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TABLE OF CONTENTS

DOCKET NO. 25188

PETITION OF EL PASO NETWORKS, § BEFORE THE
LLC FOR ARBITRATION OF AN §
INTERCONNECTION AGREEMENT § PUBLIC UTILITY COMMISSION
WITH SOUTHWESTERN BELL §
TELEPHONE COMPANY § OF TEXAS

EL PASO NETWORKS LLC
DIRECT TESTIMONY OF PATRICIA M. HOGUE

Issue 44:	Should SWBT’s obligation to provide UNE Dark Fiber regardless of whether the fibers are terminated apply to all fiber on all routes? (App. UNE §§ 18.1.4, 18.1.5)	13
SWBT Issue 5	What is the appropriate definition of Dark Fiber?	13
SWBT Issue 6	What is the appropriate definition of Interoffice Dark Fiber?	13
SWBT Issue 7	Whether the Agreement should require SWBT to offer “Loop Dark Fiber” as a UNE?	13
Issue 46:	Whether UNE dark fiber should be provisioned subject to the same standards SBC imposes on its use of fiber to serve SBC customers, including standards for splicing? (App. UNE § 18.9).....	19
Issue 47:	What testing should SBC be required to perform before it turns over fiber to EPN? (App. UNE § 18.9.4)	22
Issue 48:	Should the Agreement Specifically Define Defective Fiber? (App. UNE § 18.6.3)	29
SWBT Issue 8	Under the Agreement how should “defective fiber” be counted for purposes of determining availability?	29
Issue 53:	Should the Agreement specify all available cross connects that allow EPN to access UNEs? (App. UNE § 20.6).....	34
SWBT Issue 13:	Whether the Agreement should entitle SWBT to recover its reasonable costs from EPN for providing Dark Fiber inventory information to EPN?	40
PMH Ex. 1		
PMH Ex. 2		
PMH Ex.3		
PMH Ex. 4		
PMH Ex.5		
PMH Ex. 6		
PMH Ex. 7		

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9 EL PASO NETWORKS LLC
10 DIRECT TESTIMONY OF PATRICIA M. HOGUE
11
12

13 Q. PLEASE STATE YOUR NAME AND CURRENT POSITION.

14 A. My name is Patricia Hogue. Presently, I am employed as a consultant for El Paso Global
15 Networks (“EPN”), and have served as its lead negotiator in all negotiations with
16 incumbent local exchange carriers (“ILECs”) for matters relating to interconnection and
17 access to unbundled network elements.

18 Q. HAVE YOU EVER TESTIFIED BEFORE THE PUBLIC UTILITY
19 COMMISSION OF TEXAS?

20 A. No. I have not previously testified before this Commission. However, parallel with this
21 proceeding, I am presently testifying before this Commission in connection with EPN’s
22 Complaint and Request for Interim Ruling (Docket No. 25004).

23 Q. PLEASE SUMMARIZE YOUR DUTIES AT YOUR CURRENT POSITION.

24 A. I currently serve as EPN’s lead negotiator in its dealings with the ILECs. In particular, I
25 spend a great deal of time negotiating interconnection arrangements with the ILEC’s lead
26 negotiator. I also supervise other EPN personnel that participate in the negotiations
27 process. My direct supervisor is Mr. Pantios Manias, Senior Vice President for ILEC
28 relations, regulatory, and business development.

1 **Q. PLEASE SUMMARIZE YOUR WORK EXPERIENCE BEFORE JOINING EPN?**

2 A. I have over 32 years of telecommunications experience; the last one and one-half years
3 with EPN. Prior to joining EPN, I was employed in a variety of positions at SBC. A
4 detailed description of my telecommunications experience is attached as Exhibit PMH-1.
5 My positions at SBC ranged from serving as its Director of Negotiations to CLECs to
6 splicing fiber optic cable in manholes beneath the streets of Dallas. In between, I served
7 as: a negotiator on interconnection agreements with CLECs; a senior account executive
8 serving the needs of SBC's large customers; a design engineer responsible for designing
9 SONET deployments and day-to-day deployment of facilities in a major metropolitan
10 wire center; a customer service representative; and, of course, as a cable splicing
11 technician, where I spliced fiber optic cable throughout North Texas, and overseeing the
12 use of the Job Management Operations System ("JMOS") database. In short, in my 30-
13 plus years of experience in the industry, I have worked on a vast array of
14 telecommunications related matters.

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

16 A. I will provide background information on EPN's negotiations with SWBT and provide
17 factual support for the other witnesses testifying on behalf of EPN on a number of the
18 disputed issues. Since I served as a lead negotiator and because I have a broad
19 background in telecommunications networks, I am familiar with EPN's position on all of
20 the issues presented in EPN's testimony. In particular I will be testifying with respect to
21 EPN issues 17, 44, 46-48, 53 and SWBT Issues 5-7, and 13.

22 **Issue 17: Is EPN entitled to obtain nondiscriminatory access to unbundled loops and**
23 **transport regardless of whether SBC deems the loop or transport path a**
24 **primary route for a particular customer location, and regardless of whether**

1 **EPN has obtained other loops and transport to or from such location? (App.**
2 **UNE §§ 17.7.7, 17.7.8, 18.7.7, 18.7.8, 12.1.3, GT&C § 1.11.4)**

3
4 **Q. WHAT IS THE NATURE OF THE DISPUTE IN ISSUE 17?**

5 A. The issue concerns EPN’s right to obtain non-discriminatory access to unbundled loop
6 and transport elements from diverse central offices when such facilities exist and to
7 obtain facilities on diverse paths back to the same central office in the loop plant. SWBT
8 denies that EPN may obtain loop and transport UNEs from diverse central offices and
9 loops on diverse paths back to the same central office, notwithstanding the fact that
10 SWBT has the ability to choose its own route to serve its customers. SWBT also
11 contends that loop and transport UNEs to or from what it deems the non-primary or
12 serving wire offices are not UNEs under the Act, nor under the FCC’s or the
13 Commission’s rules. SWBT also contends that UNEs are only in the primary path of a
14 loop to the same central office. SWBT’s current practices unlawfully restrict EPN’s
15 ability to offer its customers the same network redundancy and diversity that SWBT
16 offers to its customers, and should be rejected by the Commission.

