

STATE OF ILLINOIS
ILLINOIS COMMERCE COMMISSION

Marion Telephone, LLC

Petition for Arbitration of Certain
Terms And Conditions of Proposed
Agreement With Verizon North Inc.
(f/k/a GTE North Incorporated) and
Verizon South Inc.(f/k/a GTE South
Incorporated) Concerning
Interconnection Under the
Telecommunications Act of 1996

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DOCKET NO. 06-0688

REBUTTAL TESTIMONY OF WARREN THOMAS
ON BEHALF OF
Verizon North Inc.
and Verizon South Inc.

EXHIBIT 4.0

DATED: March 16, 2007

OFFICIAL FILE

ILL. C. C. DOCKET NO. 06-0688

Verizon Exhibit No. 4.0

Witness _____

Date 3/21/07 Reporter CB

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1 **INTRODUCTION**

2 **Q. Please state your name.**

3
4 A. My name is Warren Thomas. I am providing testimony in this proceeding on
5 behalf of Verizon North, Inc. and Verizon South, Inc. (collectively "Verizon").

6 **Q. Are you the same Warren Thomas who submitted pre-filed direct testimony**
7 **in this proceeding?**

8
9 A. Yes.

10 **PURPOSE OF TESTIMONY**

11 **Q. What is the purpose of your testimony?**

12 A. The purpose of my rebuttal testimony is to respond to the network-related
13 portions of the direct testimony submitted in this proceeding by Mr. James J.
14 Keller on behalf of Marion Telephone LLC ("Marion"), Mr. Russell W. Murray and
15 Dr. James Zolnierek on behalf of the Staff of the Illinois Commerce Commission
16 ("Staff").

17
18 Specifically, I will respond to Dr. Zolnierek's testimony and explain that I agree
19 with his proposed resolution of Issue 14. In addition, I will respond to Mr. Keller's
20 testimony on Issue 15 and show how it makes clear that Marion's proposal is
21 really a request for what it calls "adjacent off-site collocation." I will show that
22 adjacent off-site collocation is something that Verizon is not obligated to
23 accommodate under the Telecommunications Act of 1996 ("TA96") or the rules of

24 the Federal Communications Commission ("FCC") implementing the
25 requirements of TA96. I will also demonstrate that Mr. Keller offers no legitimate
26 rationale to support Marion's metallic interconnection/adjacent off-site collocation
27 proposal, and that the threats to network reliability, security and safety that I
28 described in my direct testimony remain legitimate concerns, even though it may
29 not be necessary for the Administrative Law Judge ("ALJ") and Illinois Commerce
30 Commission ("Commission") to address these issues in light of the fact that Mr.
31 Keller's testimony acknowledges that Marion is requesting adjacent off-site
32 collocation. Accordingly, I maintain my recommendation that the ALJ and the
33 Commission reject Marion's proposal with respect to Issue 15. Finally, I will rebut
34 Mr. Keller's testimony with respect to Issue 18, and reaffirm my recommendation
35 that the ALJ and the Commission should reject Marion's proposal and adopt
36 Verizon's proposal to restrict to 100 feet the length of new facilities that must be
37 installed to connect Marion's Telecommunications Outside Plant Interconnect
38 Cabinet ("TOPIC") to Feeder Distribution Interfaces ("FDIs") within Verizon's
39 network (Issue 18).

40
41 As I will discuss in further detail below, the ALJ and the Commission should
42 decide each of these issues in Verizon's favor and reject the modifications
43 Marion has proposed to Verizon's interconnection agreement ("ICA") language
44 that purport to support Marion's position on each of these issues.

45 **DISCUSSION**

46 **ISSUE 14**

47
48 **1. Response to Marion witness James Keller**

49
50 **Q. At pages 8-9 of his direct testimony, Mr. Keller raises three points in**
51 **response to Verizon's concerns about tandem exhaust. Is there any merit**
52 **to Mr. Keller's attempt to minimize these concerns on the basis that**
53 **Verizon's rates for tandem switching already take into account the forward-**
54 **looking cost of tandem use?**

55
56 **A. No. Mr. Keller correctly acknowledges that pricing has been established for use**
57 **of Verizon's tandem, and infers that since the pricing presumably takes into**
58 **account the forward-looking cost of tandem use, tandem exhaust can never be a**
59 **problem. This point ignores assumptions that underlie Verizon's tandem**
60 **switching rates. It is true that the Commission has established pricing for**
61 **transport and termination of traffic, including a reciprocal compensation per**
62 **minute of use ("MOU") rate for tandem switching and a per MOU rate for tandem**
63 **transit service, but the cost studies upon which those rates are based assume**
64 **that the tandem will be utilized in an efficient network architecture. In other**
65 **words, those rates assume an efficient use of the tandem, whereby a carrier**
66 **terminates a sufficient amount of traffic through the tandem to a specific end**
67 **office and would install direct end office trunks to service such traffic. Allowing a**
68 **carrier a limitless ability to clog Verizon's tandem, regardless of the amount of**
69 **traffic that carrier routes through that tandem to a particular end office, is not an**
70 **efficient use of the network, and not what is reflected in the Total Element Long**

71

72 Run Incremental Cost ("TELRIC") studies that support the Verizon tandem
73 switching rates to which Mr. Keller alludes.

74
75 **Q. Mr. Keller also asserts that Verizon advanced this same position in**
76 **Michigan and the Michigan Public Service Commission rejected Verizon's**
77 **proposed limit on the number of trunks to tandem. Should the**
78 **Commission rely on what happened in Michigan in deciding this issue?**

79
80 **A. No. While the Michigan Public Service Commission did reject Verizon's**
81 **proposed limit on the number of tandem interconnection trunks in the**
82 **Telenet case to which Mr. Keller refers, that based on the facts in that**
83 **case and history in Michigan regulatory proceedings. Illinois is different.**
84 **As Staff witness Dr. Zolnierек indicates in his direct testimony, the Illinois**
85 **Commission has found in previous cases that once a carrier has traffic**
86 **destined for a particular end office that reaches a DS1 level, it should be**
87 **required to build a direct end office trunk to that office. In so doing, the**
88 **Illinois Commission has recognized the need to address tandem exhaust**
89 **concerns with reasonable limits on the amount of traffic that CLECs can**
90 **route through ILEC tandems. As discussed below, Verizon believes Dr.**
91 **Zolnierек's proposal is reasonable and should be adopted.**

92 **Q. Finally, Mr. Keller contends that because the number of Plain Old**
93 **Telephone Service ("POTS") lines has decreased from 2004 to 2005, and**
94 **the number of lines served by competitive local exchange carriers has**
95 **decreased from 2004 to 2005, there should be no concern for tandem**
96 **exhaust. Do you agree?**

