Filed with the Iowa Utilities Board on July 22, 2016, FCU-2012-0019

PUBLIC

(Originally filed 3-19-2015; Refiled with revised confidentiality designations 7-22-2016.)

STATE OF IOWA
DEPARTMENT OF COMMERCE
BEFORE THE IOWA UTILITIES BOARD

IN RE COMPLAINTS OF:	
REHABILITATION CENTER OF ALLISON,	DOCKET NO. FCU 2012-0019
UNITYPOINT CLINIC FAMILY MEDICINE AT HUXLEY F/K/A HUXLEY FAMILY PHYSICIANS,	DOCKET NO. FCU-2013-0004
HANCOCK COUNTY HEALTH SYSTEMS,	DOCKET NO. FCU-2013-0005
HELEN ADOLPHSON AND CHARLOTTE SKALLERUP, and	DOCKET NO. FCU-2013-0006
DOUGLAS PALS.	DOCKET NO. FCU-2013-0009

REPLY

The Office of Consumer Advocate (OCA) submits this reply to the reports filed February 26, 2015, in these five dockets, referred to as *Allison*, *Huxley*, *Hancock*, *Adolphson* and *Pals*, respectively. The parties that filed reports on that date are originating long distance carrier CenturyLink Communications, LLC (CenturyLink) (all five dockets), intermediate long distance carrier Airus, Inc. (Airus) (*Hancock*), intermediate long distance carrier Impact Telecom, Inc. (Impact) (*Hancock*), local exchange carrier Dumont Telephone Company, Inc. (Dumont) (*Allison*), local exchange carrier Interstate 35 Telephone Co. (Interstate 35) (*Adolphson*), and Iowa Network Services, Inc. (INS) (*Allison*).[1]

[1]Intermediate carrier Bluetone Communications, Inc., which has participated in *Huxley* and *Pals*, intermediate carrier InterMetro, Inc., which has participated in *Adolphson*, local exchange carrier Huxley Communications Cooperative, which has participated in *Huxley*, and local exchange carrier West Liberty Telephone Co. d/b/a Liberty Communications, which has participated in *Pals*, elected not to file reports. References in this reply are to Impact's revised report filed March 12, 2015.

NOTE: Confidential material has been identified by placing it between curly brackets {}.

Filed with the Iowa Utilities Board on July 22, 2016, FCU-2012-0019

PUBLIC

(Originally filed 3-19-2015; Refiled with revised confidentiality designations 7-22-2016.)

TABLE OF CONTENTS

Reply to General Arguments 3

Updates 8

Allison 8

Huxley 9

Hancock 10

Adolphson 11

Pals 12

OCA Proposed Solutions 12

Steps 1 and 6 12

Step 2 18

Step 3 19

Step 4 20

Step 5 21

Step 7 23

Step 8 26

Step 9 27

Other Proposed Solutions 28

CenturyLink 28

Airus 31

Impact 32

Dumont and Interstate 35 32

Conclusion 33

NOTE: Confidential material has been identified by placing it between curly brackets {}.

PUBLIC

(Originally filed 3-19-2015; Refiled with revised confidentiality designations 7-22-2016.)

REPLY TO GENERAL ARGUMENTS

1. All of these dockets address rural call completion failures on intrastate calls in Iowa. The facts are set forth in the initial reports submitted by OCA. With one exception,[2] the other parties do not dispute OCA's presentation of the facts. CenturyLink, Airus and Impact dispute the conclusions OCA has drawn from the facts and the solutions proposed by OCA. Dumont and Interstate 35 are in general agreement with OCA's conclusions and proposed solutions. INS does not take a position on most issues. Because OCA's conclusions are similar and reinforcing across the five dockets, and because its proposed solutions are the same in the five dockets, OCA submits this single reply in the five dockets. Updates in the individual cases, required by the procedural orders, are included at paragraphs 14-24 below.

2. CenturyLink asserts that OCA "assumes that the cause for every call [failure] lies at the feet of the intermediate carriers" and that OCA presents only "limited" "anecdotal" evidence. *Allison*, CenturyLink report, Feb. 26, 2015, pp. 1-2.[3] OCA makes no assumption and presents a great deal of evidence, much of it from CenturyLink,

---

[2]In its discovery responses, CenturyLink indicated that, as of October 25, 2013, it was paying tariffed terminating charges to Dumont and INS in the combined amount of $0.092146 per minute, with the Dumont portion being $0.047157 per minute, thus leaving the INS portion at $0.044989 per minute. See *Allison*, OCA Ex. CL-5S2, filed Dec. 19, 2014. INS reports that its current applicable tariffs are $0.011400 per minute for centralized equal access service and $0.000103 per minute per mile for transport if INS facilities are used for transport. According to INS, no two INS points of interface are sufficiently far apart to produce a charge of $0.044989 per minute, and this figure may accordingly significantly overstate the cost implications of centralized equal access services provided by INS. *Allison,* INS Report, Feb. 26, 2015, pp. 2-3. Upon receipt of the INS report, OCA sent a new data request to CenturyLink asking whether CenturyLink's discovery response is still the same, if so to explain the apparent discrepancy, and if not to make necessary corrections. As of the close of business on March 17, 2015, no response had been received despite repeated requests.

