Exhibit No:
Issues: Cost Studies
Witness: James R. Smallwood
Type of Exhibit: Direct Testimony
Sponsoring Party: Southwestern Bell Telephone Company
Case No: TO- 2000-322

SOUTHWESTERN BELL TELEPHONE COMPANY

CASE NO. TO-2000-322

DIRECT TESTIMONY

OF

JAMES R. SMALLWOOD

St. Louis, Missouri
January 2000

NP

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

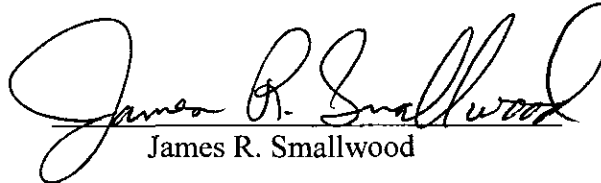|	
In the Matter of the Petition of) DIECA Communications, Inc) D/B/A Covad Communications Company) for Arbitration of Interconnection) Rates, Terms, Conditions and Related) Arrangements with Southwestern) Bell Telephone Company)	TO-2000-322

AFFIDAVIT OF JAMES R. SMALLWOOD

STATE OF MISSOURI	)	
	)	SS
CITY OF ST. LOUIS	)	

I, James R. Smallwood, of lawful age, being duly sworn, depose and state:

1. My name is James R. Smallwood. I am presently Manager - Cost Analysis for Southwestern Bell Telephone Company.

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

James R. Smallwood

Subscribed and sworn to before me on this 5 day of January 2000.

Notary Public

DIRECT TESTIMONY OF JAMES R. SMALLWOOD

SOUTHWESTERN BELL TELEPHONE COMPANY

CAUSE NO. TO-2000-322

1 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 A. My name is James R. Smallwood. My address is One Bell Center, 38-D-8, St. Louis,

3 Missouri 63101.

4 **Q. BY WHOM ARE YOU EMPLOYED AND WHAT IS YOUR POSITION?**

5 A. I am employed by SBC Telecommunications, Inc. as Manager-Cost Analysis and

6 Regulatory. SBC Telecommunications, Inc. provides services to Southwestern Bell

7 Telephone Company (SWBT), including regulatory and cost study support.

8 **Q. WHAT ARE YOUR RESPONSIBILITIES AS ASSOCIATE DIRECTOR-COST**

9 **ANALYSIS AND REGULATORY?**

10 A. I am responsible for:

11   1. Coordinating the development of cost methods and the production of cost studies that

12   determine the costs incurred in providing SWBT services or elements.

13   2. Analyzing cost study results.

14   3. Issuing cost study results for SWBT services and functions.

15   4. Coordinating documentation standards for cost studies.

1 **Q.**   **HAVE YOU PREPARED AN APPENDIX WHICH SUMMARIZES YOUR**

2   **EDUCATIONAL BACKGROUND AND WORK EXPERIENCE?**

3 **A.**   Yes. Please see (Smallwood) Schedule 1.

4 **Q.**   **WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

5 **A.**   The purpose of my testimony is to present the cost results for the Unbundled Cross

6   Connects (both shielded and non-shielded), Unbundled DSL Loop Conditioning,

7   Unbundled Loop Qualification, and 2-Wire Digital Loop (ISDN type), used to support the

8   pricing of unbundled DSL.

9 **Q.**   **WHAT STUDIES ARE YOU PRESENTING?**

10 **A.**   I have provided the following schedules that present the costs for the various arrangements

11   that will be made available to COVAD.

12   • (Smallwood) Schedule 2 summarizes the recurring and nonrecurring cost results associated

13   with providing an unbundled shielded cross connect to COVAD;

14   • (Smallwood) Schedule 3 summarizes the nonrecurring costs for loop qualification to

15   COVAD;

16   • (Smallwood) Schedule 4 summarizes the nonrecurring costs for loop conditioning to

17   COVAD.

18   • (Smallwood) Schedule 5 summarizes the nonrecurring and recurring costs for the ISDN

19   loop as determined by the Commission in TO-97-40

20   • (Smallwood) Schedule 6 summarizes the recurring and nonrecurring cost results associated

21   with providing unbundled, non-shielded cross connects to COVAD as determined by the

1   Commission in TO-97-40.

2   **Q.   WHAT COSTING METHODOLOGY WAS USED FOR THESE COST STUDIES?**

3   A.   These cost studies were performed using the principles presented by the FCC, including the

4   TELRIC costing methodology and conditioning modification principles[1], adjusted for

5   consistency with the recommendations of the Administrative Advisory Staff reports made

6   in arbitration Case Nos. TO-97-40 / TO-97-67 and adopted by the Commission.