17 **Q. HOW DOES THE FCC DEFINE A LOOP?**

18 A. The FCC’s definition of unbundled loop makes no distinction regarding the particular
19 ILEC central office from which a loop originates. It simply states that a loop is a
20 “transmission facility between a distribution frame (or its equivalent) in an incumbent
21 LEC central office and the loop demarcation point at an end-user customer premises.”¹
22 Contrary to SWBT’s position, nothing in the Act or the FCC’s rules limits SWBT’s
23 obligation to unbundle network elements according to serving wire centers. The FCC’s
24 rules make it clear that a loop is a loop.

¹ 47 C.F.R. § 51.319(a)(1).

1 **Q. WHAT DO YOU MEAN BY DIVERSE CENTRAL OFFICES?**

2 A. In the case of loops, I mean that if facilities exist connecting a particular customer
3 premise to more than one SWBT central office, EPN should be able to obtain UNE loops
4 on any or all of those routes, so that the customer will not be dependent upon a single
5 cable route with potential single points of failure. In the case of dedicated transport, I
6 mean that if SWBT has installed more than one transport route between two central
7 offices or other network nodes, EPN should be able to obtain UNE transport on any or all
8 of these routes, so that EPN itself will be able to design a diversely routed network. In
9 the case of SWBT's deployment of Self-Healing Transport Networks ("STNs"), SWBT
10 does not take its defined serving wire center into consideration when designing this
11 service, so a loop exists when SWBT extends a facility from a customer premises, along
12 any route, to any wire center where SWBT designs the other end of the circuit.

13 **Q. WHAT DO YOU MEAN BY DIVERSE FACILITIES TO THE SAME CENTRAL**
14 **OFFICE?**

15 A. Sometimes SWBT's fiber facilities do not go to a different central office, but may take a
16 different path, through a different cable to the serving wire center. Although this is not
17 complete redundancy, it does offer another level of protection to the customer compared
18 to relying on fiber in a single cable.

19 **Q. DOES SWBT PROVIDE DIVERSITY TO ITS CUSTOMERS?**

20 A. Certainly. For example, in SWBT's FCC Tariff 73, SWBT offers several services that
21 include diversity as a component. In Section 19.1 of FCC Tariff 73, SWBT offers STNs
22 which are "characterized by a ring configuration that provide redundant transmission
23 over separate physical facilities." SWBT offers redundancy throughout its FCC 73 tariff,

1 including “loop redundancy” to its Megalink custom offering, which provides DS3
2 service to SWBT customers.

3 **Q. WHAT IS THE RELEVANCE OF THE “PRIMARY ROUTE” AND “ROUTE**
4 **OTHER THAN NORMAL”?**

5 A. SWBT internally determines its favored path between two points and refers to it as the
6 “normal” path. Any route other than that path would be considered a “route other than
7 normal,” or ROTN. It must be stressed, however, that this designation is essentially
8 arbitrary, because there is no physical or technical difference (except, perhaps, in length)
9 between the two routes. The concept of primary versus alternative routes is rooted in
10 SWBT’s legacy switched voice network design. “Route other than normal” is not an
11 industry standard term, not a CLEC derived term, not an FCC term, but a term coined by
12 SWBT in an attempt to circumvent its responsibility to provide UNEs -- in particular,
13 high capacity and dark fiber UNEs -- to EPN.

14 **Q. CAN YOU EXPLAIN HOW THESE TERMS ARE ROOTED IN SWBT’S**
15 **LEGACY VOICE NETWORK DESIGN?**

16 A. Historically, voice telephone networks were built using a “hub-and-spoke” architecture.
17 This was a hierarchical system in which each customer was connected to a specific
18 Class 5 central office serving a discrete geographic area, and each Class 5 office, in turn,
19 was connected to a specific Class 4 office serving a larger geographic office. There were
20 relatively few “alternative” routes in the old voice network because the limitations of the
21 copper technology used at the time made it very difficult to accommodate multiple
22 routings. Each telephone number had an “address” on one switch in one central office.

1 When the telephone number was assigned to a customer premise, that central office was
2 deemed the “serving wire center” for that specific address.

3 The addition of fiber optic cable to outside plant facilities changed this. The
4 distance limitations that were the driving design factor for copper facilities did not have a
5 similar impact on fiber designs. In fiber optic networks, high-capacity transmission and
6 routing facilities are designed to use diverse routes in order to ensure that service can be
7 maintained in the event of a cable cut, power outage, or equipment failure at a single
8 location. From the standpoint of fiber systems, any path that connects the desired end
9 points and meets the system transmission requirements is a valid path. Furthermore,
10 SWBT (like most other incumbent LECs) has deployed extensive fiber capacity over the
11 past decade or two to create diverse routes between and among its central offices, and
12 also between many customer premises and central offices. In the interoffice network
13 today, there are almost always multiple ways to get between offices -- no single path
14 being technically superior. This is the basis of creating physically diverse/redundant
15 routes to ensure network reliability.

16 Customer premises served by fiber also usually have diverse loop routes (unlike
17 older copper loop facilities, which typically lack diversity) and, in most cases in
18 metropolitan areas, have facilities available to more than one central office. Because
19 EPN only intends to obtain UNEs to provide non-switched or data services using dark
20 fiber, or high capacity loops and transport, there is no valid basis for any distinction
21 between “serving” or primary and alternative wire centers that SWBT seeks to impose.
22 SWBT is simply manipulating the fiction of “serving wire centers” and alternative
23 facility routing to create barriers to competitive entry. In fact, EPN has found

1 circumstances where SWBT itself, has chosen to build facilities not to what they coin the
2 “serving wire center,” but to a different wire center altogether. For example, at the
3 address 300 West Richey in Houston, SWBT has designated Bammell as the serving wire
4 center for all switched voice traffic. However, when SWBT installed fiber cabling to this
5 address, SWBT installed and terminated fiber to the Greenspoint central office, and did
6 not install fiber between 300 West Richey and the serving wire center. If SWBT is
7 allowed to perpetuate the fiction that UNEs only exist between the customer location and
8 the serving wire center, SWBT could circumvent its unbundling obligations under the
9 Act obligation simply by building its fiber facilities to wire centers other than the
10 “serving” wire center.