[3]The CenturyLink reports in the five cases are largely the same. Page references in this reply are to the CenturyLink report in *Allison*.

NOTE: Confidential material has been identified by placing it between curly brackets {}.

including not only the specific available information in each of the dockets but also statistical evidence compiled from CenturyLink discovery responses showing the frequency with which CenturyLink has removed intermediate carriers from routes in the belief that doing so might provide a satisfactory connection. See *Allison*, OCA report, Dec. 19, 2014, ¶¶ 45-48. CenturyLink's report offers no alternative explanation for the call failures in any of the cases.

3. CenturyLink, Airus and Impact argue that no state solutions are needed because initiatives of the Federal Communications Commission (FCC) are resolving the difficulties. CenturyLink points to the "safe harbor" in the new data rules, Airus to intercarrier compensation reform, Impact to an enforcement proceeding. The FCC initiatives are in large part processes for finding solutions, not magic bullets. The new data rules, for example, whether or not a company invokes the safe harbor, do not by themselves produce a satisfactory telephone connection. When reporting begins on August 1, 2015,[4] the data will be used "to identify possible areas for further inquiry." *Form 480 Filer Interface User Guide*, p. 1, linked at the public notice cited in note 4.[5]

4. The Board docketed these proceedings with the statement: "Even as investigation and enforcement measures proceed at the federal level, it is appropriate to take steps at the state level to respond to a problem with potential to disrupt calls to rural consumers in Iowa." *Allison*, Docketing Order, July 15, 2013, p, 17. The FCC,

---

[4]The data collection begins April 1, 2015, with the first reports due August 1, 2015. See Public Notice, *In the Matter of Rural Call Completion*, WC Docket No. 13-39, DA 15-291 (Mar, 4, 2015).

[5]See also *In the Matter of Rural Call Completion*, WC Docket No. 13-39, DA 15-147, Order on Petitions for Waiver (2015) ¶¶ 3, 5, 8 (the rules are designed "to improve the FCC's ability to monitor the delivery of long-distance calls to rural areas and to aid enforcement action as necessary."

NOTE: Confidential material has been identified by placing it between curly brackets {}.

meanwhile, welcomes the states as partners. *In the Matter of Rural Call Completion*, Report and Order and Further Notice of Proposed Rulemaking, 28 F.C.C.R. 16154 (FCC 2013) ¶¶ 15, 34, 46. In developing its proposals, OCA has not overlooked either the FCC's efforts in general or CenturyLink's expressed intent to invoke the federal safe harbor in particular. See *Allison*, CenturyLink report, Feb. 26, 2015, p. 2. On the contrary, OCA has studied the federal initiatives and fashioned complementary proposed solutions with a view toward strengthening the federal–state partnership and thus better promoting network reliability to rural destinations in Iowa. The federal safe harbor is discussed at paragraphs 67-73 below.

5. CenturyLink and Airus suggest that a rule-making or "collaborative" proceeding might better address the difficulties. See *Allison,* CenturyLink report, Feb. 26, 2015, pp. 2, 9-10; *Hancock*, Airus report, Feb. 26, 2015, pp. 2, 11-13. OCA will support a rule-making proceeding at an appropriate time. The use of both adjudicative and rule-making proceedings to address major problems is common. Reliance solely on rule-making or "collaborative" proceedings is ineffectual because the companies provide only the information they choose to provide and not necessarily the information that is needed to understand the problems.

6. Adjudicative proceedings, by contrast, are well suited to conducting the necessary investigations, obtaining the relevant information and providing the necessary foundations for developing effective long-term solutions. The Iowa investigations have yielded a substantial body of knowledge that is likely to be helpful in fashioning such solutions. Adjudicative proceedings also provide an opportunity for the Board to seek

corrective commitments from companies that have failed to complete calls. It is premature to address future complaints.[6]

7. In response to argument from Airus, see *Hancock*, Airus report, p. 3, the rural local exchange carriers have been free to participate in these proceedings and in four of the five cases have done so. Dumont and Interstate 35 submitted reports in *Allison* and *Adolphson,* respectively. OCA appreciates their having done so.