7   **Q.   WHAT MODIFICATIONS TO THE TELRIC COST STUDY METHODOLOGY**

8   **WERE MADE IN ORDER TO BE CONSISTENT WITH THE**

9   **RECOMMENDATIONS ADOPTED BY THE COMMISSION IN THAT CASE?**

10   A.   The cost studies used cost factors, labor rates, and inflation factors that were developed in

11   compliance with the AAS second report, incorporated by the Commission in its arbitration

12   award in TO-97-40.

13   **Q.   DOES SWBT AGREE WITH THOSE MODIFICATIONS?**

14   A.   SWBT does not agree that such modifications are appropriate and filed an appeal regarding

15   that issue. SWBT proposed cost factors, labor rates, and inflation factors in that proceeding

16   that differ from those recommended by the AAS. Nonetheless, the study inputs in the

17   instant case are consistent with those recommendations and represent the cost basis for

18   unbundled network elements as determined by the Missouri Commission. To the extent

19   that SWBT has appealed those modifications, SWBT reserves the right to modify the prices

_____

1 First Report and Order, FCC Docket 96-98 (August 8, 1996).   TELRIC description at paragraph 690.

1   proposed in the docket consistent with the final outcome of that appeal.

2 **Q. HOW WERE THE RECURRING COSTS FOR THE SHIELDED CROSS**

3   **CONNECT DEVELOPED?**

4 A.   Recurring costs, as shown in (Smallwood) Schedule 2, were developed by first obtaining

5   the investments associated with the material and installation of the DSL shielded cross

6   connect arrangement, and then applying annual cost factors, representing capital carrying

7   costs and operating expenses. As I have indicated, the cost factors utilized are consistent

8   with recommendations of the AAS, as adopted by the Commission. To the extent that

9   SWBT has appealed those modifications, SWBT reserves the right to modify the prices

10   proposed in the docket consistent with the outcome of that appeal.

11 **Q. HOW WERE THE RECURRING COSTS FOR THE NON-SHIELDED CROSS**

12   **CONNECTS DEVELOPED?**

13 A.   Recurring costs for non-shielded cross connects as shown in (Smallwood) Schedule 6 were

14   determined in TO-97-40 and were calculated in the same fashion as described above for

15   shielded cross connects.

16 **Q. HOW WERE THE NONRECURRING COSTS DEVELOPED?**

17 A.   Nonrecurring costs, as shown in (Smallwood) Schedules 2, 3, 4, 5, and 6 were developed

18   by:

19   • Identifying the work groups involved in providing the arrangement and their respective

20   activities.

Conditioning principles at paragraph 382.

4

1   • Identifying the time required for completion of each activity.

2   • Identifying the labor costs for the personnel who typically perform each activity.

3   • Multiplying the time required to perform each activity by the associated labor cost.

4   **Q.   FOR WHICH NONRECURRING ACTIVITIES HAVE YOU PROVIDED COST**

5   **RESULTS?**

6   A.   Five categories of nonrecurring activities have been provided. A general description of

7   each category is provided below.

8   • Shielded Cross Connect Installation/Testing: Testing the DSL circuit and cross connect;

9   end-to-end.

10   • Loop Qualification: Analyzing the particular loop to determine if it is capable of DSL

11   signal transmission, when requested by a CLEC.

12   • Loop Conditioning: Reconfiguring any loop facilities to allow for DSL signal

13   transmission, when and if required by a CLEC.

14   • 2-Wire Digital Loop Installation: Installation and provisioning of the 2-Wire digital

15   loop, when requested by a CLEC.

16   • Non-Shielded Cross Connect Installation/Testing: Installing and provisioning non-

17   shielded cross connects.

18   **Q.   HOW WERE THESE ACTIVITIES AND ASSOCIATED TIMES IDENTIFIED?**

19   A.   The Cost organization requested the SWBT Network organization to identify and provide

20   the activities and associated times required for provisioning the required capabilities. This

21   is also described in (Smallwood) Schedules 2, 3, and 4. The SWBT Network Organization

5

1   develops and confirms these times in consultation with SWBT personnel that actually

2   perform these activities.

3 **Q. REGARDING THE LOOP QUALIFICATION COST STUDY PRESENTED IN**

4   **(SMALLWOOD) SCHEDULE 3, DO THESE COSTS REPRESENT A FULLY**

5   **MECHANIZED PROCESS?**

6 A. No. The loop qualification costs presented represent a partially mechanized process used

7   for "gathering" information on loop make-up at the request of a CLEC. As Mr. Lube

8   describes in his Direct Testimony, SWBT is developing a new process that provides much

9   of the necessary loop qualification information via a mechanized access. However, manual

10   activity is required in some instances, as explained by Mr. Lube. Costs for necessary

11   manual activities have been included in the cost results. The study in schedule 3 reflects

12   the costs associated with the partially mechanized process, which SWBT is developing.