11 **Q. WHAT HAS BEEN EPN’S EXPERIENCE IN REQUESTING DIVERSE**
12 **FACILITIES FROM SWBT?**

13 A. SWBT has recently sought to arbitrarily define UNE dark fiber loops as only those
14 facilities that connect a customer to its “serving” central office. When EPN orders dark
15 fiber UNEs on a route SWBT deems as a “route other than normal,” SWBT responds that
16 “UNE diversity is not a product supported by EPN’s interconnection agreement.”²
17 SWBT argues that any facility between a customer location and an “alternative” or
18 location other than the SWBT designated “serving” wire center is not a loop subject to
19 the unbundling requirements of the Act, the Agreement, or the FCC’s or the
20 Commission’s rules. By contending that dark fiber on an alternative route is different
21 from other dark fiber it provides to EPN as a UNE, SWBT has invented a new way to
22 avoid its obligation to provide unbundled access to dark fiber.

² E-Mail from R. Allen, SWBT to P. Hogue, EPN, Oct. 5, 2001, attached as Ex. PMH-2.

1 For example, in the past, SWBT has rejected EPN orders for dark fiber loops
2 when SWBT had not installed fiber between the customer and what SWBT deemed the
3 “serving” wire center, but had installed fiber between the customer and a secondary wire
4 center.³ Under SWBT’s current proposed language, SWBT would be able to rely on false
5 distinctions such as “serving” versus “alternative” or “secondary” facility routing to deny
6 EPN access to these facilities. In addition, because EPN is denied unbundled access to
7 all but the primary routes, SWBT’s practices also impair EPN’s ability to offer route
8 diversity in its network design, thus providing SWBT the ability to offer a network
9 superior to its competitors.

10 **Q. IS THERE ANY VALID DISTINCTION BETWEEN THE LOOP BETWEEN THE**
11 **SERVING WIRE CENTER AND ANY OTHER LOOP?**

12 A. No there is not. The loop is still between the SWBT wire center and the demarcation
13 point at the customer’s premises and, therefore, fits in the FCC’s definition of a loop.
14 Nothing in the FCC’s definition of an unbundled loop limits UNE loops to facilities that
15 terminate in a “serving” wire center. Similarly, the FCC’s definition of a UNE loop does
16 not allow SWBT to condition the ordering of a loop from a wire center other than the
17 SWC on ordering a loop from the SWC.⁴ No such requirement exists, nor should one.

18 **Q. DO YOU HAVE EXAMPLES OF SWBT REFUSING TO PROVIDE UNES**
19 **BECAUSE THE UNE DID NOT GO TO THE SWBT DEEMED “SERVING WIRE**
20 **CENTER”?**

³ E-mail from L. Cooper, SWBT to P. Manias, EPN, Jan. 7, 2002, attached as Exhibit PMH-3.

⁴ See 47 CFR § 51.319(a)(2).

1 A. The attached letter from Denise Brinlee, SWBT's current account manager for EPN,
2 states that facilities are not available for a DS3 loop because the loop does not go to the
3 "serving" wire center.⁵ It is evident from Ms. Brinlee's email that SWBT will
4 specifically configure its services to avoid having to fulfill its legal and contractual
5 obligations to provide UNEs. Although EPN's existing agreement has straightforward
6 combination language and an arbitrated DS3 loop provision, SWBT repeatedly denied
7 EPN's facility check request, stating that, because the contract was written before the
8 FCC's decisions on access to EELs, the combination language in the Agreement could
9 not possibly include loop and transport combinations. EPN finds this confusing as
10 SWBT regularly used loop and transport combinations for itself prior to the FCC's orders
11 in 1999-2000; thus, the combination of loop and transport, whether or not SWBT
12 believes it is an EEL, was indeed available prior to the FCC's rulings on EELs in 1999-
13 2000.

14 Based upon EPN's experience in ordering diverse facilities from SWBT, EPN
15 needs contract language specifying that it has the right to any and all loops available to a
16 particular customer, and that SWBT must provide non-discriminatory access to such
17 UNEs pursuant to Section 251(c)(3) of the Act.⁶

18 **Q. DO YOU HAVE ANY OTHER EXAMPLES WHERE SWBT HAS DENIED**
19 **SERVICES TO EPN?**

20 A. Yes. On the attached spreadsheet, under the heading ROTN, there are examples of
21 facilities being available where EPN was denied facilities because the route was not the

⁵ Letter from D. Brinlee (SWBT) to P. Manias (EPN), February 2002, transmitted as attachment to email. Attached as Ex. PMH-4 (E-Mail) and PMH-5 (Word attachment).

⁶ 47 U.S.C. § 251(c)(3).

1 primary route to the serving wire center.⁷ Of the approximately 65 requests for facilities,
2 only one (1) time were facilities available that did not require conditioning, such as
3 splicing. Of these, eight (8) times SWBT agreed to splice fiber at multiple locations on
4 the path to provide facilities. (EPN can only assume that the system of splicing for EPN
5 has become so automated that SWBT must “watch” for these requests and take special
6 efforts to deny splicing. These must have slipped by unnoticed.) For the 56 times SWBT
7 claimed that there were no facilities, EPN has no way of knowing if facilities would have
8 been available had SWBT fulfilled its obligation to include unspliced and unterminated
9 fiber in its calculation of installed fiber in the first step of the 25% rule. Of these no
10 facilities rejections, EPN selected 16 facility check rejects to verify by checking SWBT
11 PLRs. Sixteen out of sixteen times, EPN’s review of the PLRs showed that with splicing
12 to complete continuity, facilities were available for EPN on those routes.

13 **Q. WHY IS IT NECESSARY THAT SWBT PROVIDE UNBUNDLED ACCESS TO**
14 **BOTH PRIMARY AND ALTERNATIVE ROUTES?**

15 A. In modern telecommunications networks, customers generating significant traffic volume
16 require redundancy or diversity in network design. The reason that SWBT has deployed
17 multiple paths of fiber facilities to a customer address is specifically to provide such
18 assurance of service in case of cable cuts or central office disaster. EPN’s customers also
19 demand the same level of network assurance through physical diversity. As
20 demonstrated in SWBT’s standard tariff offerings in FCC No. 73, the practice of offering
21 redundancy or diversity for high capacity telecommunications services to customers is
22 now an industry standard. If EPN is not allowed access to almost half of the dark fiber in

⁷ Exhibit PMH-6.