8. Airus proposes a series of guidelines for evaluating proposed solutions. *Hancock*, Airus report, pp. 4-7. While the guidelines may be useful in theory, it is doubtful in practice that any proposed solution would meet all ideal criteria. OCA shares with Airus a desire to work toward refining OCA's proposals, as well as any other promising proposals that may be offered. OCA agrees that undue burdens should not be placed upon carriers. OCA agrees that solutions should be tailored to work well with solutions implemented by other jurisdictions.

9. Airus argues that intercarrier compensation reform will "virtually eliminate" the financial incentives on the part of long distance carriers "to find cheap call routes" and on the part of rural local exchange carriers "to avoid direct interconnections," implying the problem will go away in time. *Hancock*, Airus report, Feb. 26, 2015, pp. 2, 7-11. The argument does not address what is done in the meantime.

10. More fundamentally, the argument overlooks the substantial body of evidence in these cases and elsewhere that call failures are attributable to other causes,

---

[6]Airus argues it is unnecessarily expensive to file responses in two cases. *Hancock*, Airus report, Feb. 26, 2015, pp. 2, 11. OCA is not necessarily opposed to dismissing Airus from *In re Complaint of Frahm*, No. FCU-2013-0007, and considering solutions as they apply to Airus in *Hancock*, provided the learning from both cases is addressed as solutions are forged.

including the growing complexity of the network, the transitioning to voice-over-Internet protocols (VoIP), the incompatibilities of the multiple systems, the lack of necessary physical facilities and of adequate network management and safeguards, the growing incidence of "sunny day" outages, and the consequent loss of reliability. If the problem were already being solved through intercarrier compensation reform, there would be no need for the federal data rules or for the ongoing work at the Alliance for Telecommunications Industry Solutions (ATIS).[7]

11. Impact states it is complying throughout its own operations, as well as those of subsidiary Matrix, with operating processes and procedures that "go well beyond" the nine steps proposed by OCA. According to Impact, these processes and procedures were adopted following a consent decree between the FCC and Matrix dated June 4, 2014. The consent decree terminated an investigation into possible violations of federal law, prohibiting unjust and unreasonable practices for and in connection with interstate communication services, with respect to Matrix's call completion practices. Impact states that these processes and procedures will be outlined in its scheduled filing on April 27, 2015. *Hancock*, Impact revised report, Mar. 12, 2015, pp. 1-2.

12. OCA does not agree with Impact's statement that the consent decree itself "ensures" compliance with law. See *Hancock*, Impact revised report, Mar. 12, 2015, p. 1. The consent decree reserved to the FCC the ability to investigate new evidence of noncompliance. It is the actions taken by a company in response to a government inquiry, either before or after a consent decree, that can make a difference.

---

[7]It is premature to consider whether requirements that might result from a future rulemaking proceeding should be sunseted.

13. OCA has not yet seen the processes and procedures to which Impact refers. OCA has previously noted the FCC's observations in the consent decree that Matrix, in the months immediately following the receipt of the letter of inquiry, significantly reduced the number of intermediate providers it used to deliver long distance calls to rural areas and also made significant investments to upgrade its network and related operations to improve rural call completion performance and that as a result of those changes its call completion performance substantially improved. *Hancock*, OCA report, Jan. 16, 2015, n. 27.

UPDATES

Allison

14. On January 12, 2015, a physician assistant at the Shell Rock Clinic attempted to call the Allison facility for the purpose of giving a patient order to a nurse. Administrator Kathy Miller answered the call but could not hear him. He called back on his cellphone successfully. According to long distance carrier CenturyLink, the failed call was transported from the originating tandem to the terminating tandem without the use of an intermediate carrier and with no indication of trouble on CenturyLink's network. According to CenturyLink, test calls were later completed successfully. OCA has not investigated the cause of the difficulty beyond the initial inquiry to CenturyLink.

15. On January 17, 2015, a resident's son called the Allison facility and asked whether they were having phone problems. He said he had been trying for three days to call and would get either a sound like a fax machine or no sound at all. The facility, meanwhile, had answered ringing phones three times, but no one was there. According

to long distance carrier Dumont, test calls with the son were completed successfully on January 20, 2015. OCA has not investigated the cause of the difficulties beyond the initial inquiry to Dumont.