13 **Q. REGARDING LOOP CONDITIONING COSTS PRESENTED IN (SMALLWOOD)**

14   **SCHEDULE 4, DO THESE COSTS REPRESENT MODIFICATIONS THAT MAY**

15   **BE MADE TO PROVISION AN UNBUNDLED DSL LOOP TO A CLEC?**

16 A. Yes. If a CLEC requests SWBT to modify its existing loop facilities to enable the

17   transmission of DSL-based services, then those costs that have been identified will be

18   incurred depending on the particular inhibiting device(s) the CLEC may request that SWBT

19   remove. As I have explained earlier, these costs are based upon the principles established

20   by the FCC and also adopted by this Commission.

21

1   Q.   **ARE THESE LOOP CONDITIONING COST RESULTS THE SAME AS THOSE**

2   **THAT HAVE BEEN PRESENTED TO THE COMMISSION IN PREVIOUS**

3   **ARBITRATIONS?**

4   A.   Yes, with the exception that SWBT has added additional options that might be desired.

5   Specifically, the cost study includes the options of combining conditioning activities on the

6   same order as well as options for conducting conditioning activities at distances greater

7   than 17,500 feet.

8

9   Q.   **WHAT LOOP COSTS WERE DETERMINED FOR THE UNDERLYING UNE**

10   **LOOP NECESSARY TO PROVISION DSL-BASED SERVICES?**

11   A.   The loop costs, both recurring and nonrecurring, are those determined in connection with

12   T0-97-40. SWBT did not perform new cost studies for this proceeding. The rates for the

13   unbundled loops that will be used to provide DSL-based services were determined by the

14   Commission in that docket. With the exception of the ISDN loop rate, which COVAD has

15   elected to arbitrate in this case, the rates in TO-97-40 form the basis for the loop rates

16   contained in the draft COVAD/SWBT Interconnection Agreement. As Mr. Latham has

17   described in his direct testimony, SWBT used the unbundled loop rates determined in that

18   arbitration as the loop rates for wholesale customers for a DSL-based facility because the

19   underlying loop is the same facility. Subject to SWBT's appeal in the AT&T arbitration

20   regarding ISDN loop rates, SWBT is proposing those rates already determined by the

21   Commission in TO-97-40. A BRI loop facility is the same whether it is used for ISDN

22   service or for a DSL type service and the cost does not vary.

7

1 Q. **IS COVAD CHALLENGING THE RATES DETERMINED BY THE**

2 **COMMISSION IN THE AT&T ARBITRATION?**

3 A. As I understand COVAD'S petition, they are challenging only the recurring and

4 nonrecurring rates for the loop that they will use to provide IDSL-based services, in

5 particular, the unbundled 2-Wire Digital loop (ISDN-type loop) for which the costs were

6 determined in TO-97-40.

7 Q. **HAVE YOU PROVIDED A COST SUMMARY FOR THE UNE 2-WIRE DIGITAL**

8 **(ISDN TYPE)LOOP?**

9 A. Yes. (Smallwood) Schedule 5 includes a summary of 2-Wire Digital UNE costs as

10 determined by the Missouri Commission in Case Nos. TO-97-40 / TO-97-67. It also

11 presents the rates determined by the Commission in that proceeding.

12 Q. **WHY ARE THE NONRECURRING RATES SHOWN ON SCHEDULES 5 AND 6**

13 **LOWER THAN THE COSTS ON THAT SAME SCHEDULE?**

14 A. The AAS directed SWBT to make certain adjustments to its cost study in that proceeding

15 ("the Commission's TELRIC methodology") and subsequently the Commission set rates

16 based upon the recommendations made by the AAS after its review of that revised study.

17 Q. **IS SWBT CONTESTING IN THIS DOCKET THE COMMISSION'S TELRIC**

18 **METHODOLOGY ORDERED IN TO-97-40?**

19 A. No. SWBT has appealed the Commission's determination of rates in TO-97-40, but as Mr.

20 Latham discusses, SWBT is willing, subject to its pending appeal, to base its DSL rates on

1 the revised loop studies, as well as the rates ordered by the Commission in that docket.