1 SWBT's network in order to provide such physical diversity to its customers, EPN will
2 be deprived of a meaningful opportunity to compete.

3 SWBT, however, imposes different terms and conditions on orders for facilities
4 that SWBT deems an "alternative" route, which effectively denies EPN the ability to
5 provide physical route diversity, even if specifically requested by the customer. SWBT
6 makes no such restrictions when it serves its customers that request physically diverse
7 facilities. SWBT's current practice denies EPN the ability to offer its customers
8 redundancy in network design at parity with what SWBT offers its customers. Such a
9 practice, unless prohibited by the Commission, would provide SWBT a superior network
10 design over competitors that use and rely on UNEs. In addition, SWBT continues to
11 erect artificial barriers, invent new rules, and define new terms -- all in an attempt to
12 circumvent its obligation to provide dark fiber UNEs and high capacity loops and
13 transport.

14 **Q. HAS THE FCC ADDRESSED THIS ISSUE?**

15 A. Yes. As an initial matter, the FCC's definition of unbundled loop makes no distinction
16 regarding the particular ILEC central office from which a loop originates. It simply
17 states that a loop is a "transmission facility between a distribution frame (or its
18 equivalent) in an incumbent LEC central office and the loop demarcation point at an end-
19 user customer premises."⁸ The definition of unbundled dedicated transport in the FCC's
20 rules similarly supports a finding that EPN may obtain any transport facility as a UNE,
21 regardless of whether SWBT deems it a "primary" route.⁹ Contrary to SWBT's position,

⁸ 47 C.F.R. § 51.319(a)(1).

⁹ See 47 C.F.R. § 51.319(d)(1)(A). The rule states: "Dedicated transport, defined as incumbent LEC transmission facilities, including all technically feasible capacity-related services including, but not

1 A. EPN requests that the Commission adopt EPN’s proposed definition of UNE dark fiber
2 that requires SWBT to provide UNE dark fiber regardless of whether any or all of the
3 fibers on the route are terminated. The Commission should require SWBT to terminate
4 fiber for EPN when the fiber it orders is not yet terminated, and clarify that these
5 obligations apply to all SWBT fiber facilities, regardless of the number of fibers EPN
6 orders, or how SWBT classifies the route. In addition, the Commission should make
7 clear that the Agreement should require SWBT to provide dark fiber subloops to EPN on
8 an unbundled basis. Lastly the Commission should affirm that dark fiber in the loop is
9 available as a UNE.

10 **Issue 46: Whether UNE dark fiber should be provisioned subject to the same**
11 **standards SBC imposes on its use of fiber to serve SBC customers, including**
12 **standards for splicing? (App. UNE § 18.9)**
13

14 **Q. WHAT IS THE NATURE OF THE DISPUTE REGARDING ISSUE 46?**

15 A. To be able to use unbundled dark fiber to provide telecommunications services, EPN
16 must be able to energize the fiber by lighting it. SWBT of course must do the same thing
17 when it puts fiber into use for its customers. EPN is seeking a simple requirement that
18 SWBT utilize accepted industry standards, which SWBT follows when it lights fiber for
19 itself, when it provides dark fiber UNEs to EPN.

20 **Q. WHAT WAS THE NATURE OF THE PARTIES NEGOTIATIONS ON THIS**
21 **ISSUE?**

22 A. Throughout the negotiation of the new interconnection agreement, SWBT has refused to
23 negotiate specific terms on dark fiber UNE standards, relying instead on its apparent
24 position that that it simply does not want EPN to utilize dark fiber UNEs at all, evidenced
25 for example by SWBT’s questioning, “[w]hether the Agreement should require SWBT to

1 offer “Loop Dark Fiber” as a UNE?”,¹⁶ an issue EPN believes is long-settled. As a result
2 of SWBT’s efforts to evade its legal obligation to provide dark fiber UNEs, EPN is
3 forced to arbitrate even the most mundane of issues. Issue 46 is one of those issues.

4 **Q. HOW HAS SWBT TRIED TO EVADE ITS DARK FIBER UNBUNDLING**
5 **OBLIGATION?**

6 A. SWBT has tried to evade its obligation to provide functional UNEs by insisting that it
7 does not have any quality standards for dark fiber, because it does not use fiber when it is
8 dark. This position is disingenuous; the relevant question is the standard that SWBT uses
9 in selecting dark fiber strands to be spliced and turned up for its own lit service, which is
10 what EPN intends to do with dark fiber UNEs.

11 SWBT’s position is that dark fiber is any fiber, regardless of whether it works.
12 Although SWBT makes sure for itself that fiber is useable fiber, it won’t do so for a
13 CLEC. According to SWBT, EPN must “take what it gets” and SWBT is not obligated to
14 apply any national or internal standards that SWBT applies when activating fiber for
15 itself. SWBT does not agree that EPN is entitled to the same standards that SWBT insists
16 on for its own lit services. In fact, SWBT has stated that the law does not require SWBT
17 to give EPN “good” dark fiber, just dark fiber. SWBT has stated to EPN that if any light
18 passes through the fiber strand, the fiber qualifies as a dark fiber UNE, regardless of the
19 ability of the fiber to pass through enough light to support a telecommunications service.
20 When EPN has requested that SWBT apply even the most elementary national standards
21 before providing dark fiber UNEs to EPN, SWBT has refused.

¹⁶ SWBT Response to EPN Petition, SWBT Issue 7.

1 SWBT has “spliced” fiber for EPN, yet the very fiber optic splicing technicians
2 that splice for SWBT utilizing exacting, measured quality standards for SWBT are
3 apparently allowed to splice for EPN with no required standards. SWBT apparently
4 believes that when SWBT splices for EPN, it is entitled to let its splicing technicians turn
5 in shoddy work, which would be totally unacceptable anywhere in the industry,
6 especially for SWBT itself.

7 The lack of clear standards applied to EPN’s splicing jobs constructively
8 authorizes SWBT personnel to perform substandard splicing when they hand over the
9 fiber. SWBT certainly understands that poor splices in the fiber will impede EPN’s
10 ability to serve customers. It is unconscionable that SWBT tells EPN to “take it or leave
11 it,” because EPN pays for the splicing SWBT performs on its behalf. Obviously, SWBT
12 is not providing basic parity in provisioning of the dark fiber UNE.