16. On March 3, 2015, the Allison facility's co-director of nursing was unable to reach the Shell Rock Clinic using any of the facility's three phone lines. According to long distance carrier Dumont, Dumont purchases the service from INS. According to INS, the routing on the calls included Level 3, which experienced a large scale optical outage on an OC-48 system at 7:48 a.m. on March 3, 2015. In order to restore service as quickly as possible, INS re-routed the traffic to another provider. The re-routing was completed and service restored at approximately 11:50 a.m. on March 3, 2015. The Level 3 network impairment was not verified as restored until the following morning at 6:34 a.m. As of March 10, 2015, INS anticipated moving the traffic back to the Level 3 route during the week of March 16, 2015.

Huxley

17. On February 11 and 12, 2015, the Huxley clinic experienced serious difficulties with both outgoing and incoming calls. On about every other call, one party could not hear the other. The clinic identified specific times and destinations on six troubled-ridden outgoing calls on February 12, 2015. On five of them, the called party (a patient in two instances) could not hear the calling party. On the sixth, the line began to echo after several minutes, "to the point I could no longer hear as it sounded like 3 people talking at once," then the problem resolved after 30 seconds or so.

18. According to Huxley Communications Cooperative (HCC), the HCC equipment at the facility was functioning properly. According to an INS service ticket

NOTE: Confidential material has been identified by placing it between curly brackets {}.

provided by HCC, a technician from Windstream, which owns and maintains some of the equipment at the facility, had visited the facility and determined the Windstream equipment was functioning properly. OCA has not sought to add Windstream as a party to these proceedings.

19. According to long distance carrier CenturyLink, five of the six calls were successfully transported from one CenturyLink tandem to another, without the use of an intermediate carrier. According to CenturyLink, test calls completed correctly. CenturyLink could find no record of the sixth call. According to CenturyLink, the destination numbers on all six calls were wireless numbers. The clinic had no specific information on the failed incoming calls because the persons attempting the calls did not contact the clinic to identify themselves. OCA has requested additional information from CenturyLink for inclusion in this reply regarding the types of facilities used to transport the calls and the dates and times of testing. As of the close of business on March 17, 2015, the additional information had not been provided despite repeated requests. On March 10, 2015, the clinic advised the difficulties had not recurred.

Hancock

20. On January 22, 2015, according to the Hancock facility, an apparent scammer broadcast or "spoofed" one of the hospital's phone numbers as the scammer's caller ID number, while robocalling thousands of people about lowering their credit card rates. Hundreds of those who missed the robocall placed a return call to the hospital. The nonstop flood of return calls repeatedly locked, thus severely compromising, the hospital's phone system, for about an hour. Both incoming and outgoing calls were disabled. According to the hospital, efforts to identify the perpetrator failed.

21. The compliance plan submitted September 3, 2014, by Impact subsidiary Matrix to the FCC pursuant to the consent decree between Matrix and the FCC included the following statement:

> Where the Company does hire intermediate vendors to deliver calls on their way to the terminating LEC, it is increasingly hiring Tier 1 providers with proven records of successfully routing and handling calls, even if this means the Company pays more to the intermediate vendor. Further, the Company is increasingly giving Tier 1 providers priority in the routing scheme (i.e. handing more calls to higher cost Tier 1 vendor on the first attempt to complete the call, as opposed to handing calls to a higher cost Tier 1 vendor for a second or subsequent attempt if a lower-cost vendor is unable to complete the call on the first attempt).

Hancock, OCA Exhibit IM-23, filed Mar. 19, 2015.

Adolphson

22. On March 10, 2015, Helen Adolphson and Charlotte Skallerup both advised that they have not experienced recent difficulties.

23. On March 6, 2015, InterMetro responded in part as follows to an inquiry asking for its long-term solutions to the call completion problems:

> InterMetro has increased its investigation into the veracity of claims of new partners. Moreover, InterMetro is only contracting with Tier 1 or Direct class carriers (e.g. Verizon, AT&T). InterMetro is working with larger carriers on Safe Harbor compliance under the FCC rules, and both within and beyond Safe Harbor traffic, InterMetro is limiting the number of intermediate carriers it uses, and is moving an increasing amount of traffic to carriers directly connected to the terminating LEC. InterMetro is continuing to tighten up its process to better confirm that carriers it uses as vendors are providing only Tier 1 or directly connected services, and to make sure any new agreements are clear as to the terminating carrier a provider is using.

Adolphson, OCA Exhibit IM-5, filed Mar. 19, 2015.

Pals

24. On March 10, 2015, Douglas Pals advised that he has not experienced recent difficulties.

OCA PROPOSED SOLUTIONS

Steps 1 and 6

Acknowledge responsibility for the performance of downstream carriers.

Exercise responsibility over the use of downstream carriers.