2 COVAD has refused to accept the Commission ordered loop rates from that docket.

3 **Q. HAS SWBT INCLUDED ALL OF THE COSTS NECESSARY TO ESTABLISH**

4 **WHOLESALE RATES FOR THE PROVISIONING OF DSL-BASED SERVICES**

5 **BY CLECS?**

6 A. Yes. The cost studies submitted in this proceeding include all costs for extending the

7 unbundled loop to the wholesale customer's point of presence, as well as costs for

8 qualifying and conditioning a loop for DSL transmission. As mentioned above, the costs

9 for the unbundled loop facility were previously addressed in Case Nos. TO-97-40 / TO-97-

10 67 and have been provided in (Smallwood) Schedule 5. Rates for collocation arrangements

11 that would be used by the wholesale customer would be determined pursuant to the

12 collocation terms and conditions contained in the draft SWBT/COVAD Interconnection

13 Agreement.

14 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

15 A. Yes.

16

SUMMARY OF EDUCATION AND WORK EXPERIENCE OF
James R. Smallwood

Educational Background

Q. WHAT IS YOUR EDUCATIONAL BACKGROUND?

A. I have earned both a Bachelor of Arts degree and a Master of Science degree in Economics from Southern Illinois University Edwardsville. I also hold a Bachelor of Science degree in Electronics Management from Southern Illinois University Carbondale. In addition to my formal education, I have also attended basic and advanced electronics and communications courses while serving in the United States Navy.

Work Experience

Q. PLEASE OUTLINE YOUR WORK EXPERIENCE IN THE TELECOMMUNICATIONS INDUSTRY.

A. I was employed by SBC Telecommunications, Inc., in April 1999 as Manager-Cost Analysis and Regulatory. In that position, I am responsible for the development and review of cost studies for services and elements provided and anticipated by Southwestern Bell Telephone Company. Prior to my employment at SBC Telecommunications, Inc., I worked as an analyst in the consulting industry specializing in telecommunications from 1995 to 1999. In addition, I served for seven years in the United States Navy as an Electronics Technician specializing in satellite communications.

MISSOURI

UNBUNDLED ADSL LOOP
CROSSCONNECT AND NONRECURRING COST STUDY

1998
May, 1999

OVERVIEW / METHODOLOGY

SERVICE DESCRIPTION

The Unbundled ADSL Loop cross-connect is made up of shielded cable from the Intermediate Distribution Frame (IDF) to the Main Distribution Frame (MDF) and for central offices with more than 3 frames, additional shielded cable from the MDF to the Cable Frame.

PURPOSE

The purpose of this study is to determine the nonrecurring costs associated with the shielded cross-connect.

NONRECURRING COSTS

The term nonrecurring refers to the expensed labor efforts required to provide service to a customer. It includes both installation and disconnect activity, under the assumption that ultimately the customer will discontinue the service at some point in time. The cost factors / inputs are based upon the Commission Order in Docket TO-97-40.

Development:

The cost study consists of basically 4 steps:

1. Identify workgroups involved in the installation and disconnect process for the arrangement. Meetings were conducted between cost studies personnel and network representatives to determine what workgroups were involved in providing the arrangement.

2. Identifying the job activities required to perform the installation and disconnect functions by workgroup. Data was requested and provided by network representatives that indicated the specific activities that were required to install and disconnect each specific component necessary for the arrangement.

3. Identifying labor times associated with each job function by work group and work grade. Data was requested and provided by network representatives that indicated amount of time required to conduct the identified activity. This data also indicated the salary level of the personnel who typically perform the activity, i.e., clerical, supervision, craft, etc.

3. Applying appropriate labor rates to arrive at the installation and disconnect cost. Current labor rates were obtained for each identified salary level. The labor times for each activity were multiplied by the labor cost to calculate the nonrecurring cost for each activity.

Summary - Nonrecurring Costs

Workgroups involved in the provisioning of a service are identified. The time to perform each function is identified and the labor rate associated with the employee performing the function is determined. The labor rate is multiplied by the labor time to arrive at the cost for performing the function. Work functions are then grouped by cost element and totaled to arrive at the nonrecurring cost per element.

MISSOURI
UNBUNDLED ADSL LOOP
CROSSCONNECT AND NONRECURRING COST STUDY

1998
MAY, 1999

RESULTS

	MONTHLY RECURRING COST	NONRECURRING COST	
		INITIAL	ADDITIONAL
UNBUNDLED ADSL LOOP			
SHIELDED CABLE CROSSCONNECT			
Per 100 Pair Dedicated Cable/Customer	**$____**		
Per ADSL Shielded Crossconnect		**$____**	N/A

MISSOURI

UNBUNDLED NETWORK ELEMENTS
MECHANIZED LOOP QUALIFICATION
NONRECURRING COST STUDY

December, 1999
1999

OVERVIEW / METHODOLOGY

SERVICE DESCRIPTION

Loop Qualification qualifies loops based on loop characteristics. It's a tactical measure to identify specific loops that can support ADSL based services. Web Qual is a Web based application that can be accessed by browser. Spectrum Management is the use of assignment data, knowledge of interference relationships, Planning Guideline, current demand statistics and marketing strategies to analyze and control the ability to provision, maintain and grow broadband services in common plant.