97
98 **A. No. Mr. Keller relies on the Commission's Annual Report on**
99 **Telecommunications Markets in Illinois ("ICC Report"), issued in September**

100 2006, for his claim that POTS lines decreased by 300,000 from 2004 to 2005,
101 and that POTS lines served by Competitive Local Exchange Carriers ("CLECs")
102 decreased by 500,000 during the same time period. While that report does
103 show a decrease in POTs lines and POTS lines served by CLECs from 2004 to
104 2005, it shows that mobile-wireless providers increased subscribership from mid-
105 year 2004 to mid-year 2005 by a million subscribers, well more than the total
106 decrease in POTS lines during the same time frame. ICC Report at 3. The ICC
107 Report also shows that the number of lines served over wholly-owned CLEC
108 facilities, with the number of CLECs increasing from 2004 to 2005 (from 65-69),
109 and the number of broadband customers served via Asymmetrical Digital
110 Subscriber Lines ("ADSL") and cable modem technologies growing by 42% from
111 2004 to 2005. Thus, as the ICC Report demonstrates, broadband and mobile-
112 wireless services are growing at a much greater rate than POTS lines are
113 declining.

114 **Q. Do mobile-wireless and broadband providers have an impact on the**
115 **amount of traffic that traverse Verizon's tandems?**

116
117 **A. Absolutely. Mobile-wireless carriers have to interconnect to the Public Switched**
118 **Telephone Network ("PSTN") so that their customers can make and receive calls**
119 **from Verizon's and other carriers' wireline customers. They do so via**
120 **interconnection at Verizon tandems. In addition, broadband service providers,**
121 **including cable companies, can provide telephony services through Voice Over**
122 **Internet Protocol ("VoIP") technology. Just as mobile-wireless carriers**
123 **interconnect with Verizon, so too do broadband providers to enable their VoIP**

124 customers to be able to place and receive calls from the PSTN. As a result,
125 while POTS lines may be seeing an overall decrease, the need for
126 interconnection to the PSTN is not. Mr. Keller's use of a few statistics from the
127 ICC Report is misleading and does not support the point he attempts to make.
128 Verizon can and should be able to manage its network in an efficient manner,
129 and that includes maintaining a reasonable limit on the number of tandem
130 interconnection trunks. For all of the foregoing reasons, the ALJ and the
131 Commission should disregard Marion's arguments with respect to Issue 14.

132 **2. Response to Staff witness Dr. James Zolnierек**

133 **Q. At pages 10-11 of his direct testimony, Dr. Zolnierек points out a**
134 **discrepancy between the description of this issue in Verizon's reply to**
135 **Marion's Petition for Arbitration and the description contained in my direct**
136 **testimony, with the former indicating that Marion should employ Direct End**
137 **Office Trunks ("DEOTs") where traffic to a particular end office exceeds**
138 **240 trunks, and the latter indicating that Marion should employ DEOTs**
139 **when traffic to a particular tandem exceeds 240 trunks. Which description**
140 **of the issue is accurate?**

141 **A.** The description of the issue contained in my direct testimony is accurate. Dr.
142 Zolnierек is correct in his assumption that my testimony more accurately
143 describes the issue and is consistent with the language reflected in section 2.2.6
144 of the interconnection attachment of Verizon's model interconnection agreement
145 ("ICA") (which appears as a deletion from section 2.3 of Marion's redline version)
146 that Marion proposes to delete. See Redline Version of ICA attached to Marion's
147 Petition for Arbitration, interconnection attachment, section 2.3 at p. 55.

149 **Q. At pages 14-15 of his direct testimony, Staff witness Dr. Zolnierек**
150 **recommends that the Commission determine that Marion must limit the**
151 **number of trunks going through a Verizon tandem to 240 trunks or take**

152 **traffic destined for any Verizon end office subtending the tandem off the**
153 **tandem for all subtending end offices where traffic delivered to that office**
154 **exceeds 864 Centum Call Seconds (“CCS” or the equivalent of one DS-1)**
155 **during the busy hour for three consecutive months. Dr. Zolnierек further**
156 **recommends that the Commission determine that Marion must meet one of**
157 **the foregoing criteria with respect to each Verizon tandem to which it**
158 **sends traffic, but that it need not meet both. Please comment on this**
159 **proposal.**

- 160
- 161 A. Dr. Zolnierек’s recommendation is based in part on the Commission’s decision in
- 162 the Illinois Bell Telephone Company and Verizon Wireless arbitration in
- 163 Commission Docket No. 01-0007, which limited tandem connections based on
- 164 the amount of traffic terminating to end offices subtending tandems. I believe this
- 165 recommendation, while not ideal, correctly recognizes that tandem exhaust is a
- 166 legitimate issue and allowing Marion to interconnect at the tandem in every
- 167 instance it chooses could cause significant adverse impacts on Verizon’s
- 168 network. Because Dr. Zolnierек’s recommendation is based on the
- 169 Commission’s prior determination with respect to this issue and will provide some
- 170 protection against tandem exhaust, I agree that it should be adopted by the ALJ
- 171 and the Commission in this case. This result should allow Verizon to manage its
- 172 network in a reasonably efficient manner and protect against tandem exhaust.

173 **ISSUE 15**

174

175 **1. Response to Marion witness James Keller**

176

177 **Q. Mr. Keller discusses Marion’s “metallic interconnection” proposal at pages**
178 **9-19 of his direct testimony. In reviewing this testimony, do you know have**
179 **a better feel for what you believe is the essence of Marion’s proposal?**

180

181 A. Yes, at least with respect to one of the proposal’s essential elements.

182 **Q. Based on your review of Mr. Keller’s testimony, what is you understanding**
183 **of the essence of Marion’s proposal?**

184
185 A. My understanding is that an essential element of what Marion is requesting is
186 what Mr. Keller refers to as "adjacent off-site" collocation. Specifically, Mr. Keller
187 asserts at page 17 of his direct testimony that the California Commission found
188 that "it should look at" adjacent off-site arrangements as a method of collocation.
189 Immediately following that discussion, Mr. Keller states his belief that Marion's
190 metallic interconnection proposal is consistent with Verizon's adjacent collocation
191 tariff offering except "[t]hat the only difference is that we are proposing to
192 construct that building **off** of Verizon's property." Keller Direct, p. 18 (emphasis
193 in the original). In support of his contention that his metallic interconnection
194 proposal is consistent with adjacent collocation, Mr. Keller quotes a portion of
195 Verizon's collocation tariff (section 2.5) that describes "[a]n adjacent collocation
196 [sic] arrangement permits a CLEC to **construct** or procure a structure on
197 **company property** for co-location for the purposes of **provisioning expanded**
198 **interconnection and/or access to unbundled network elements** in
199 accordance with the terms and conditions of this tariff." Keller Direct, p. 18
200 (emphasis in the original). It is clear to me from this testimony that Marion's
201 metallic interconnection proposal is in reality a request for adjacent collocation,
202 albeit not on Verizon's premises.

