL BE**
26 **DETRIMENTAL TO THE CONDITION OF THAT SPLICE?**

¹⁶

Clark Rebuttal at 11-12.

1 A. Yes. Staff witness Mr. Couch states,

2 Yes, Mr. Donovan is correct when he says that it is efficient to
3 remove more load coils when the closure is open. Staff agrees that
4 it is true that the more times technicians open closures the more
5 opportunity there is to compromise the cable.¹⁷

6 Q. CAN YOU PROVIDE SOME EVIDENCE AS TO WHAT REPEATED
7 ENTRY INTO SPLICE CASES TO REMOVE LOAD COILS WOULD DO
8 TO THE CONDITION OF A SPLICE?

9 A. Yes. Not only will repeated reentry into copper cable splices destroy insulation
10 on individual pairs, causing what Mr. Borders referred to as ***BEGIN HIGHLY
11 CONFIDENTIAL ***¹⁷ ***END HIGHLY CONFIDENTIAL *** in his
12 deposition of February 9, 2000¹⁸, it destroys the 25-pair binder group integrity of
13 a splice that has been carefully and neatly prepared using 25-pair modular copper
14 splice connectors. Mr. Borders ***BEGIN HIGHLY
15 CONFIDENTIAL ***¹⁹ ***END HIGHLY CONFIDENTIAL *** I have included
16 pictures in Schedule JCD-6 to this surrebuttal testimony that shows a comparison
17 between individual wire-at-a-time connectors and modular splice connectors.
18 Schedule JCD-6.1 shows the use of individual pair connectors. These devices
19 that, when used to deload pairs one at a time, will create an undesirable condition
20 similar to a cluster of grapes. This is in contrast to the very neatly arranged
21

¹⁷ Couch rebuttal at 6.

¹⁸ ***BEGIN HIGHLY CONFIDENTIAL ***¹⁹ ***END HIGHLY CONFIDENTIAL *** Borders
Depo. at ____.

¹⁹ Borders Depo. at ____.

1 method of modular splicing utilizing modular connectors shown in Schedules
2 JCD-6.2 through JCD-6.4. It may be noted that the same manufacturer makes
3 both single wire and modular 25-pair modules.

4 **Q. DOES SWBT USE 25-PAIR MODULAR CONNECTOR SYSTEMS IN**
5 **SPLICING ITS COPPER CABLES?**

6 **A.** Yes. The two market leaders in this technology are Lucent's 710 connector
7 system and 3M Corporations MS2 connector system. According to Mr. Borders,
8 SWBT uses***BEGIN HIGHLY CONFIDENTIAL*** [REDACTED]

9 [REDACTED]²⁰***END HIGHLY
10 CONFIDENTIAL***

11 **Q. WHAT ARE YOUR OPINIONS ABOUT MR. CLARK'S PROPOSAL TO**
12 **ALLOW SWBT TO CHARGE FOR LOOP CONDITIONING, BUT ONLY**
13 **UP TO 4 PAIRS PER HUNDRED?**

14 **A.** I maintain my position that SWBT should follow the position of companies such
15 as Sprint and Bell Atlantic in not charging for removal of load coils on loops less
16 than 18,000 feet. In addition, no charges should be made for excessive bridged
17 tap. Mr. Couch supports that very clearly in his rebuttal testimony (Couch
18 rebuttal testimony at 7).

20

Borders Depo. at ***BEGIN HIGHLY CONFIDENTIAL*** [REDACTED]
[REDACTED]***END HIGHLY
CONFIDENTIAL***

1 In the alternative, if this Commission chooses to allow SWBT to levy charges for
2 loop conditioning, then Mr. Clark's recommendation should be adopted with
3 specific clarifications as described below.

4 **Q. IF THIS COMMISSION WERE TO DENY COVAD'S POSITION ON**
5 **LOOP CONDITIONING, WHAT CLARIFICATIONS WOULD BE**
6 **NECESSARY FOR MR. CLARK'S RECOMMENDATION TO BE**
7 **IMPLEMENTED?**

8 A. If the Commission adopts Mr. Clark's 4% suggestion, it should clarify that
9 charges for conditioning are limited to 4% of the loops *between 12,000 and*
10 *17,500 feet* that are ordered by Covad. For example, Mr. Clark's suggestion is
11 based on SWBT's estimate that only 3%-5% of loops between 12,000 feet and
12 17,500 feet would need conditioning. Because SWBT's conditioning estimate
13 does not include loops shorter than 12,000 feet and SWBT does not intend to
14 charge for conditioning such loops, these should be excluded from the calculation.