13 **Q. HAS EPN RECEIVED FIBER FROM SWBT THAT WAS UNABLE TO**
14 **SUPPORT TELECOMMUNICATIONS TRAFFIC?**

15 A. Yes. In my testimony filed for Issue 48, I describe instances in which SWBT has
16 provided dark fiber to EPN that is so defective that it is incapable supporting any
17 telecommunications services.

18 **Q. HOW HAS EPN TRIED TO RESOLVE THESE ISSUES WITH SWBT?**

19 A. SWBT refuses to repair the fiber by resplicing the fiber, as SWBT does for itself, or to
20 allow EPN to attempt the same. Moreover, EPN is faced with a Catch-22 with SWBT, in
21 that if EPN reports to SWBT that the fiber was provisioned defective, SWBT could
22 respond that under the 25% rule it never should have been provided to a CLEC anyway.
23 It is clear that, in the absence of clear requirements in the agreement specifying parity

1 standards for SWBT's provisioning of dark fiber with SWBT's provisioning of optical
2 services to itself, EPN is deprived of any meaningful ability to address substandard
3 provisioning with SWBT.

4 **Q. IS IT TECHNICALLY FEASIBLE FOR SWBT TO ENSURE THAT**
5 **UNBUNDLED DARK FIBER NETWORK ELEMENTS ARE AT LEAST EQUAL**
6 **IN QUALITY TO THAT WHICH SWBT PROVIDES TO ITSELF?**

7 A. Yes. There are no technical limitations that prevent SWBT from providing dark fiber to
8 EPN in a manner that assures that EPN's ability to utilize dark fiber would be at least
9 equal in quality to that which SWBT provides to itself. It is technically feasible for
10 SWBT to perform testing prior to provisioning a dark fiber, and, to repair or re-splice a
11 fiber, or, where available, to provide alternate facilities. It is also technically feasible for
12 SWBT to provide EPN adequate information on the testing and measurements it has
13 taken on the fiber, because that information is available to SWBT transport engineers
14 when SWBT brings fiber into service for its own use.

15 **Q. WHAT RESOLUTION DOES EPN SEEK FOR ISSUE 46?**

16 A. EPN simply wants parity. In other words, EPN wants dark fiber UNEs that are at least
17 equal in quality to what SWBT uses. EPN wants SWBT to utilize national standards on
18 splicing and terminations and to provide test results to EPN, up front in the ordering
19 process, just as SWBT does for itself. If re-splicing or re-termination would bring the
20 fiber up to a quality level, and SWBT would do this for itself, it should do the same for
21 EPN.

22 **Issue 47: What testing should SBC be required to perform before it turns over fiber to**
23 **EPN? (App. UNE § 18.9.4)**
24

1 **SWBT Issue 8** **Under the Agreement, how should defective fiber be counted for the**
2 **purposes of determining availability?**
3

4 **Q. WHAT IS THE NATURE OF THE DISPUTE REGARDING ISSUE 47 AND**
5 **SWBT ISSUE 8?**

6 A. EPN believes that SWBT should be required to test dark fibers before they are
7 provisioned to CLECs as UNEs, using the same testing standards that SWBT employs
8 when provisioning a fiber for its own telecommunications services. In conjunction with
9 Issue 48, EPN seeks to establish that SWBT cannot provision dark fiber as a UNE which,
10 under industry standards, is defective. SWBT maintains that it has no obligation to
11 provide fiber that works or meets any standards of any kind, and therefore argues that
12 testing is unnecessary.

13 **Q. WHY IS TESTING OF DARK FIBER UNES NECESSARY?**

14 A. As I understand it, under the Telecommunications Act of 1996 and associated state and
15 federal regulations, SWBT cannot discharge its obligation to offer unbundled dark fiber
16 by providing defective facilities that are incapable of supporting all of the features,
17 functions and capabilities that a properly functioning network element can deliver.
18 Fibers can be defective because of excessive signal loss or light reflection. Defects can
19 occur in the fiber itself, or because a splice or termination has been improperly
20 performed. In order to determine whether a fiber is defective or whether a splice or
21 termination must be re-done, it is necessary to test the fiber using nationally accepted
22 industry standards.

23 **Q. WHAT ARE THE APPROPRIATE STANDARDS FOR TESTING DARK FIBER?**

24 A. To test the functionality of a fiber, SWBT should apply the generally accepted national,
25 industry-wide recognized standards for dark fiber signal loss and reflectance

1 measurements. The leading national standards are the field test specifications developed
2 for the American National Standards Institute (ANSI) by the Telecommunications
3 Industry Association (TIA) in standard ANSI/TIA/EIA-568-B (“ANSI standard 568-B”).
4 The TIA is accredited by the federal NTIA to develop voluntary technical standards for
5 the telecommunications industry. ANSI is a private, non-profit, non-government
6 organization and is the leading developer of telecommunications standards in the United
7 States.

8 **Q. WHAT DOES ANSI STANDARD 568-B MEASURE?**

9 A. ANSI standard 568-B prescribes the performance parameters and standards for field
10 testing of fiber optic links. This standard measures “link attenuation,” also called “light
11 dispersion,” which is the loss of signal strength, measured in decibels (dB) over the cable
12 and the splice points (including terminations). As the light flows through the core of a
13 fiber optic cable, the natural tendency of light to disperse or for the light beam to get
14 larger the farther it goes from the light source causes some of the signal carried on the
15 light’s wave to be lost. This loss of light as it disperses while traveling through the cable
16 is measured in dB loss of light per kilometer of fiber, commonly referred to as dB loss
17 per km. One can demonstrate light dispersion with a flashlight. When you hold a
18 flashlight very close to an object, the light is very bright. As you move the flashlight
19 away from the object, the light covers a wider area and is not as bright. This parameter is
20 measured at several wavelengths between 850 and 1625 nanometers (nm), including 1310
21 and 1550 nm. The field test measures whether the dB loss at each wavelength exceeds
22 specified standards for each corresponding wavelength, and, when the attenuation does
23 not exceed these limits, the test records the margin between the dB loss observed and the

1 prescribed maximum limit. If dB loss exceeds specified standards for different types and
2 lengths of cable at any of the wavelengths that are to be measured, the fiber is defective
3 according to the standard.