25. CenturyLink's response to OCA's proposal that originating and upstream intermediate carriers assume responsibility for the performance of their downstream carriers is argumentative and uninformative, even to point of becoming disengaged from the specific problems identified in these cases. Although at first acknowledging that carriers making routing decisions are "clearly" responsible for those decisions, CenturyLink renders the acknowledgement largely meaningless by stating it "may not equate to responsibility for a particular call." CenturyLink offers no suggestion as to the circumstances under which such carriers do need to be responsible. CenturyLink denies an ability to manage the business and operations of its downstream carriers, thus apparently denying responsibility for their performance. CenturyLink summarily dismisses as unduly burdensome and costly all thirteen elements of responsible intermediate carrier management suggested by OCA, offering no cost or other supporting information. The only new information it offers is information that problems appear to be insoluble: hop counters will not interoperate as a call moves through different protocols. *Allison*, CenturyLink report, pp. 10-11, 15-16 & nn. 23, 24.

26. This "can't do" or "won't do" approach is a part of the problem. CenturyLink's position contrasts sharply with statements from Windstream and Impact that they already substantially comply with each of the thirteen elements suggested by OCA. *Frahm*, Windstream report, Dec. 15 and 22, 2014, p. 10; *Frahm*, Windstream surreply, Mar. 16, 2015, p. 4; *Hancock*, Impact revised report, Mar. 12, 2015, p. 4. In the case of Impact, the company claims to go "well beyond" the steps proposed by OCA. *Id.*, p. 1. CenturyLink's position similarly contrasts sharply with statements from AT&T that AT&T undertakes to "actively manage its network" and to "employ its well-tested management of intermediate providers and use of industry best practices to ensure quality call completion." *In the Matter of Rural Call Completion*, WC Docket No. 13-39 (Feb. 2, 2015) n. 87. The word "manage" is the FCC's. *Id.*, ¶ 5.

27. Each of the thirteen elements proposed by OCA is based on problems identified in the Iowa investigations. Each needs consideration on its merits, not summary "can't do" or "won't do" dismissal. Each has to do with managing the performance of the downstream carriers. That necessarily includes insisting that downstream carriers manage their downstream carriers. See OCA report ¶ 97, element 12, citing the Intercarrier Call Completion/Call Termination Handbook of the Alliance for Telecommunications Industry Solutions (ATIS) § 5.8. Without such management, there can be no end-to-end responsibility for the calls and hence no solution to the problems.

28. Five of the elements suggested by OCA (the seventh, ninth, tenth, twelfth and thirteenth) are taken from the ATIS Handbook. See *Allison*, OCA report, ¶ 97 (citing ATIS Handbook). According to CenturyLink, it is committed to following ATIS "best

NOTE: Confidential material has been identified by placing it between curly brackets {}.

practices." *Allison*, CenturyLink report, Feb. 26, 2015, p. 16. CenturyLink has thus in fact concluded that these five elements are *not* unduly burdensome or costly. The effective contradiction casts doubt on the credibility of CenturyLink's argument that the measures suggested by OCA are unduly burdensome or costly.

29. Two of the elements suggested by OCA (the third and fifth) concern capacity limitations in the physical facilities of the downstream carriers. According to CenturyLink, it "must rely on contract provisions that an intermediate carrier maintains a network sufficient to complete calls." CenturyLink report, p. 11 n. 23. That is precisely what upstream companies must not do. A great deal of evidence shows that face value acceptance of representations of downstream carriers that they have sufficient capacity to complete calls is a primary cause of call failures. See *Frahm*, OCA report, Nov. 13, 2014, ¶¶ 17-19; *Pals*, OCA report, Jan. 23, 2015, ¶ 31; *Hancock,* OCA report, Jan. 16, 2015, ¶¶ 40-45; *Allison*, OCA report, Dec. 19, 2014, ¶ 33; see also *Adolphson*, OCA Exhibit IM-5, filed Mar. 19, 2015.[8] In order to solve the problem, upstream carriers must therefore verify that downstream carriers have the capacity to do the job, including at peak times. Such verification is a core part of network management and hence of providing reliable telephone service. See *Allison*, OCA report, Dec. 19, 2014, ¶¶ 78-79 (addressing standards and regulations for grade of service).

30. CenturyLink argues that in light of its stated intention to invoke the federal safe harbor for reduced data reporting it will "have no need to . . . address a number of OCA's thirteen steps." *Allison*, CenturyLink report, Feb, 26, 2015, p. 16. CenturyLink

[8]"InterMetro believes that its incidence of call completion problems . . . [has] happened primarily where a separate provider misrepresented its service levels."

does not identify which of the steps it claims it would have no need to address. Nor does it update the skeletal information provided in its petition for limited waiver to federal authorities last July regarding its plans to invoke the federal safe harbor provisions.[9] In a data request response received by OCA on December 19, 2014, CenturyLink advised that {[redacted]}. *Allison*, OCA Exhibit CL-65, filed Mar. 19, 2015. As of the close of business on March 17, 2015, a response to a data request sent March 9, 2015, asking for the current state of implementation was past due despite repeated requests.