203 **Q. Is there anything in Marion's proposed language for Issue 15 in its Petition**
204 **for Arbitration that would indicate that it is requesting adjacent**
205 **collocation?**

206
207 A. While it is certainly not clear from the Marion's statement of the issue, or its
208 proposed section 3.2 at pages 8-14 of its Petition for Arbitration ("Petition"), or

209 the redlined version of the model ICA submitted with its Petition, the first
210 paragraph of Marion's proposed section 3.2 states that "[a] CLEC is permitted to
211 construct or procure a structure on property **other** than Verizon's [sic] for the
212 purposes of provisioning expanded interconnection and/or access to unbundled
213 network elements." Petition, p. 8 (emphasis added). As far as I can tell, in the
214 approximately seven pages of text contained in Marion's proposed section 3.2,
215 that is the only language that arguably would support Marion's adjacent off-site
216 collocation proposal.

217 **Q. To your knowledge, did Marion describe its proposal as adjacent off-site**
218 **collocation at any point during negotiations?**

219 **A.** Yes. In my review of some of the materials related to the negotiation, I found an
220 e-mail from Mr. Keller to Verizon's negotiators indicating that in August 2006 Mr.
221 Keller believed that there "may be a more direct way of doing the off premise
222 collocation for COs." In that e-mail, Mr. Keller suggested adding a small number
223 of words to the adjacent collocation section of Verizon's Illinois collocation tariff,
224 which Mr. Keller believed "should resolve the 'off Premise Collocation' issue."
225 See e-mail from Jim Keller to Joe Greenwood, dated August 15, 2006, which is
226 attached to this testimony and identified as Exhibit 4.1.
227

228 **Q. Would it be appropriate for the Commission to require Verizon to provide**
229 **adjacent off-site collocation to Marion?**

230 **A.** No. Although I am not a lawyer, my understanding is that an Incumbent Local
231 Exchange Carrier ("ILEC"), such as Verizon, is only required under section
232 251(c)(6) of the Telecommunications Act of 1996 ("TA96") to "provide, on rates,
233

234 terms, and conditions that are just, reasonable, and nondiscriminatory, for
235 physical collocation of equipment necessary for interconnection or access to
236 unbundled network elements **at the premises of the local exchange carrier**,
237 except that the carrier may provide for virtual collocation if the local exchange
238 carrier demonstrates to the State commission that physical collocation is not
239 practical for technical reasons or because of space limitations." 42 U.S.C.
240 251(c)(6) (emphasis added). Thus, as I understand it, TA96 only requires
241 Verizon to provide collocation on land or property that Verizon owns or controls.
242 Based on this understanding, I do not believe that Marion's adjacent off-site
243 collocation proposal is required or consistent with TA96.

244 **Q. Would Marion's adjacent off-site collocation proposal be appropriate under**
245 **the rules of the Federal Communications Commission ("FCC")?**

246
247 **A.** I do not believe so. Again, I am not a lawyer, but my understanding is that the
248 FCC's rules only require ILECs to provide adjacent collocation in the event that
249 physical collocation space in a central office is exhausted. The FCC described
250 this requirement in its *Advanced Services Collocation Order on Reconsideration*:

251 We also conclude that requiring an incumbent LEC to permit
252 collocation in adjacent controlled environmental vaults or similar
253 structures, when physical collocation space is otherwise exhausted,
254 is consistent with the procompetitive purposes of section
255 251(c)(6).[footnote omitted] As we indicated in the *Advanced*
256 *Services First Report & Order*, such a requirement is an effective
257 means of ensuring that competitive LECs can compete with the
258 incumbent LEC even when no physical collocation space is
259 available within an incumbent LEC structure.¹

¹ *Deployment of Wireline Services Offering Advanced Telecommunications Capability*, CC Docket No. 98-147, FCC 00-297, Order on Reconsideration and Second Further Notice of Proposed Rulemaking, released August 10, 2000 (*Advanced Services Collocation Reconsideration Order*), at ¶ 43; See also 47

260
261 Indeed, in the same order the FCC specifically rejected the idea that under TA96
262 or its rules an ILEC could be required to provide for collocation on nearby
263 property not owned or controlled by the ILEC, and modified its definition of the
264 word "premises" to eliminate any such doubt:

265 We recognize, however, that Ameritech has claimed that
266 collocation in controlled environmental vaults that a competitive
267 LEC constructs or procures on land adjacent to an incumbent LEC
268 structure is inconsistent with the definition of "premises" in section
269 51.5 of our rules. . .To avoid any possible confusion regarding this
270 matter, we amend that definition to make clear that "premises"
271 includes all buildings and similar structures owned, leased, or
272 otherwise controlled by the incumbent LEC that house its network
273 facilities, all structures that house incumbent LEC facilities on public
274 rights-of-way, and all land owned, leased, or otherwise controlled
275 by an incumbent LEC that is adjacent to these structures.[footnote
276 omitted] **This definition, of course, excludes land and buildings
277 in which the incumbent LEC has no interest.** In that
278 circumstance, the incumbent LEC and its competitors have an
279 equal opportunity to obtain space within which to locate their
280 equipment.²

281
282 **Q. Is Verizon's Illinois collocation tariff consistent with the requirements of**
283 **TA96 and the FCC's rules?**

284
285 **A. Yes. With respect to adjacent collocation, Verizon's tariff provides as follows:**

286
287 **2.5 Adjacent**

288
289 An adjacent collocation arrangement permits a CLEC to construct or procure a
290 structure on Company property for collocation for the purposes of provisioning
291 expanded interconnection and/or access to unbundled network elements in
292 accordance with the terms and conditions of this tariff. Adjacent collocation is
293 only an option when one the following conditions are met:
294

C.F.R. 51.323.

² *Id.*, at ¶ 44.

295 - Space is legitimately exhausted in the Company's premises for caged and
296 cageless collocation; and

297
298 - It is technically feasible to construct or procure a controlled environment
299 vault or similar structure on Company property that adheres to local building
300 code, zoning requirements, and Company building standards.³

301
302 **Q. How did Marion propose to modify Verizon's Illinois collocation tariff to**
303 **accommodate its metallic interconnection proposal?**

304
305 **A.** As I indicated above, Mr. Keller suggested that a small number of words be
306 added to section 2.5 of Verizon's Illinois collocation tariff, which are noted below
307 in underline format.