PURPOSE

The purpose of this study is to determine the nonrecurring costs associated Loop Qualification / Spec Mgmt. The cost is developed on a per subscriber loop basis.

NONRECURRING COSTS

The term nonrecurring refers to the expensed labor efforts required to provide service to a customer. The cost factors / inputs are based upon the Commission Order in Docket TO-97-40.

Nonrecurring Study Procedures

The cost study consists of basically 4 steps:

1. Identifying the work groups involved.

2. Identifying job functions required performing the activities by work groups.

3. Identifying labor times associated with each job function by work group and work grade.

4. Applying appropriate labor costs and summing to arrive at the total charges.

Summary - Nonrecurring Costs

Workgroups involved in the provisioning of a service are identified. The time to perform each function is identified and the labor rate associated with the employee performing the function is determined. The labor rate is multiplied by the labor time to arrive at the cost for performing the function. Work functions are then grouped by cost element and totaled to arrive at the nonrecurring cost per element.

MISSOURI

UNBUNDLED NETWORK ELEMENTS
MECHANIZED LOOP QUALIFICATION
NONRECURRING COST STUDY

December, 1999
1999

RESULTS

NONRECURRING
COST

PARTIALLY MECHANIZED LOOP QUALIFICATION
Per Subscriber Loop

$_____

UNBUNDLED NETWORK ELEMENTS
Digital Subscriber Line Loop Conditioning
(Loop Lengths up to and over 17,500 feet)
Nonrecurring Cost Study

December, 1999
1999

OVERVIEW / METHODOLOGY

SERVICE DESCRIPTION

When inhibiting network components are present and the customer still desires a clean UNE loop, those items must be removed. To remove them will require an OSP Engineer to pull plant records and draw up work orders to allow construction to remove the components. Once completed, the OSP Engineer will hand off the work order to a Drafting Clerk who will formalize the detailed order into a working print and post the information to permanent plant records. Once the order has been sent to the field, a Cable Splicer must review the work required, travel to the locations shown on the print, set up the work location, and conduct the work required to remove the components. The general description of inhibiting network components is as follows:

> Load Coils: Load coils are placed on loop facilities when there is a signaling loss. Load coils modify the loss so that the decibel signal is constant across the length of the facility. For DSL circuits, along with other types of digital circuits, these coils must be removed.

> Bridge Tap: In many situations, a pair of wires is routed to several locations. In order to route the pair to several locations, the cable pair must be "branched off" in another cable to the other location. This is bridge tap. The increase in length caused by the bridge tap can cause interference with signals such as those required for DSL and the bridge tap must be removed in some circumstances.

> Repeaters: A repeater is generally used to amplify a signal, which can decay over distance. The existence of a repeater will interfere with a DSL signal and must be removed.

PURPOSE

The purpose of this study is to determine the nonrecurring costs associated with conditioning an unbundled loop.

NONRECURRING COSTS

The term nonrecurring refers to the expensed labor efforts required to provide service to a customer. It includes both installation and disconnect activity, under the assumption that ultimately the customer will discontinue the service at some point in time. The cost factors / inputs are based upon the Commission Order in Docket TO-97-40.

Nonrecurring Study Procedures

The following steps were taken to identify the nonrecurring costs required to provide the above Loop conditioning.
1.   Identify work groups involved in the installation/disconnect process. Meetings were conducted between cost studies personnel and network representatives to determine what work groups were involved.

2. Identify job activities required to perform the installation/disconnect functions by work group. Data was requested and provided by network representatives that indicated the specific activities that were required to install and disconnect each specific component.

3. Identify labor times associated with each job function by work group and work grade. Data was requested and provided by network representatives that indicated the amount of time required to conduct the identified activity. This data also indicated the salary level of the personnel who typically performs the activity, i.e., clerical, supervision, craft, etc.

4. Apply appropriate labor costs to arrive at the installation and disconnect cost. Current labor rates were obtained for each identified salary level. The labor times for each activity were multiplied by the labor cost to calculate the nonrecurring cost for each activity.

Nonrecurring Cost Calculation

Occurrence Factors

There are two types of occurrence factors used in this study – Task Occurrence Factor ("TOF") and Work Group Occurrence Factor ("WGOF").

Task Occurrence Factor

Not all service order or channel connect activities are required for every service. When activities are required, the TOF (sometimes called a task frequency or task probability) identifies the percent of time each task must be performed.

Work Group Occurrence Factor

The WGOF identifies what percent of the time the work group is required to perform a task. This factor also captures the impact of two different work groups having similar responsibilities for a type of order. In order to develop an average time per order, the task time of each group is multiplied by its respective WGOF. The results for each group are then added together.