31. A company invoking the safe harbor must certify it has a process in place to monitor the performance of its intermediate providers. 47 C.F.R. § 64.2107(a)(1). Indeed, the FCC calls the safe harbor the "Managing Intermediate Provider Safe Harbor." *In the Matter of Rural Call Completion*, WC Docket No. 13-39, DA 15-147, Order on Petitions for Waiver (2015) ¶ 5. Again, the elements of effective downstream carrier management suggested by OCA are responsive to the problems identified in the Iowa investigations. Either they or effective alternatives should be included in the federal monitoring process. As of the close of business on March 17, 2015, a response to a data

[9]In its petition, CenturyLink sought a limited waiver of the call attempt recordkeeping, retention and reporting requirements for certain toll traffic in circumstances in which the originating local exchange carrier hands the traffic directly to the terminating provider or both originates and terminates the call. On November 13, 2014, the FCC determined that recordkeeping, retention and reporting are not required for such traffic and dismissed that portion of the CenturyLink petition as moot. *In the Matter of Rural Call Completion*, Order on Reconsideration, 29 F.C.C.R. 14026 (2014) ¶¶ 2, 72. In its petition, CenturyLink also sought a limited waiver of the call attempt recordkeeping, retention and reporting requirements in instances in which a terminating local exchange carrier switch only supports multi-frequency signaling. On February 2, 2015, the FCC's Wireline Competition Bureau clarified that the FCC did not intend to require providers to record, retain and report information in those instances because it is impossible in those instances to obtain all the necessary information required by the rules. The remainder of the CenturyLink petition was accordingly also dismissed as moot. *In the Matter of Rural Call Completion*, WC Docket No. 13-39, DA 15-147, Order on Petitions for Waiver (2015) ¶¶ 41, 48.

request sent March 9, 2015, asking for the specifics of CenturyLink's monitoring and management process, to the extent developed to date, was past due despite repeated requests.

32. The possibility that CenturyLink will be able to identify all carriers in a call path that fails, see *Allison*, CenturyLink report, pp. 11, 12, is a step in the right direction. It is not, however, enough. The companies must not only be addressing complaints about problems that have already occurred but must also be adopting practices and processes that prevent rural call completion problems from occurring in the first place. *In the Matter of Rural Call Completion*, WC Docket No. 13-39, DA 15-147, Order on Petitions for Waiver (2015) ¶ 8. The elements suggested by OCA are designed to do that. They strengthen the federal-state partnership.

33. CenturyLink's footnote 24 is not only not an adequate response to OCA's proposal that upstream carriers require downstream carriers to have hop counters or equivalent mechanisms in place but is also a concrete illustration of a willingness to allow reliability needs to go unmet. Hop counters were engineered many years ago to prevent looping. Contrary to the statements in CenturyLink's footnote, the ATIS standards today provide that interconnecting parties should make use of hop counters and cross-reference a technical document addressing the interworking of hop counter or equivalent mechanisms between different protocols. ATIS Handbook § 4.1.3.1.[10]

[10]Reducing the number of intermediate carriers, as required for invocation of the federal safe harbor, may reduce but will not eliminate the potential for looping.

34. OCA has not proposed any "micro-management" of any company's operations. See CenturyLink report, pp. 10, 11, 15, 16, 17. The thirteen elements set forth in OCA's step 6 are broadly stated. Not one contains prescriptive requirements. At proposed step 5, OCA suggests that the technical challenges be addressed initially at ATIS.

35. Airus and Impact advance similar arguments. OCA's response is the same. OCA is not suggesting that companies assume responsibility for upstream transmission. OCA is suggesting that companies assume responsibility for downstream transmission.[11] The fact that downstream carriers may be "independent operators," see *Hancock*, Impact revised report, Mar. 12, 2015, p. 3, does not relieve upstream carriers of responsibility. *In the Matters of 911 Governance and Accountability and Improving 911 Reliability,* 29 F.C.C.R. 14208 (2014) ¶ 18. The seventh and eighth elements of responsible downstream management proposed by OCA {[redacted]}. See *Frahm*, OCA report, Nov. 13, 2014, ¶ 20-23.