308 **2.5 Adjacent**

309
310 An adjacent collocation arrangement permits a CLEC to construct or procure a
311 structure on Private or Company property for collocation for the purposes of
312 provisioning expanded interconnection and/or access to unbundled network
313 elements in accordance with the terms and conditions of this tariff. Adjacent
314 collocation is only an option when one the following conditions are met:

315
316 - Space is legitimately exhausted in the Company's premises for caged and
317 cageless collocation or CLEC is going on Private property; and

318
319 - It is technically feasible to construct or procure a controlled environment
320 vault or similar structure on Private or Company property that adheres to local
321 building code, zoning requirements, and Company building standards.⁴

322
323
324 **Q. Has Marion requested Verizon to provide physical collocation in any of**
325 **Verizon's central offices in Illinois?**

326
327 **A.** I do not believe so.

³ See Verizon North Inc. Tariff Ill. C.C. No. 12, Section 2, Second Revised Sheet No. 4. Verizon's Illinois collocation tariff is attached in its entirety to this testimony and identified as Exhibit 4.2.

⁴ See e-mail from James Keller to Joseph Greenwood dated August 8, 2006, Exhibit 4.1.

328 **Q. Has Verizon refused to provide physical collocation to Marion in any of its**
329 **facilities or on any of its premises based on claims that such collocation is**
330 **not practical for technical reasons or because of space limitations?**

331
332 A. No, it has not.

333 **Q. Are there any Verizon central offices in southern Illinois in which physical**
334 **collocation is not available due to space limitations?**

335
336 A. No. Verizon publishes a list of central offices in which physical collocation is not
337 available because space limitations on its website.⁵ As of February 28, 2007, the
338 list shows three central offices in Illinois where collocation space is exhausted
339 (Creston, Edelstein and Larose), and none of the three are in Jackson County or
340 Williamson County, where Marion is certificated to provide service. A copy of the
341 latest list is attached to this testimony and identified as Exhibit 4.3.

342

343 **Q. In your opinion, as an engineer who works with such requirements on a**
344 **daily basis, is Marion's adjacent off-site collocation proposal consistent**
345 **with TA96, FCC rules or Verizon's Illinois collocation tariff, as you**
346 **understand those requirements?**

347
348 A. No. For all of the reasons stated above, I do not think that Marion's proposal is
349 appropriate or consistent with any of Verizon's obligations. An essential element
350 to Marion's metallic interconnection proposal is that Verizon be required to
351 provide adjacent off-site collocation, which Verizon is not obligated to do.
352 Moreover, even assuming that Marion were requesting adjacent collocation on
353 Verizon's premises, which it is not, adjacent collocation is only an option when
354 physical collocation inside a central office is not available. For all of these

⁵ See http://www22.verizon.com/wholesale/local/collocation/detail/1,,info_space,00.html

355 reasons, I believe that the ALJ and the Commission should reject Marion's
356 metallic interconnection/adjacent off-site collocation proposal.

357 **Q. Setting aside the issue of collocation, does Mr. Keller's direct testimony**
358 **provide any legitimate reasons that Marion's proposal should be adopted?**

359
360 A. No. Mr. Keller raises various points that he claims support Marion's proposal. I
361 will address those points below.

362 **Q. Mr. Keller posits at pages 10-11 of his direct testimony that Verizon allows**
363 **metallic interconnection and collocation at some of its facilities. Based on**
364 **this claim, he infers that Marion's metallic interconnection proposal is**
365 **appropriate. Do you agree?**

366
367 A. No. Mr. Keller refers to provisions in section 6.3 of the ICA, which address
368 collocation at remote terminals to facilitate subloop unbundling. Accessing
369 subloops requires a CLEC to do so between the feeder and distribution portion of
370 Verizon's network, hence the reference to feeder distribution interface. The
371 distribution portion of Verizon's network is all copper, and thus in this particular
372 portion of Verizon's network it would be appropriate for a carrier to cross connect
373 copper to copper, albeit through appropriate equipment and at a distance of 100
374 feet or less from the FDI, that will ensure safety and network reliability. Subloop
375 unbundling, however, is wholly different than interoffice facilities, which are all
376 fiber. In the case of interoffice facilities, which is what Marion proposes to bring
377 to Verizon's central offices, all such facilities in Verizon's network are fiber. And
378 it is my understanding that Verizon is required to provide interconnection that is
379 equal in quality to the interconnection that Verizon provides to its own retail
380 operations, and on terms and conditions that are just, reasonable and

381 nondiscriminatory. It seems to me that is exactly what Verizon is proposing,
382 since all of its interoffice facilities are fiber, and all CLECs in Illinois that
383 interconnect with Verizon do so with fiber facilities.

384

385 Moreover, the weakness of Marion's comparison is highlighted by the fact that
386 subloop unbundling provisions appear in the Network Elements Attachment to
387 the ICA while Marion's metallic interconnection proposal is in the Interconnection
388 Attachment to the ICA. In my opinion, a comparison of subloop unbundling and
389 interconnection of interoffice transport facilities is like comparing apples and
390 oranges.

391 **Q. At pages 11-12 of his testimony, Mr. Keller infers that copper cables are**
392 **suitable for interoffice facilities because Verizon's tariff allows for copper**
393 **cables to be used to cross-connect the facilities of two CLECs that are**
394 **collocated in the same Verizon central office. Do you believe Mr. Keller's**
395 **observation is pertinent to Marion's metallic interconnection proposal?**

396 **A.** No. Verizon has a limited obligation to provide cross connects between CLECs
397 that are lawfully collocated in its central offices.⁶ This limited obligation to provide
398 cross connections to lawfully collocated CLECs was imposed by the FCC in its
399 *Advanced Services Collocation Further Reconsideration Order* in 2001. In that
400 order, the FCC adopted changes to its collocation rules to require that ILECs
401 "shall provide, at the request of a collocating telecommunications carrier, a
402 connection between the equipment in the collocated spaces of two or more
403

⁶ *Deployment of Wireline Services Offering Advanced Telecommunications Capability*, CC Docket No. 98-147, FCC 01-204, Fourth Report and Order, released August 8, 2001 (*Advanced Services Collocation Further Reconsideration Order*), at note 209; See also 47 C.F.R. 51.323(h)(1).