4 **Q. ARE ANY OTHER TYPES OF TESTING NECESSARY FOR DARK FIBER**
5 **BEFORE IT IS PROVISIONED TO EPN AS A UNE?**

6 A. Yes. Also needed is reflective testing, which measures light that reflects back to the
7 origination point or the light source. Light reflectance is the same principle that is used
8 with sunlight on, for instance, sunglasses. With sunglasses, the more reflectance of
9 sunlight, the better the sunglasses. By contrast, with fiber optics, high levels of
10 reflectance are bad, as it means some of the light -- and thus the data transmitted over the
11 light -- is lost because it is being reflected back to the light source and, therefore, not
12 reaching its destination.

13 **Q. WHY ARE BOTH SIGNAL LOSS TESTING AT EACH WAVELENGTH AND**
14 **REFLECTIVE TESTING NECESSARY?**

15 A. Each of these tests identifies different problems that might exist in the fiber. If only one
16 test were performed, there might be material deficiencies in the fiber that remain
17 undetected. At a minimum, SWBT should perform for UNE dark fiber leased to EPN
18 any and all testing that SWBT does for its customers, itself, or CLECs when turning up a
19 fiber-based circuit. In addition, whether or not SWBT performs such tests for itself, the
20 fiber should be tested at both 1310 nm and 1550 nm, and subjected to reflective testing.

21 **Q. WILL SWBT PERFORM TESTING ON DARK FIBER UNE FOR EPN?**

22 A. Today, after a dark fiber UNE is installed, SWBT takes a single reading of the dB loss
23 per km on the fiber as a whole, rather than per splice and per termination, and only for

1 1310 nm, and not 1550 nm. An earlier version of SWBT's Technical Publication 76860
2 included terms for reflective testing for UNEs, but SWBT removed reflective testing
3 from the document without explanation, and now refuses to provide such testing for
4 UNEs being provided to EPN. Notwithstanding even this limited testing, SWBT
5 provisions the fiber to EPN, regardless of whether the test results pass the industry
6 minimum standards. The only apparent purpose of SWBT's test is to establish a
7 benchmark from which SWBT thereafter measures its obligation to repair the fiber.
8 SWBT believes that it is only required to repair or replace the UNE as needed to maintain
9 dB loss standard within 3 dB above or below this initial benchmark reading. SWBT's
10 use of this "standard" makes a mockery of its unbundling obligations, because the
11 benchmark could be at a dB level that is by definition defective.

12 **Q. DOES SWBT PERFORM SIGNAL LOSS AND REFLECTIVE TESTING ON ITS**
13 **OWN FIBERS?**

14 A. While SWBT has refused to divulge its fiber standards for retail services to EPN, when
15 any carrier splices or terminates fibers so that it may light a fiber for its own use, it would
16 normally test for dB loss using ANSI 568-B or a comparable testing procedure. Both
17 testing for signal loss and reflection are standard procedures that I did for each and every
18 fiber splicing job almost twenty years ago as a fiber optic cable splicing technician for
19 Southwestern Bell. SWBT has always presented its Texas network as one of the best in
20 the world. When I was a fiber optic cable splicer for SWBT, I took particular pride in the
21 quality of work that was accomplished and always demanded by SWBT. In fact, both
22 quality and productivity were preached to technicians daily. When splicing fiber for
23 SWBT, I was required to meet industry standards, and each splice was recorded and

1 results were reviewed by my supervisor. In fact, there was a friendly competition
2 between splicers to always exceed industry standards. Now SWBT refuses to discuss
3 standards or agree that the same standards it uses for itself should also apply to its
4 provisioning of UNEs to EPN. Therefore, I can only conclude that SWBT is refusing to
5 apply the same standards to dark fiber that are utilized by SWBT internally to EPN.

6 Even if SWBT stopped performing testing using the national standards, if it
7 attempted to use a defective fiber it would determine as a practical matter that it was
8 necessary to repair or resplice it, or to use a different fiber, before it would be able to
9 offer some or all of the types of services that SWBT offers over fiber. Therefore, when
10 SWBT provides dark fiber to CLECs, testing is necessary to ensure that the quality of
11 UNEs SWBT provides to CLECs is at least equal in quality to that which SWBT
12 provides to itself.

13 **Q. HOW DOES SWBT PERFORM SIGNAL LOSS AND REFLECTIVE TESTING**
14 **IN ITS FIBER?**

15 A. Reflective and signal loss testing can be and are performed using a single piece of testing
16 equipment that SWBT already employs for use on its own network, called an OTDR
17 (“Optical Time Domain Reflectometer”). The procedures for testing are set forth in
18 ANSI/TIA/EIA-526-7, Method A.1, and are well known to SWBT. Fiber optic splicing
19 in SWBT is a two-person operation so that tests on dB loss and reflectance can be
20 measured while the fiber is being spliced. One technician goes to the end of the cable
21 that is not being spliced and uses the OTDR, or similar test set to measure the dB loss per
22 km, the dB loss at an exact point on the fiber (i.e., a splice point), and the reflectance of
23 the fiber. Generally an OTDR has a small screen that looks like a very small television.

1 This screen displays the wavelength of the signal as the light travels down the cable.
2 The dB loss per kilometer is generally measured at 1310 nm and 1550 nm. The
3 technician who is utilizing the OTDR can “see” the fiber as it is spliced on the screen,
4 measure the new splice and immediately tell the splicing technician positioned at the
5 other end of the cable if the splice falls within an acceptable range. At the same time, and
6 with the press of a button or two, the reflectance of the fiber splice can be measured as
7 well.

8 **Q. WHAT DOES SWBT DO WITH THESE TESTS?**

9 A. The splicing technician makes a log of the measurements to be used by, among others,
10 the transport engineer who will eventually design services such as DS3, OC3 and higher
11 speeds when this fiber strand is utilized. Some OTDRs are sophisticated enough that a
12 “memory” of the splice information is created internally in the machine itself. The
13 OTDR can print out the splicing specifications as needed. Meeting “standards” for
14 splicing has been a practice within SWBT when I was a fiber optic cable splicing
15 technician almost twenty years ago and continues today.