15 In addition, the Commission should base its 4% calculation on the total number of
16 12,000 – 17,000 ft. 2-wire xDSL loops ordered by all DSL providers, including
17 SWBT and ASI. Any other method of calculation, such as tracking discrete 100-
18 pair groups, would be very difficult to administer.

19 **Q. SHOULD STAFF'S 4% APPROACH CONSIDER EFFICIENCIES**
20 **ASSOCIATED WITH CONDITIONING MULTIPLE PAIRS?**

21 A. Yes. If the Commission adopts Staff's approach, it should reduce Staff's
22 proposed costs of conditioning to include efficiencies associated with

1 conditioning multiple pairs. SWBT's claim that they will condition only one pair
2 at a time violates their own written 50-pair at-a-time conditioning guideline.

3 Notably, Mr. Latham does not claim that the SWBT 50-pair conditioning
4 guideline is inefficient or technically infeasible. Instead, Mr. Latham attempts to
5 justify SWBT's inefficient proposal by claiming that it is necessary to allow
6 SWBT to recover its costs:

7 Covad offers no explanation for how SWBT would recover the
8 remaining 98% of the costs it would incur at Covad's request.

9 SWBT seeks to recover its full costs ...²¹

10 This attempt is unavailing for three reasons. First, Mr. Latham fails to recognize,
11 as both the Commission Staff and other SWBT witnesses recognize, that such
12 interferors do not belong on the cable pairs according to accepted industry
13 engineering practices. I have provided extensive evidence of both industry
14 standards and SWBT's own standards to support this conclusion.

15 Second, if SWBT truly desires to recover costs for conditioning the other
16 49 loops in a 50-loop complement, it easily could mark such loops as
17 "conditioned" and seek to charge CLECs and its DSL affiliate for its portion of
18 the conditioning costs when the loop is ordered. Indeed, if SWBT were allowed
19 to charge CLECs to condition loops one at a time, SWBT would every incentive
20 to condition loops in 50-pair increments according to its guidelines, charge
21 CLECs for *all* of the work, and use the remaining 49 conditioned loops for its
22 own DSL service without paying its fair share of the conditioning costs. It is

1 virtually impossible for this Commission to audit SWBT in this regard, absent
2 performing random audits of splices.

3 Third, multiple re-entry of splices to perform conditioning is detrimental
4 to the physical network. By conditioning one loop at a time, SWBT is
5 unnecessarily jeopardizing the integrity of the network and quality of service.

6 In sum, I believe it is appropriate to take SWBT's Practices at their written
7 word: that loop conditioning will generally be completed 50 pairs at-a-time

8 **Q. HAS MR. BORDERS PROVIDED ANY MORE EVIDENCE REGARDING**
9 **TASK TIMES FOR LOOP CONDITIONING?**

10 A. No. I have experience in the industry, and Mr. Couch has experience in the
11 industry. Although Mr. Borders has provided an anecdotal recitation of tasks a
12 technician might perform, the absence of data to support his anecdotes is notable.
13 SWBT's entire position relies upon its refusal to provide data clearly within its
14 unique control. Such data must be presumed to not support SWBT's position in
15 these matters. SWBT indicates that over 100,000 circuit rearrangements are
16 performed each year. Yet they have provided no data. In contrast, I am willing to
17 demonstrate the work steps required to condition a pair, and both Mr. Couch and I
18 do not differ significantly in our opinions that SWBT's time estimates are inflated
19 considerably. The major difference is that I have provided a very detailed
20 breakdown of time estimates – something no other witness has done. For
21 example, Mr. Borders' "verification" of time estimates with SWBT employees

21

Latham Rebuttal at 12.

1 ***BEGIN HIGHLY CONFIDENTIAL** [REDACTED]

2 [REDACTED]

3 [REDACTED]

4 [REDACTED],²³ . ***END

5 HIGHLY CONFIDENTIAL***

6 As to Mr. Borders anecdotal comments regarding things such as Work Area
7 Protection, I find his projections unreasonable that it would take a technician 15
8 minutes to set up a Men-Working sign and 6 plastic traffic cones placed over a
9 distance of 180 feet. That amounts to walking and dropping a traffic cone once
10 every 2½ minutes, or a walking speed of 0.14 miles an hour, versus a normal
11 person's walking speed of 3 miles per hour. I stand by my 5-minute estimate.

12 Other anecdotal descriptions provide insight into the fact that SWBT has based all
13 of its time estimates on word of mouth, and on the most complex of operations –
14 underground cable in manholes. This is very clear because only one set of times
15 is used in SWBT's cost study. I believe that my detailed cost breakdown is
16 logical, supports lower costs for aerial and buried operations, and is supported by
17 Mr. Couch's statement that aerial and buried pedestal work would be less time
18 than his 120 minute estimate.