404 telecommunications carriers, except to the extent the incumbent LEC permits the
405 collocating parties to provide the requested connection for themselves or a
406 connection is not required under paragraph (h)(2) of this section. Where
407 technically feasible, the incumbent LEC shall provide the connection using
408 copper, dark fiber, lit fiber, or other transmission medium, as requested by the
409 collocating telecommunications carrier.” 47 C.F.R. 53.323(h)(1). It is within the
410 limited situation where Verizon is requested to cross-connect two collocated
411 CLECs in the same central office, i.e., an intraoffice interconnection between two
412 CLECs, where it is required to do so using copper facilities, assuming it is
413 technically feasible. The language contained in section 4.7(D) of Verizon’s
414 collocation tariff is a reflection of that limited obligation and in no way reflects on
415 whether copper cable is ill-suited for the type of interoffice facilities that Marion’s
416 metallic interconnection proposal contemplates.

417 **Q. Is there anything in Verizon’s collocation tariff that would prohibit the use**
418 **of copper cable facilities being used for interoffice transport facilities?**

419
420 **A.** Yes. Section 4.7(E) of Verizon’s Illinois collocation tariff states that Verizon can
421 “prohibit all equipment and facilities, other than fiber optic cable, from entrance to
422 its manholes.”⁷ Indeed, with the exception of the deletion of the word
423 “collocation” and the substitution of “Verizon” in place of the term “The
424 Company,” the entirety of paragraph 4.7(E) of Verizon’s collocation tariff is
425 identical to the Marion’s proposed paragraph under Issue 15 on page 8 of

⁷ See Exhibit 4.2, Verizon North Inc. Tariff Ill. C.C. No. 12, Section 2, Second Revised Sheet No.
16.

426 Marion's Petition, which like 4.7(E) is entitled "Manhole/Splicing Restrictions."
427 Thus, Marion with the exception of the minor changes noted above, Marion cut
428 and pasted this language directly from Verizon's collocation tariff. As I noted in
429 my direct testimony (page 18), this language directly contradicts a request for
430 "metallic interconnection" because it allows Verizon to prohibit Marion from
431 bringing copper or metallic cables into its manholes, leaving only fiber optic cable
432 as an alternative. That provision of the Verizon's collocation tariff (and Marion's
433 proposed language) is consistent with Verizon's provision of all interoffice
434 transport via fiber-optic cables, and all CLEC interoffice interconnection in Illinois
435 that is completed via fiber-optic cables.

436 **Q. To your knowledge, has the Illinois Commission ever addressed a situation**
437 **where one carrier has attempted to require another carrier to use metallic**
438 **cables for interoffice interconnection?**

439 **A.** Yes. In researching this issue, I became aware of a complaint that Ameritech
440 brought against AT&T because, among other things, AT&T had adopted a policy
441 declaring that Ameritech could only connect certain of its central offices to certain
442 AT&T points of presence ("POPs") utilizing coaxial cables. Ameritech wanted to
443 interconnect with AT&T's POPs with diverse fiber-optic transport facilities
444 "because fiber transport is more reliable than coaxial cable, in that diverse fibers
445 provide an alternative route for calls in case of an equipment problem, whereas
446 coaxial cable is a 'single point of failure,' and because fiber has higher
447 transmission speeds and therefore can provide a greater variety of higher-speed,
448 cutting-edge, competitive services." Illinois Bell Telephone Co. v. AT&T, Illinois
449

450 Commerce Commission Docket No. 97-0624, Order, 1998 Ill PUC Lexis 139, at
451 *66-*67. The Commission in that case rejected AT&T's attempt to prohibit the
452 Ameritech's use of fiber-optic facilities for interoffice transport, and directed AT&T
453 to cease enforcement of its "cable only" policy. Similarly, I believe the ALJ and
454 the Commission should in this case reject Marion's request to force Verizon to
455 provide interoffice copper cable interconnection solely for Marion.

456 **Q. At pages 12-13 of his testimony, Mr. Keller argues that Marion's metallic**
457 **interconnection proposal would promote homeland security. Do you care**
458 **to comment?**

459
460 **A.** Yes. Mr. Keller argues that allowing a CLEC to locate off-site would provide
461 redundancy in network facilities and thereby increase the chances the
462 communications will work in times of crises. While I agree that true redundancy
463 is desirable, Mr. Keller fails to demonstrate how Marion's proposal would provide
464 true redundancy. I presume that Marion will be utilizing much of the same
465 conduit, poles and rights of way for its facilities that Verizon uses for its facilities,
466 and clearly Marion contemplates that its customers will access the PSTN and all
467 non-Marion customers by interconnecting Marion's switch to Verizon's facilities.
468 Thus, if disaster were to render the Verizon central office and all of the facilities
469 serving that office inoperable, Marion's customers would still be unable to
470 communicate with anyone not served by Marion's switch. Contrast this with a
471 fixed-wireless system of communications that can route traffic to any number of
472 independent switching centers, which could provide a truly redundant
473 communications network. Indeed, I am aware that companies that were located

474 within several blocks of Ground Zero were able to maintain communications
475 specifically because they had access to fixed-wireless backup systems which
476 were separate from the regular landlines and enable the companies to route
477 traffic to independent points of interconnection that were not impacted by the
478 horrific terrorist attacks that befell New York City of September 11, 2001. What
479 Marion proposes is, in my view, is not a truly redundant communications network
480 and would likely provide little if any homeland security or natural disaster
481 safeguards.

482 **Q. Do you believe that Mr. Keller's argument (p. 14) that Marion's metallic**
483 **interconnection proposal could provide assistance to local and state**
484 **emergency rescue services in the event a natural disaster destroyed**
485 **Verizon facilities has any merit?**

486
487 **A.** No. Mr. Keller optimistically reports that if Verizon's facilities were destroyed in a
488 natural disaster, Marion Telephone's network could be used by local and state
489 rescue services to access the outside world. For the same reasons discussed
490 above, Marion's proposal does not provide for a physically separate, truly
491 redundant communications network. Marion will be relying on Verizon to provide
492 its customers with access to the PSTN and the outside world. If Verizon's
493 facilities were destroyed by a natural disaster, I believe that Marion's ability to
494 provide access to the outside world (at least to any non-Marion customer) would
495 be destroyed as well.

496 **Q. Assuming that Marion could achieve some benefits by locating its switch**
497 **on its own property, is the only way to achieve such benefits through**
498 **Marion's metallic interconnection proposal?**

499
500 **A.** No. As a part of its ICA, Verizon offers a fiber meet arrangement whereby the

501 parties would utilize fiber optic cable to interconnect at a fiber meet between their
502 respective networks in order to facilitate the exchange of local traffic. Indeed,
503 there is agreed upon language in the ICA directly preceding Marion's proposed
504 metallic interconnection language. See section 3.1 of the ICA, Redlined version
505 of the ICA attached to Marion's Petition for Arbitration, pp. 58-59. Thus, Marion
506 could use a fiber meet arrangement and still locate its switch on its property and
507 thereby recognize the homeland security and natural disaster safeguard benefits,
508 to the extent any exist.