36. Airus references the analysis of "burdens" undertaken by the FCC in conjunction with its new data rules. See *Hancock*, Airus report, Feb. 26, 2015, n. 8. It is one thing to address the burdens associated with recording, retaining and reporting data and another to address the burdens associated with completing telephone calls. The latter

[11] Impact argues that carriers need not assume responsibility once the call reaches "the final carrier's network infrastructure to the end user." *Hancock*, Impact revised report, Mar. 12, 2015, p. 2. OCA agrees. Experience indicates that when a call reaches the terminating tandem, it is completed by the rural local exchange carrier with a very high degree of reliability. *In the Matter of Rural Call Completion*, WC Docket No. 13-39, Report and Order and Further Notice of Proposed Rulemaking, 28 F.C.C.R. 16154 (2013) ¶ 91.

burdens are the burdens that companies are paid to carry. If certain actions are necessary in order to complete the calls reliably, the fact that there may be burdens or expenses associated with implementing them is insufficient reason for failing to do so. There are certain actions that must be taken in order to provide reliable telephone service.

Step 2

Maintain on file with the Board a list of downstream carriers currently being used to carry Iowa traffic.

37. Requiring originating and intermediate carriers to maintain on file with the Board a current list of the downstream carriers being used to carry Iowa traffic would not impose an undue burden. Identity and contact information is both minimal and easy to obtain. Companies could establish routines for reporting the changes and incur almost no expense in doing so. Originating carriers would not be required to maintain a list of second- and third-tier downstream carriers. Each carrier, including each downstream carrier, would maintain a list of the downstream carriers to which it hands calls.

38. Bringing the intermediate carriers out of the shadows would have a curative and prophylactic effect. It would tend to enhance the likelihood that companies with unsound practices or inadequate facilities stayed or were kept out of the market. See *In the Matter of 911 Governance and Accountability and Improving 911 Reliability*., 29 F.C.C.R. 14208 (2014) ¶ 50 ("public disclosure . . . is a key step toward increasing accountability . . .").

39. The ready availability of the identity of the carriers and their contact information would also assist the Board in maintaining an awareness of circumstances and trends that affect network reliability and taking action when needed. For example, if

a number of upstream carriers removed a particular downstream carrier from routing, the Board could inquire why, and depending on the response, could question why other upstream carriers were not doing the same. Such activity would strengthen network reliability.

40. According to CenturyLink, providing a list of intermediate carriers would "make negotiation of favorable terms with these carriers a much more difficult task – potentially costing the Company even more to provide long distance service." *Allison*, CenturyLink report, Feb. 26, 2015, pp. 11-12. There is no apparent reason why that would be so, and CenturyLink offers no supporting evidence or explanation. It appears, moreover, that the secret negotiation of contracts with shadowed "least cost routers" has come at the expense of network reliability, even to the point of threatening public health and safety. There is nothing in OCA's proposals that suggest a public disclosure of the negotiated economic terms of the contracts. There is a public interest in the reliability of the network and hence in the identity of the carriers transporting the calls.

Step 3

Reduce the number of intermediate providers in the call paths.

41. OCA continues to support CenturyLink's stated intention to invoke the safe harbor provisions in the FCC's new data rules and in particular its stated intention to reduce the number of intermediate carriers in its call paths. See *Allison*, OCA report, Dec. 19, 2014, ¶ 94. As indicated above, however, CenturyLink has been slow in providing relevant information. The safe harbor provisions are discussed at paragraphs 67-73 below.

NOTE: Confidential material has been identified by placing it between curly brackets {}.

42. Airus, evidently agreeing with OCA's proposed step 3, advises that it has attempted to reduce the number of intermediate carriers. As observed above (¶ 13), Impact has likewise reduced the number of intermediate carriers, and as a result, its call completion performance has substantially improved.

43. OCA has not suggested a rigid maximum number of intermediate carriers in a call path and does not suggest that the number of intermediate carriers be reduced to a point where it exacerbates rather than solves the rural call completion problem. The suggestion is that *responsible* action to reduce the number of intermediate carriers will help restore network reliability.

44. INS opposes any reduction in the number of carriers that would involve bypassing INS. The reduction OCA is proposing is a reduction in the number of intermediate carriers. OCA is not suggesting a bypass of INS. See note 18 below.

Step 4

Promote transparency in the use of downstream carriers.

45. OCA does not propose that contracts with intermediate carriers be filed with the Board as a public record without regard to the need to protect trade secrets. See *Allison*, CenturyLink report, Feb. 26, 2015, pp. 12-13. The proposal is that companies remove contractual impediments on disclosure to the Board.