19 **Q. WHAT EVIDENCE DO YOU HAVE THAT SWBT HAS ONLY**
20 **ANECDOTAL TIME ESTIMATES?**

²² Borders Depo. at ____.

²³ Borders Depo at ____.

1 A. Several Data Request responses have indicated that SWBT uses the JMOS (Job
2 Management Operation System) for administering construction jobs. Yet the
3 information presented in this proceeding is based on no information from
4 SWBT's construction pricing, tracking, and control system. In his deposition, Mr.
5 Borders ***BEGIN HIGHLY CONFIDENTIAL***

6 [REDACTED]
7 [REDACTED]
8 [REDACTED]
9 [REDACTED]
10 [REDACTED]
11 [REDACTED]
12 [REDACTED]
13 [REDACTED] ***END HIGHLY CONFIDENTIAL***

14 Q. ARE YOU FAMILIAR WITH JMOS?

15 A. Yes. JMOS has been in existence for a long period of time. In fact I mention my
16 early involvement in the development of JMOS on page 4 of my CV.

17 Q. WHAT DOES JMOS DO?

18 A. Although many functions have been appended to the JMOS system, the primary
19 purpose of JMOS is to schedule construction work and monitor performance.
20 Bell operating companies previously used the Plant Cost Results Plan, which

1 incorporated extensive Time and Motion study data by Bell Laboratories in the
2 1960's to create a system that broke down work into a "natural unit" called a
3 "work unit". Construction jobs, such as jobs to remove load coils, bridged taps,
4 and repeaters, were "priced out" using work units. Construction productivity was
5 measured in terms of work units per hour. This common work unit method
6 allowed productivity to be measured on a common basis over multiple tasks.

7 JMOS evolved in the mid to late 1970's, using a number of terms, typically
8 "*Objective Hours*", and "*Standard Time Increments*" frequently called "*STIs*".
9 Various work operations were priced using *STIs* to permit the organized
10 scheduling of work forces. For example, as an engineering department produces
11 many construction work orders, those orders are priced into *Standard Time*
12 *Increments*. That pool of work is equated into a large workload, frequently as
13 large as a 6-month workload. The availability of construction forces is calculated,
14 work is prioritized, and the workload is planned for a 30-day, 60-day, and 90-day
15 schedule. For example, if there are 60,000 *Objective Hours* in the workload, and
16 construction has 10,000 *Objective Hours* available per month, then the first
17 30,000 hours of work would be placed on the 30-60-90-day schedule. JMOS
18 prices work into *Objective Hours*, automates the scheduling process, tracks time
19 sheet charges, and measures construction performance against *Objective Hours*.

20 Although SWBT could have provided *Objective Hour* or *Standard Time*
21 *Increment* data, they have chosen not to do so, nor were the three construction
22 managers asked about JMOS data.

1 **Q. MR. BORDERS DISCUSSES THE REQUIREMENT TO DIG AND**
2 **REINFORCE A SPLICE PIT TO ACCESS A BURIED LOAD COIL**
3 **SPLICE. YOUR REBUTTAL TESTIMONY INDICATES THAT SUCH A**
4 **SPLICE SHOULD BE LOCATED IN AN ABOVE GROUND PEDESTAL**
5 **OR SMALL SPLICING BOX. WHICH OPINION CONFORMS TO**
6 **SWBT'S ENGINEERING PRACTICES?**

7 **A.** Regarding the placement of load coil splices in a buried environment, my
8 description of locating such splices in above ground pedestals, or in small splicing
9 box ("hand hole") conforms to SWBT's engineering practices, while Mr. Borders'
10 description of excavating a splice pit does not conform to SWBT's engineering
11 practices:

12 ****BEGIN PROPRIETARY**

13 [REDACTED]
14 [REDACTED]
15 [REDACTED]

16 **END PROPRIETARY****

17 **V. SWBT'S ATTEMPT TO REBUT COVAD'S POSITION REGARDING**
18 **INAPPROPRIATELY HIGH ISDN COSTS REVEALS AREAS OF**
19 **EXCESSIVE CHARGES.**

20 **Q. DOES SWBT'S ALLEGED COST FOR ISDN REPEATERS REFLECT**
21 **THE APPROPRIATE PERCENTAGE OF USE?**

22 **A.** No. Mr. Smallwood indicates in his rebuttal testimony that "in some cases a mid-
23 span repeater will be required." Smallwood Rebuttal at 12. In fact, SWBT's cost
24 studies assume that***BEGIN HIGHLY CONFIDENTIAL*** [REDACTED]

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1 **Q. DOES SWBT'S ISDN COST STUDY REFLECT THE APPROPRIATE**
2 **COST REDUCTIONS FOR EQUIPMENT?**

3 A. No. Two things have come to light in rebuttal testimony, depositions, and
4 document production. First, Mr. Smallwood admits in his rebuttal testimony that
5 ISDN equipment pricing is based on 1996 costs:

6 SWBT's investments reflect SWBT's vendor prices as of the date
7 of the original unbundled loop study, September 1996. [Smallwood
8 Rebuttal at 14].