509 **Q. Mr. Keller also contends at page 14 of his direct testimony that Marion's**
510 **metallic interconnection proposal is safer than Marion interconnecting via**
511 **collocation because he claims that all outside copper coming into a central**
512 **office will go through a "fused interface" device before going to the main**
513 **distribution frame. Do you agree?**

514 **A.** No. I do not know what equipment Marion will be connecting to the copper cable,
515 how Marion proposes to ground that cable, or what the source of the electricity is
516 that will power the equipment that Marion will attach to the cable. Marion has
517 provided no information concerning these matters, so it is impossible to
518 determine whether or to what extent Marion would be complying with BellCore
519 and National Electric Code ("NEC") standards. The concerns associated with
520 introducing a foreign power source through copper cable attached to Marion's
521 equipment are not allayed simply because they might be routed through a fused
522 interface. As reflected in BellCore publication "Bellcore ST-NPL-000030 – The
523 "whys" of grounding isolated ground planes and power supplies: a tutorial for
524 telecommunications and computer applications":
525

526 ". . .one might argue that all power systems are grounded. The difference
527 is that one is planned and the other is unplanned. The unplanned system
528 (the one we call ungrounded) really has a distributed leakage capacitance
529 connection to ground...for a simple ac system. The same reasoning
530 applies to dc systems. The leakage capacitance...in the unplanned
531 "grounded system" can cause all kinds of havoc.

532
533 ● In large ac [or dc] unplanned systems, if a line-to-ground short
534 should occur, up to 25 amperes of steady state ac [or dc] leakage
535 current could flow through the leakage capacitance without
536 causing any protection device to operate. The 25 amperes
537 represent a hazard if personnel get into its path.⁸
538

539
540 In an "unplanned" grounded system, if an AC or DC power line makes and holds
541 contact to the ground, a constant feedback current of up to 25 amps could travel
542 through the copper line, and would not trip any fusing or protectors placed on the
543 copper. The current could, without tripping any fusing, travel the full length of
544 the circuit to the customer's home. If the above "DC" power scenario occurred in
545 Marion's proposed "metallic interconnection" configuration, the leakage current
546 would bypass the entire protector frame onto Verizon's MDF. If Marion's pairs
547 shared outside plant blocks with Verizon pairs the leakage current could arc to
548 Verizon's customer outside pairs. If the MDF becomes energized, this current
549 could arc to Verizon's digital switching equipment. In short, Mr. Keller's
550 contention that Marion's proposed metallic interconnection proposal is safe
551 simply because the copper cable would be routed through a fused interface is not
552 true in all instances. Conversely, if Marion were to interconnect with Verizon's

⁸ Bellcore ST-NPL-000030 – The "whys" of grounding isolated ground planes and power supplies: a tutorial for telecommunications and computer applications, section 3, page 19 (1987).

553 facilities with fiber optic cable, the safety and network reliability issues associated
554 with the copper cable proposal would not be an issue.

555 **Q. Mr. Keller states on page 14 that when a CLEC is collocated in a Verizon**
556 **central office, the CLEC's equipment goes directly to the MDF. Is that**
557 **statement correct?**

558
559 **A.** No. The equipment of a CLEC that is physically collocated does not directly
560 interconnect with Verizon's MDF. There is an intermediate frame called a Point
561 of Termination ("POT") bay where a CLEC's facilities terminate on one side and
562 Verizon's terminate on the other allowing for their respective networks to be
563 interconnected and providing for protection that meets all applicable Verizon
564 central office standards. In addition, a CLEC that is virtually collocated does not
565 directly interconnect with Verizon's MDF. In the case of virtual collocation the
566 CLEC does not use a POT bay, but uses a splitter shelf in the CLEC assigned
567 bay to connect the CLEC and Verizon's copper cables. This is safer than
568 metallic interconnection because (1) the CLEC's entrance into the vault is with
569 non-conductive fiber, and (2) the CLEC's assigned bay, where its equipment
570 converts fiber facilities to copper facilities, has power and grounding that meets
571 all applicable Verizon central office standards. These bays also receive Verizon
572 central office back-up power systems. Mr. Keller's suggestion that metallic
573 interconnection is somehow safer than interconnection via collocation simply is
574 not, in my opinion, accurate.

575 **Q. Mr. Keller refers to "homogeneity between sites" as a benefit of the metallic**
576 **interconnection proposal. Do you agree?**

577
578 **A.** Unfortunately, I have no idea what Mr. Keller is referring to, so I cannot

579 determine whether I agree or disagree with the two sentences he uses to
580 describe this concept.

581 **Q. At pages 15-16 of his direct testimony, Mr. Keller claims that Marion's**
582 **metallic interconnection proposal is "technically feasible." Do you agree?**

583
584 **A.** No. As I indicated in my direct testimony, there are a host of safety and network
585 reliability issues associated with metallic interconnection that make the proposal
586 not technically feasible. Those are the same types of issues that the
587 Massachusetts Department of Telecommunications and Energy ("DTE")
588 considered when it rejected Greater Media's Customer Interface Panel proposal,
589 finding that it was not technically feasible, in the Bell Atlantic-Massachusetts and
590 Greater Media arbitration in Docket No. D.T.E. 99-52. See Order D.T.E. 99-52
591 at pp. 49-62. I do not think that the ALJ and the Commission even need to reach
592 this issue since it is now clear that Marion is really requesting adjacent off-site
593 collocation, something which Verizon has no obligation to do under TA96 or the
594 FCC's rules. Nevertheless, should the ALJ and the Commission feel compelled
595 to address this issue, they should find that Marion's proposal is not technically
596 feasible for all the reasons discussed in my direct testimony, just as the D.T.E.
597 did with respect to Greater Media's CIP proposal. A copy of the D.T.E.'s decision
598 in Docket No. D.T.E. 99-52 is attached to this testimony and identified as Exhibit
599 4.4.

600 **Q. Is there any merit to Mr. Keller's claim that running fiber into a central**
601 **office would not work because it is not feasible to cross connect fiber to**
602 **copper?**

603
604

605 A. No. All CLECs collocated with Verizon are currently running non-conductive fiber
606 cables into Verizon's central office. Those non-conductive fiber cables do not run
607 directly to the MDF. Instead, the fiber cables run through multiplexing equipment
608 and/or DLC equipment where the fiber signal is converted to a copper signal for
609 voice grade services before it's connected to the MDF. As far as I can tell, it
610 appears that Marion is an attempt to cut corners and save a little money by
611 seeking to run copper directly to the MDF, to avoid the cost of purchasing
612 equipment to multiplex and de-multiplex signals that traverse fiber facilities.
613 Such cost avoidance is inappropriate given the fact that it puts at jeopardy the
614 safety of Verizon's equipment and personnel, and could result in the degradation
615 of customer service, thereby undercutting network safety for all parties working
616 within tariffed collocation arrangements. As Staff witness Mr. Murray notes
617 (page 5 direct), Mr. Keller's statement is not accurate.