The calculation used throughout this study is a series of multiplication steps, which are shown below:

Labor Rate Per hr	/ 60	X	Activity time per minute	X	Task Occurrence	X	WGOF	=	NRC

Summary - Nonrecurring Costs

Workgroups involved in the provisioning of a service are identified. The time to perform each function is identified and the labor rate associated with the employee performing the function is determined. The current labor rate is multiplied by the labor time to arrive at the cost for performing the function. Work functions are then grouped by cost element and totaled to arrive at the nonrecurring cost per element.

MISSOURI
UNBUNDLED NETWORK ELEMENTS

DIGITAL SUBSCRIBER LINE LOOP CONDITIONING
(Loop Lengths up to and over 17,500 feet)

1999
DECEMBER, 1999

RESULTS

| | NONRECURRING COST | | |
	INITIAL	ADDITIONAL Same Location/ Same Cable	ADDITIONAL Same Location/ Different Cable
UNE Loops up to 17,500 feet			
Remove Load Coils	**$_____**	**$_____**	**$_____**
Remove Bridge Tap	**$_____**	**$_____**	**$_____**
Remove Repeaters	**$_____**	**$_____**	**$_____**
Remove Load Coils & Bridge Tap	**$_____**	**$_____**	**$_____**
Remove Bridge Tap and Repeaters	**$_____** **$_____**	**$_____**	**$_____**
UNE Loops over 17,500 feet			
Remove Load Coils	**$_____**	**$_____**	**$_____**
Remove Bridge Tap	**$_____**	**$_____**	**$_____**
Remove Repeaters	**$_____**	**$_____**	**$_____**
Remove Load Coils & Bridge Tap	**$_____**	**$_____**	**$_____**
Remove Bridge Tap and Repeaters	**$_____**	**$_____**	**$_____**

Non Combined Conditioning <17.5 Kilofeet

Loop Conditioning - (Remove Bridge Tap, Coils, Repeaters)	INITIAL	ADDITIONAL[1]	ADDITIONAL[2]

Load Coils

OSP Engineer:
Pull plant "blue prints"; draw up work order showing
cable pairs, size of cable, cable counts, manhole
dimensions, street locations, other detail. Proof
work, instruct draft clerk, prepare cover letter.

120 minutes, 0, 0   **$____**   **$____**   **$____**

Draft Clerk:
Formalizes engineer detail into work print, posts
to permanent plant records.

30 minutes, 15, 15   ____   ____   ____

Cable Splicer:
Travel to location, redirect traffic and set up safety
equipment, inspect area, purge water from manhole
with pump, test manhole for gas, set up blower and
ventilate manhole, clean splice closure, open splice closure
locate pair, remove coil, close and seal splice, test
splice enclosure for pressure, remove equipment,
close out work. Includes 3 load coils, one in
each of 3 manholes.

(4 hours x 3 = 12hrs), 10 min, 6 hours   ____   ____   ____

           ____   ____   ____

	INITIAL	ADDITIONAL[1]	ADDITIONAL[2]

Bridged Tap

Removal

OSP Engineer :
Same activities as for Load Coils

	INITIAL	ADDITIONAL[1]	ADDITIONAL[2]
120 minutes, 0, 0	**$_____**	**$_____**	**$_____**

Draft Clerk:
Same activities as for Load Coils

	INITIAL	ADDITIONAL[1]	ADDITIONAL[2]
30 minutes, 15, 15	**_____**	**_____**	**_____**

Cable Splicer:
Same activities as for Load Coils but different times.
This includes just one manhole.

	INITIAL	ADDITIONAL[1]	ADDITIONAL[2]
4 hours, 10 min, 2 hours	**_____**	**_____**	**_____**

Reinstall

OSP Engineer:
Same as removal but reinstalled only 34% of time

Draft Clerk:
Same as removal but reinstalled only 34% of time

Cable Splicer:
Same as removal but reinstalled only 34% of time

	INITIAL	ADDITIONAL[1]	ADDITIONAL[2]
OSP Engineer	**_____**	**_____**	**_____**
Draft Clerk	**_____**	**_____**	**_____**
Cable Splicer	**_____**	**_____**	**_____**
	$_____	**$_____**	**$_____**

Loops less than 17.5 Kft.
NonCombined Conditioning

	INITIAL	ADDITIONAL[1]	ADDITIONAL[2]

Repeaters

<u>OSP Engineer:</u>
Same activities as for Load Coils but identification
associated with repeaters is less involved.

60 minutes, 0, 0	**$____**	**$____**	**$____**

<u>Draft Clerk:</u>
Same activities as for Load Coils but identification
associated with repeaters is less involved.