16 These measurements per fiber are captured by the fiber optic splicing technician
17 at the time of splicing, utilized by the transport design engineer when designing services
18 for SWBT and recorded in the “disaster recovery plans” that SWBT maintains for each
19 and every fiber optic cable installed in its network.

20 **Q. WHAT RESOLUTION DOES EPN SEEK FOR ISSUE 47 AND SWBT ISSUE 8?**

21 A. SWBT should be required to perform testing on dark fibers before they are provisioned to
22 CLECs as UNEs, using the same testing standards that SWBT employs when
23 provisioning a fiber for its own telecommunications services.

1 **Issue 48: _____ Should the Agreement Specifically Define Defective Fiber? (App. UNE §**
2 **18.6.3)**

3
4 **SWBT Issue 8 _____ Under the Agreement how should “defective fiber” be counted for**
5 **purposes of determining availability?**

6
7 **Q. WHAT IS THE NATURE OF THE DISPUTE REGARDING ISSUE 48 AND**
8 **SWBT ISSUE 8?**

9 A. SWBT has refused to include any meaningful definition for defective fiber in the
10 Agreement. A precise definition of defective fibers is important for at least two reasons.
11 *First*, SWBT should not be permitted to provision a defective fiber to a CLEC to fulfill a
12 UNE request. *Second*, in the absence of a definition, SWBT could unreasonably
13 manipulate its assessment of which fibers should be counted in accordance with the
14 Commission’s 25% spare rule used to determine which dark fiber facilities must be made
15 available to CLECs as UNEs. Without a definition, there is no requirement that SWBT
16 apply its own standards of defective in a consistent manner. SWBT could, on the one
17 hand, impose overly broad standards of what is defective in order to exclude dark fiber
18 from unbundling under the 25% rule, and on the other hand use an unreasonably narrow
19 definition of defective to provide unusable fibers to CLECs as UNEs. Coming to
20 agreement on a single, standard definition in the agreement will prevent this unreasonable
21 arbitrage by SWBT, and save needless future hours in front of the Commission engaged
22 in dispute resolution. SWBT would rather have vague language that allows for its
23 subjective determinations.

24 **Q. How should the Agreement define a defective fiber?**

25 A. A fiber should be deemed defective if it continues to fail to meet all of the standards for
26 that I described in Issue 47, despite good faith and diligent efforts by SWBT to repair

1 splices (including terminations) as are necessary to attempt to bring the fiber fully in
2 compliance with the industry standards.

3 **Q. HAS SWBT EVER PROVIDED EPN WITH UNE DARK FIBER THAT DOES**
4 **NOT MEET INDUSTRY STANDARDS?**

5 A. Yes. SWBT has provisioned UNE dark fibers that failed to meet the ANSI standards for
6 signal loss. For example, some of the fibers provided to EPN in Fort Worth had a db
7 reading of 6.0db, which is dramatically higher than the acceptable standard of 0.3db per
8 splice. SWBT contends that it can fulfill a dark fiber UNE request with any fiber facility
9 that is capable of transmitting any light from end to end, no matter how severe the level
10 of dispersion or reflectance. Accordingly, SWBT provides dark fiber “as is,” and has in
11 some cases provided defective, or “cloudy,” fiber to EPN that does not meet national
12 standards. Standard telecommunications equipment, including the equipment used by
13 EPN, will not function when connected to these defective fibers, and in some cases the
14 fiber is so defective that EPN cannot even calculate the bit error rate because EPN’s
15 dense wave division multiplexing (“DWDM”) equipment cannot be activated on the
16 fiber. EPN is therefore unable to use these defective fibers to provide the
17 telecommunications service that it intends to offer to its customers. SWBT nonetheless
18 expects EPN to pay for the installation of and access to this useless fiber.

19 **Q. CAN EPN USE DARK FIBER EFFECTIVELY IF SIGNAL LOSS OR**
20 **REFLECTANCE EXCEEDS THE INDUSTRY STANDARDS?**

21 A. No. When a fiber’s attenuation at any wavelength or splice point exceeds the standards
22 prescribed by ANSI 568-B, or if reflectance exceeds acceptable standards, EPN is unable
23 to use all of the dark fiber’s features, functions, and capabilities, in a manner that allows



EXCERPT FROM TOWNES REBUTTAL TESTIMONY.

HOW DOES SWBT CONSTRUCT FIBER IN THE LOOP SIDE OF ITS NETWORK?

- A. SWBT builds “backbone” fiber in its network to pass the locations in which fiber needs are forecasted, but it does not build to each specific location. See Attachment 1. As retail customers request services SWBT places additional fiber to complete the path between the backbone and the customer premise. When SWBT does this it must break the glass in the backbone and splice this new fiber to the some of the strand in the cable running to the customer location. SWBT does not splice more fiber than necessary as it would eliminate availability of the capacity to any customer further down the backbone route. For example there may be a 144-count fiber running through an area with multiple customer locations. When the first customer orders fiber-based service, a 12-count cable will typically be placed between the backbone fiber and the customer location, but only four fibers will be spliced into the backbone. These four fibers would also be terminated to allow for connection of the electronics. The remaining eight fibers may or may not be terminated, but only the four necessary fibers would be spliced into the backbone, because the four backbone fibers become unavailable to any other location or customer the fiber passes. If all 12 were spliced into the backbone, the eight additional fibers would be taken out of service and would be unavailable to the locations the backbone fiber passes.

This process is repeated at each customer location served by the backbone. As you can see, splicing all fibers into each customer location would prematurely deplete the capacity of the backbone fiber, requiring additional fiber to be deployed and service delayed unnecessarily. SWBT is required to and does terminate fibers existing within the customer location that may have not been terminated during the initial build, but SWBT is not obligated to construct new routes or to break glass and perform the splicing to the backbone in the field to create a new loop that does not currently exist. See Mr. Weydeck's direct and rebuttal for further information on this issue.