618 **2. Response to Staff witness Russell Murray**

619
620 **Q. Mr. Murray indicates that he too has not seen any type of interconnection**
621 **arrangement that resembles Marion's metallic interconnection proposal,**
622 **and notes that he is unaware of a specific applicable industry standard with**
623 **respect to collocation arrangements that CLECs use to access loops. Can**
624 **you elaborate on what you meant when you said that Marion's proposal**
625 **would circumvent collocation arrangements that are the industry standard**
626 **for enabling CLECs to access loops?**

627
628 A. Sure. The industry standard collocation arrangements are those reflected in the
629 FCC's collocation rules at 47 C.F.R. §51.323. Those standards include vortia;
630 collocation and physical collocation, including shared collocation cages, cageless
631 collocation and adjacent space collocation. These are the same industry

632 standard collocation arrangements reflected in Verizon's Illinois collocation tariff.

633 See Exhibit 4.2.

634
635 **Q. At pages 10-11 of his direct testimony, Mr. Murray indicates that he does**
636 **not share the concern that I outlined in my direct testimony concerning**
637 **section 230.2 of the National Electric Code. Do you agree with Mr. Murray's**
638 **assessment of section 230.2 of the NEC?**

639
640 **A.** No. Mr. Murray's opinion is valid. However, it is impossible to determine
641 whether Marion's equipment and proposed configuration meets all applicable
642 safety standards because Marion has not provided any details concerning the
643 equipment it plans to deploy or the power sources in plans to use. Verizon asked
644 in discovery that Marion provide details concerning each piece of equipment and
645 network involved in its proposed configuration (See questions 13, 14 and 15), but
646 Marion failed to provide responses that would allow such a determination. In my
647 opinion, Verizon should not be forced to assume that the equipment that Marion
648 intends to place, or its ac/dc voltage ratings, meets telecommunications all
649 applicable safety standards that Verizon requires of its own equipment and
650 equipment of carriers that collocate in its central offices. Absent a demonstration
651 that Marion's proposal will meet all applicable safety standards, there is simply
652 no basis for me, the ALJ or the Commission to fully understand all of the potential
653 safety and operational implications of Marion's proposal. This is especially true
654 given that Marion is planning to power is conductive copper cables that its wants
655 to directly connect to equipment that is handled by Verizon's personnel on a daily
656 basis. Simply put, it is impossible to make an assessment of whether Marion

657 meets all applicable safety standards in the absence of detailed information that
658 Marion has failed to provide.

659 **Q. Mr. Murray indicates that cable vault exhaustion is something that needs to**
660 **be reviewed on a central office-by-central office basis. Do you care to**
661 **comment?**

662 **A.** Yes. As I indicated above, I do not think that the ALJ and the Commission even
663 need to reach the issue of whether Marion's metallic interconnection proposal is
664 technically feasible since it is now clear that Marion is really requesting adjacent
665 off-site collocation, something which Verizon has no obligation to do under TA96
666 or the FCC's rules. If it is unnecessary to address technical feasibility, there is no
667 need to address cable vault exhaustion. In any event, I believe that sufficient
668 network safety and operational reliability concerns were raised in my direct
669 testimony to support a finding that Marion's metallic interconnection proposal is
670 not technically feasible without having to undertake an evaluation of every
671 Verizon central office to which Marion might want to interconnect.
672

673 **ISSUE 18**

674 **1. Response to Marion witness James Keller**
675

676 **Q. Mr. Keller indicates at page 20 that adding more than 100 feet of loop**
677 **length between the Feeder-Distribution Interface ("FDI") and a**
678 **Telecommunications Outside Plant Interconnect Cabinet ("TOPIC")**
679 **shouldn't be an issue at all based on his understanding that loops should**
680 **be no longer than 12,000 feet and his unsupported assertion that with new**
681 **and extended reach technology for DSL. In addition, Mr. Keller asserts that**
682 **his point is demonstrated by the fact that Verizon has a TOPIC that is 294**
683 **feet from the FDI near the corner of South Carbondale and Westminster in**
684 **Marion, Illinois, and provides a picture to support this claim in Exhibit 1.18**
685 **to his testimony. Does this claim support Mr. Keller's position?**
686

687 A. No. First, Mr. Keller's claim that Verizon has a TOPIC that is 294 feet from a FDI
688 near the corner of South Carbondale and Westminster in Marion is wrong. As an
689 initial matter, there is no street named "South Carbondale" in Marion, and
690 Verizon does not deploy TOPICs, which are CLEC owned and controlled
691 structures. Verizon does have a Digital Loop Carrier ("DLC") cabinet near the
692 corner of South Carbon and Westminster streets that is approximately 294 feet
693 from the FDI near that corner. I assume that this is the configuration to that Mr.
694 Keller describes and that appears in Exhibit 1.18 to his direct testimony. The fact
695 that Verizon has a DLC that feeds the FDI is of no consequence and does not
696 support Mr. Keller's point because the DLC is a part of the loop, and therefore a
697 part of the loop design. In other words, the DLC and its connection to the FDI
698 was specifically designed to ensure that all network reliability requirements are
699 met. The same is not true with respect to other copper extensions that connect to
700 CLEC TOPICs, since those are "add ons" that were not contemplated when the
701 existing loop plant (including DLCs) were designed and deployed. It is the
702 addition of more than 200 feet (100 feet out and back) of additional copper cable
703 outside of the original loop design that can cause signal degradation and
704 interference, so the point I made in my direct testimony remains valid.

705
706 Second, the relationship between the 12,000 foot loop length that was used in
707 the loop cost studies has no bearing on whether adding more than 200 feet of

708 copper to the existing loop plant may cause signal interference and degradation.