15 minutes, 7.5, 7.5	**____**	**____**	**____**

<u>Cable Splicer:</u>
Same activities as for Load Coils but, on average, one
repeater in one manhole.

4 hours, 10 min, 2 hours	**____**	**____**	**____**
	$____	**$____**	**$____**

Footnotes
1 Assumes same cable opened for pairs conditioned.
2 Assumes different cable opened for subsequent pairs conditioned.

Combined Conditioning <17.5 Kilofeet

	INITIAL	ADDITIONAL[1]	ADDITIONAL[2]

Loop Conditioning - (Remove Bridge Tap, Coils, Repeaters)
   Load Coils and Bridged Taps

     OSP Engineer:
     Pull plant "blue prints"; draw up work order showing
     cable pairs, size of cable, cable counts, manhole
     dimensions, street locations, other detail. Proof
     work, instruct draft clerk, prepare cover letter.
          210 minutes, 0, 0   **$\_\_\_\_**   **$____**   **$____**

     Draft Clerk:
     Formalizes engineer detail into work print, posts
     to permanent plant records.
          60 minutes, 30, 30   **___**   **___**   **___**

     Cable Splicer:
     Travel to location, redirect traffic and set up safety
     equipment, inspect area, purge water from manhole
     with pump, test manhole for gas, set up blower and
     ventilate manhole, clean splice closure, open splice closure
     locate pair, remove coil, close and seal splice, test
     splice enclosure for pressure, remove equipment,
     close out work. Includes 3 load coils, one in
     each of 3 manholes.
          16 hours, 20 min, 8 hours   **___**   **___**   **___**
                      $\_\_\_\_**   **$____   **$____**

Bridged Tap Reinstallation

Reinstall
OSP Engineer:
    105 minutes 34% of time, 0, 0   **$____**   ** _ **   ** _ **

Draft Clerk:
    30 minutes 34% of time, 15 x .34, 15 x .34   **____**   **____**   **____**

Cable Splicer:
    4 hours 34% of time, 10 x .34, 2 hours x .34   **____**   **____**   **____**

                                      ____   **____**   **____**

Total Load Coils and Bridged Taps   **$_____**   **$____**   **$____**

Repeaters and Bridged Taps
    OSP Engineer:
    Same activities as for Load Coils but identification
    associated with repeaters is less involved.
        150 minutes, 0, 0   **____**   **$____**   **$____**

    Draft Clerk:
    Same activities as for Load Coils but identification
    associated with repeaters is less involved.
        45 minutes, 22.5, 22.5   **____**   **____**   **____**

    Cable Splicer:
    Same activities as for Load Coils but, on average, one
    repeater in one manhole.
        8 hours, 20 minutes, 4 hours   **____**   **____**   **____**

                                          $____**   **$____   **$____**

Bridged Tap Reinstallation

Reinstall
<u>OSP Engineer:</u>
    105 minutes 34% of time, 0, 0   **$____**   **$____**   **$____**

<u>Draft Clerk:</u>
    30 minutes 34% of time, 15 x .34, 15 x .34   **____**   **____**   **____**

<u>Cable Splicer:</u>
    4 hours 34% of time, 10 min. x .34, 2 hours x .34   **____**   **____**   **____**

               ____   **____**   **____**

Total Repeaters and Bridged Taps   **$____**   **____**   **$____**

Footnote
1 Assumes same cable opened for pairs conditioned.
2 Assumes different cable opened for subsequent pairs conditioned.

Non Combined Conditioning >17.5 Kilofeet

Loop Conditioning - (Remove Bridge Tap, Coils, Repeaters)	INITIAL	ADDITIONAL[1]	ADDITIONAL[2]
Load Coils			

OSP Engineer:

One-third of activities for <17.5 kft.

40 minutes, 0, 0	**$____**	**$____**	**$____**

Draft Clerk:
One-third of activities for <17.5 kft.

10 minutes, 5, 5	**____**	**____**	**____**

Cable Splicer:

One-third of activities for <17.5 kft.