9 In his deposition, Mr. Smallwood admits ***begin confidential*** [REDACTED]

10 [REDACTED]

11 [REDACTED]

12 [REDACTED]

13 [REDACTED]

14 [REDACTED]

15 [REDACTED]

16 [REDACTED]

17 [REDACTED]

18 [REDACTED]

19 [REDACTED]

20 [REDACTED] ***END CONFIDENTIAL*** This clearly indicates that line card costs
21 are significantly inflated to make up for those costs. A real-world example of this
22 type of arrangement is the pricing of razors and razorblades: Razors are sold at
23 below cost, but those profits are recovered through the sale of razor blades at far
24 above cost.

1 **Q. WHAT DO YOU RECOMMEND REGARDING ISDN COSTS?**

2 A. I believe that this Commission should direct SWBT to go back and reflect
3 significant ISDN line card cost reductions in its cost study, and to recalculate
4 ISDN UNE rates.

5 **VI. SUMMARY.**

6 **Q. PLEASE SUMMARIZE YOUR SURREBUTTAL TESTIMONY.**

7 A. I believe that in rebuttal, SWBT has provided only inconsequential criticism's of
8 Covad's direct testimony using anecdotal comments rather than evidence,
9 intentionally omitting any mention of mechanized systems and high production
10 methods, and ignoring their own corporate engineering and construction
11 guidelines. Staff witnesses, however, present pro-competitive arguments that I
12 believe bolster Covad's points in this proceeding.

13 **Q. DOES THAT CONCLUDE YOUR SURREBUTTAL TESTIMONY AT**
14 **THIS TIME?**

15 A. Yes, it does. I reserve the right to supplement this testimony, however, to reflect
16 information obtained through depositions and the additional data responses that
17 the Commission has directed SWBT to produce in response to Covad's Motion to
18 Compel.

Reference Manual for Telecommunications Engineering

SECOND EDITION

Roger L. Freeman



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TABLE 8-2
Typical Cable Sizes — North America

Number of Pairs	Cable Types											
	Filled PIC				PIC					Pulp-Insulated		
	19	22	24	26	19	22	24	25	26	22	24	26
6	X				X							
11	X	X			X	X	X		X			
16	X	X			X	X	X		X			
25	X	X	X	X	X	X	X		X			
50	X	X	X	X	X	X	X		X			
75	X	X			X	X	X		X			
100	X	X	X	X	X	X	X		X			
150	X	X			X	X	X		X			
200	X	X	X	X	X	X	X		X			
300	X	X	X	X	X	X	X		X			
400		X	X	X		X	X	X	X			
600		X	X	X		X	X	X	X	X		
900			X	X			X		X	X	X	X
1200								X		X	X	X
1400								X				
1500											X	X
1800								X			X	X
2100												X
2400												X
2700												X
3000												X
3600												X

Source: Bellcore, *Telecommunications Transmission Engineering*, 3rd ed., Vol. 2, 1990, Table 2-1 [Ref. 3].

TABLE 8-3
Conductor-to-Conductor Dielectric Strength Requirements

Type of Insulation	Voltage (kV)			
	19-Gauge	22-Gauge	24-Gauge	26-Gauge
Pulp (peak ac)	0.7	0.5	0.5	0.5
PIC (dc)	5	4	3	2.4

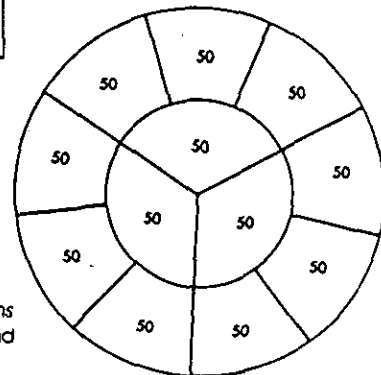


FIGURE 8-11. Location and form of 50-pair units in a 600-pair cable. (From *Telecommunications Transmission Engineering*, 2nd ed., Vol. 2 [Ref. 1]. Copyright © 1977 by American Telephone and Telegraph Co. Reprinted with permission.)