DOCKET NO. 25188

PETITION OF EL PASO NETWORKS, LLC FOR ARBITRATION OF AN INTERCONNECTION AGREEMENT WITH SOUTHWESTERN BELL TELEPHONE COMPANY	§ § § § §	BEFORE THE PUBLIC UTILITY COMMISSION OF TEXAS
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**EL PASO NETWORKS LLC
DIRECT TESTIMONY OF TEO GALVAN**

Q. PLEASE STATE YOUR NAME AND CURRENT JOB TITLE.

A. My name is Eleuterio (Teo) Galvan Jr., and I am currently employed by El Paso Global Networks (“EPN”) in the capacity of Vice President OSP Engineering.

Q. HAVE YOU EVER TESTIFIED BEFORE THE PUBLIC UTILITY COMMISSION OF TEXAS?

A. No. I have not previously testified before this Commission. However, parallel with this proceeding, I will also be testifying in connection with EPN’s Complaint and Request for Interim Ruling (Docket No. 25004).

Q. PLEASE DESCRIBE YOUR CURRENT RESPONSIBILITIES AT EPN.

A. As Vice President OSP Engineering, I oversee the engineering department that is responsible for designing and building EPN’s nationwide fiber optic network. I am presently responsible for the oversight of a staff of 12 engineering managers. Together, we are responsible for the design and construction of fiber optic network projects for EPN within the constraints of a \$125 Million budget.

Q. PLEASE SUMMARIZE YOUR WORK EXPERIENCE BEFORE JOINING EPN?

A. Before joining EPN in 2000, I was employed by Southwestern Bell Telephone Company (“SWBT”) in various capacities since 1978. My first position with SWBT was Manager-

information from SWBT to ensure that EPN can accurately track customer due dates and provisioning intervals, and compete on a non-discriminatory basis with SWBT. EPN's proposal is fair, reasonable, and should be adopted by the Commission.

Issue 26: Should EPN have parity access to DWOs and other engineering records regardless of the state of the job? (App. UNE §§ 5.3.5, 18.5.1)

Q. WHAT IS THE DISPUTE SURROUNDING ISSUE 26?

A. EPN seeks additional contract language to protect its ability to gain access to SWBT engineering records not only for jobs that are complete, but also for jobs that are planned or in progress. Despite this Commission's rulings to the contrary, SWBT argues that it is not obligated to provide such information. Rather, SWBT wants to keep this information hidden from CLECs for its own commercial benefit. Consistent with the its findings in the Waller Creek Arbitration, the recent EPN Interim Ruling, and the CoServ Arbitration, the Commission should again reject SWBT's position and require it to commit to contract language that would provide non-discriminatory access to its back office records.

Q. WHAT HAS BEEN EPN'S EXPERIENCE IN SEEKING TO OBTAIN ACCESS TO THIS INFORMATION FROM SWBT?

A. In planning and coordinating the construction of its network, EPN regularly seeks information about the location of SWBT's facilities. Initially, EPN requests access to SWBT's PLRs to determine if facilities exist along a particular route. Often, the PLRs will indicate no fiber facilities exist to a given location, even when a visual review of the telecommunications equipment at the location indicates fiber is deployed. If the reviewing EPN engineers determine that the PLRs are incomplete, the EPN engineer asks for any and all DWOs, including pending installation jobs. SWBT engineers generally record information regarding fiber installation jobs in the DWOs, including, for example,

the routes SWBT's fiber cables take, the location of manholes and splices, and the number and size of fiber cables. As determined by the arbitrators during the interim relief hearing, and according to the testimony of Mr. Ron Roberts (a former, long-time SWBT employee), fiber can be deployed for a long time before SWBT ever deems the entire DWO "complete."⁷ In such a case, SWBT will have access to fiber facilities and will be able to shield their existence from CLECs until it deems the DWO "complete," at which time it will post it in the PLRs. I know of times when fiber has been deployed for years and still was not posted in the PLRs. A fair playing field demands that CLECs have access to the same data as SWBT.

Prior to the arbitrators' interim ruling requiring access to DWOs, SWBT would not be forthcoming with the DWOs. In EPN's experience, SWBT regularly denies access to this information outright, although the *Waller Creek Award* requires SWBT to provide EPN information concerning jobs that are not yet reflected on the PLRs. For example, in the past, SWBT has imposed additional delays on EPN's ability to serve its customers by denying access to DWOs that record recently completed fiber installations and those that are in progress and near completion. During a recent EPN review of the 105 Auditorium location, EPN was denied access to SWBT's DWOs on the premises. SWBT claims this was justified because engineers and planners were absent from that location that day. SWBT, however, fails to mention that all personnel in a SWBT engineering office have unrestricted access to the DWOs for that area.

In another recent instance, EPN's representatives were denied access to DWOs during a regular visit to SWBT's engineering office while verifying the facility check

⁷ EPN Interim Ruling Hearing Tr., (Roberts Cross-Ex.) at 177-178, 183.

response for 750 N. Paul in Dallas. SWBT refused to permit EPN to view the DWOs, claiming that EPN's right to review engineering records and maps only applies to completed SWBT jobs, and that SWBT only considers the job complete when it is posted in the PLRs, regardless of whether SWBT was currently using the "incomplete" fiber to provide service to its own customers. SWBT's assertions are discriminatory and contrary to this Commission's past rulings.

Q. WHAT HARM WOULD EPN FACE IF ITS PROPOSED LANGUAGE WERE NOT ADOPTED?

A. As a practical reality, if EPN had to rely on SWBT to post what information it decides EPN should have, it would be the same as allowing SWBT itself to determine whether EPN obtains facilities. If, in fact, EPN could rely on neutral treatment by SWBT, EPN likely would not have needed to initiate this proceeding. This, however, is not the case. As Mr. Passmore demonstrated in his testimony during the interim ruling hearing on EPN's complaint, there are instances in which SWBT deploys fiber without recording it on the PLRs, thereby keeping its existence hidden from EPN and other CLECs. EPN must have the right to review all of the records to determine what is and will soon be available for its use if it is to be able to compete fairly with SWBT and offer customers a real competitive alternative to the SWBT monopoly.

Because of SWBT's persistent refusal to abide by its obligations imposed by this Commission, EPN has found that detailed contract language specifying SWBT's obligations is necessary. SWBT understands exactly what information and facilities EPN needs to serve its customers and intentionally, and in my experience, impedes EPN's access to such information and facilities. Despite this Commission's orders compelling