4 hours, 3 min, 2 hours	**____**	**____**	**____**
	$____	**$____**	**$____**

	INITIAL	ADDITIONAL[1]	ADDITIONAL[2]
Bridged Tap			
Removal			
OSP Engineer :			
One-half of activities for <17.5 kft.			
60 minutes, 0, 0	**$____**	**$____**	**$____**
Draft Clerk:			
One-half of activities for <17.5 kft.			
15 minutes, 7.5, 7.5	**____**	**____**	**____**
Cable Splicer:			
One-half of activities for <17.5 kft.			
2 hours, 5 min, 1 hours	**____**	**____**	**____**
Reinstall			
OSP Engineer:			
Same as removal but reinstalled only 34% of time	**____**	**____**	**____**
Draft Clerk:			
Same as removal but reinstalled only 34% of time	**____**	**____**	**____**
Cable Splicer:			
Same as removal but reinstalled only 34% of time	**____**	**____**	**____**
	____	**____**	**____**

	INITIAL	**ADDITIONAL**[1]	**ADDITIONAL**[2]
Repeaters			
OSP Engineer:			
Same as <17.5 kft.			
60 minutes, 0, 0	**$____**	**$____**	**$____**
Draft Clerk:			
Same as <17.5 kft.			
15 minutes, 7.5, 7.5	**____**	**____**	**____**
Cable Splicer:			
Same as <17.5 kft.			
4 hours, 10 min, 2 hours	**____** **$____**	**____** **$____**	**____** **$____**

Footnotes
1 Assumes same cable opened for pairs conditioned.
2 Assumes different cable opened for subsequent pairs conditioned.

Combined Conditioning >17.5 Kilofeet

Loop Conditioning - (Remove Bridge Tap, Coils, Repeaters)   **INITIAL**   **ADDITIONAL[1]**   **ADDITIONAL[2]**
  Load Coils and Bridged Taps
    OSP Engineer:

    Combinations of activities.

        87.5 minutes, 0, 0   ****$____****   ****$____****   ****$____****

    Draft Clerk:
    Combinations of activities.

        25 minutes, 12.5, 12.5   ****____****   ****____****   ****____****

    Cable Splicer:

    Combinations of activities.   ****____****

        6 hours, 8.3 min, 3 hours   ****____****   ****____****   ****____****
                             $____****   ****$____   ****$____****

Bridged Tap Reinstallation

Reinstall
OSP Engineer:
    52.5 minutes 34% of time, 0, 0   **$____**   **__**   **__**
Draft Clerk:
    15 minutes 34% of time, 7.5 x .34, 7.5 x .34   **___**   **___**   **___**
Cable Splicer:
    2 hours 34% of time, 5 min x .34, 1 hour x .34   **___**   **___**   **___**
    \=\=   **\=\=**   **\=\=**

Total Load Coils and Bridged Taps   **$\_\_\_**   **$___**   **$___**

Repeaters and Bridged Taps
    OSP Engineer:
    Combinations of activities.

        97.5 minutes, 0, 0   **$\_\_\_**   **$___**   **$___**

    Draft Clerk:
    Combinations of activities.

        30 minutes, 15, 15   **___**   **___**   **___**

    Cable Splicer:
    Combinations of activities.

        6 hours, 15 minutes, 3 hours   **\=\=**   **\=\=**   **\=\=**
    $\_\_\_**   **$___   **$___**

Bridged Tap Reinstallation

Reinstall
OSP Engineer:
    52.5 minutes 34% of time, 0, 0   **$\_\_\_\_**   **$____**   **$____**
Draft Clerk:
    15 minutes 34% of time, 7.5 x .34, 7.5 x .34   **____**   **____**   **____**
Cable Splicer:
    120 minutes 34% of time, 5 x .34, 60 x .34   **____**   **____**   **____**
                                      ____   **____**   **____**

Total Repeaters and Bridged Taps   **$\_\_\_\_**   **$____**   **$____**

Footnote
1 Assumes same cable opened for pairs conditioned.
2 Assumes different cable opened for subsequent pairs conditioned.

MISSOURI

Commission Costs and Prices

2 Wire Digital ISDN-BRI Loop

Recurring

	TELRIC Cost	Price
Geographic Zone 1	**$_____**	$25.79
Geographic Zone 2	**$_____**	$42.10
Geographic Zone 3	**$_____**	$58.44
Geographic Zone 4	**$_____**	$41.44

Nonrecurring

TELRIC Cost		Price	
First	Addl	First	Addl
**$_____*	**$_____**	$57.77	$30.22

MISSOURI

Commission Costs and Prices

Non-Shielded Crossconnects

Recurring

	TELRIC Cost	Price
2-Wire Analog (w/o test)	**$____**	$0.31
2-Wire Digital	**$____**	$1.89
2-Wire Digital (w/o test)	**$____**	$0.31
4-Wire Analog (w/o test)	**$____**	$0.63

Nonrecurring

	TELRIC Cost		Price	
	First	Addl	First	Addl
2-Wire Analog (w/o test)	**$____**	**$____**	$19.96	$12.69
2-Wire Digital	**$____**	**$____**	$35.83	$29.44
2-Wire Digital (w/o test)	**$____**	**$____**	$19.96	$12.69
4-Wire Analog (w/o test)	**$____**	**$____**	$25.38	$17.73