709 Mr. Keller's contention simply does not follow.

710 **Q. Is there anything else about Marion's position that you care to comment**
711 **on?**

712 A. Yes. Mr. Keller indicates that it should be of no concern to Verizon if Marion
713 provides poor quality service, inferring the differentiation of service quality is what
714 competition is all about. I believe that statement would be accurate only if Marion
715 did not want to physically interconnect with Verizon's facilities. However, since
716 Marion does want to physically interconnect with Verizon's network via metallic
717 interconnection, then it is very much a concern of Verizon's whether Marion's
718 proposed network design meets all applicable standards. As stated in previous
719 testimony concerning Revised Resistance Design, the national standard contains
720 criteria for cable gauge, bridged tap limitations and load coil requirements. The
721 destruction of the Resistance Design criteria would cause poor transmission
722 quality, increased trouble reports, customer dissatisfaction as well as many other
723 negative factors. The intention of National Standards is to avoid issues as stated
724 in previous sentence.

725 **Q. What is your recommendation with respect to Issue 18?**

726 A. My recommendation continues to be that the ALJ and the Commission should
727 reject Marion's proposed deletion of the works "100 feet" from Sections 6.1.2 and
728 6.2.2 of the Network Elements Attachment to the ICA.
729

730

731 **CONCLUSION**

732 **Q. Does this complete your testimony?**

733 **A. Yes, it does.**



STATE OF ILLINOIS

ILLINOIS COMMERCE COMMISSION

Marion Telephone, LLC)
)
Petition for Arbitration of Certain Terms)
And Conditions of Proposed Agreement)
With Verizon North Inc. and Verizon)
South Inc. Concerning Interconnection Under)
The Telecommunications Act of 1996)

Docket No. 06-0688

AFFIDAVIT OF THOMAS ZIEGLER

STATE OF NEW JERSEY)
COUNTY OF SOMERSET)

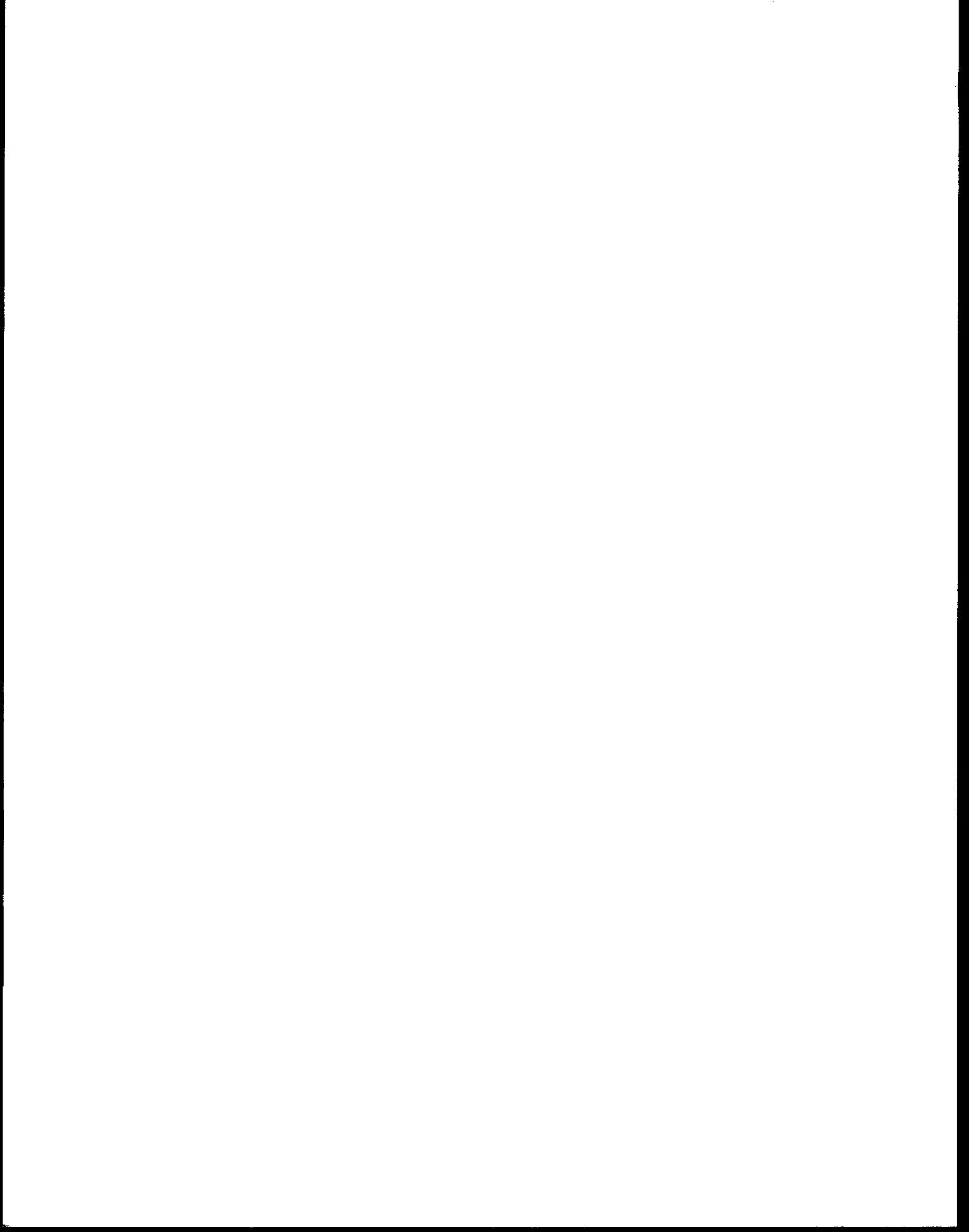
I, Thomas Ziegler, being first duly sworn on oath, depose and state as follows:

1. My name is Thomas Ziegler, and my business address is One Verizon Way, Basking Ridge, New Jersey 07920. I am employed by Verizon Corporate Services Group as a senior staff consultant in the property risk management group of the finance department. I make this affidavit to support the admission into the record of the above-captioned docket the direct and rebuttal testimony and exhibits I caused to be pre-filed and served on the Judge and the parties to this proceeding on February 15 and March 16, 2007, respectively.

2. My direct testimony, identified as Verizon Exhibit 1.0, consists of 12 pages of questions and answers that were prepared by me or under my direction and control. My rebuttal testimony, identified as Verizon Exhibit 3.0, consists of 7 pages of questions and answers that were prepared by me or under my direction and control.

3. I have read Verizon Exhibits 1.0 and 3.0, and the answers to the questions contained therein are true, correct and complete to the best of my knowledge and belief.

4. If asked under oath or affirmation the questions posed in Verizon Exhibits 1.0 and 3.0, I would provide the answers reflected in those exhibits.



Thomas F. Ziegler

Signature

SUBSCRIBED AND SWORN to before me this 19th day of MARCH, 2007.

[Signature]

NOTARY PUBLIC

Alan B. Feinstein
Notary Public of New Jersey
Id. Number 2329574
My Commission Expires June 1, 2010