46. Airus and Impact both support contractual provisions that promote transparency in the use of intermediate carriers but advise they cannot force other contracting parties to accept such provisions. In discussions with the other parties, they should stress that contractual restrictions on disclosures to regulatory bodies will only delay and will not prevent such disclosures and hence that they serve no useful purpose.

See *Harris v. Board of Governors of Federal Reserve System*, 938 F.2d 720, 723 (7th Cir. 1991) ("The rights of a party to obtain documents under judicial process are not enjoyed at the sufferance of third parties who have agreed between themselves to keep documents secret").

47. Airus argues that OCA has not explained how greater transparency would contribute to a long-term solution. Transparency increases understanding and accountability. It can reasonably be expected to give all of the companies involved in the routing of attempted calls an incentive to comply with their obligations to complete the calls.

48. Airus observes that the transparency suggested by OCA is greater than that required under the safe harbor provision in the FCC rules. Greater transparency than that required under the safe harbor provision in the FCC rules is in the public interest.

Step 5

Actively participate in the standard-setting work of the Alliance for Telecommunications Industry Solutions.

49. OCA continues to support CenturyLink's continued participation in the work at ATIS.

50. Companies are reasonably asked to commit to advising the Board when new industry standards relevant to reliable call completion are developed. If nothing more is needed than a link to a website, the alleged burden – a line in a progress report – is all but non-existent.

51. CenturyLink appears to oppose any future rulemaking proceeding on the subject of rural call completion or network reliability and suggests instead that the Board

consider requiring companies to adopt ATIS best practices. *Allison*, CenturyLink report, Feb. 26, 2015, p. 14. Future rules, perhaps along the lines of the current rules cited in footnote 49 of OCA's initial report in *Allison*, will probably be needed, both because there is no consumer participation in the development of the ATIS standards[12] and because the ATIS standards lack enforcement capabilities.

52. CenturyLink argues that the Board will not be able to respond quickly enough to technology changes. *Allison*, CenturyLink report, Feb. 26, 2015, p. 14. Rules, when needed, should be written to apply regardless of the technology used.

53. Airus resists active participation in the work at ATIS in favor of monitoring work done by ATIS and incorporating standards as necessary. With only such passive participation, both Airus and ATIS would lose the benefit of discussing what the standards should be, including the need for, and means of achieving, compatibility among systems. The Airus resistance to the elements of downstream intermediate carrier management proposed by OCA in step 6, many of which are based on the current ATIS standards, suggests that Airus has not and may not adopt the standards voluntarily.

[12]CenturyLink states: "Should the Board wish to be involved in the ATIS process in order to determine for itself that the ATIS committee members have ensured that the standards 'adequately protect consumers,' ATIS should be contacted regarding that participation." *Allison*, CenturyLink report, Feb. 26, 2015, p. 14. The process provided to the Board by law for ensuring that all interests are adequately protected is the rulemaking process.

Step 7

Provide copies of the Iowa portion of the federal data and the FCC's analysis of the Iowa data to the Board and OCA.

54. In response to OCA's proposal that companies provide the Board and OCA with copies of the Iowa portion of the rural call completion data reported to the FCC under the new federal rules, CenturyLink, Airus and Impact argue it would be more efficient for the Board to request the data from the FCC. *Allison*, CenturyLink report, Feb. 26, 2014, p. 16; *Hancock*, Airus report, Feb. 26, 2014, pp. 20-21; Hancock, Impact report, Feb. 26, 2014, p. 4. OCA disagrees. For reasons stated below, OCA's proposal is not only more efficient but will also be more effective in terms of assisting the Board in restoring reliable telephone service to rural Iowa.

55. As a central element in its work to address the rural call completion problem, the FCC has adopted rules establishing a new process for recording, retaining and reporting rural call completion data. The process, set to begin in a matter of days, see note 4 above, has sufficient scale to have required approval under the Paperwork Reduction Act. The FCC appropriately conceives a federal-state partnership because jurisdiction over telephone service is divided between the FCC and the states.[13] The purpose of collecting the data is to "identify possible areas for further inquiry." See note 5 above and accompanying text. Jurisdictionally, insofar as intrastate calls in Iowa are concerned, the more appropriate body to conduct that further inquiry is the Board.

[13]Intrastate calls are included in the reporting requirements because they are carried on the same network as interstate calls and because collecting only a partial picture of rural call completion rates may prevent the FCC from ensuring that interstate calls are properly being completed. *In the Matter of Rural Call Completion*, Report and Order and Further Notice of Proposed Rulemaking, WC Docket No. 13-39, 28 F.C.C.R. 16154 (Nov. 8. 2013) ¶ 33.

56. The FCC's *Form 480 Filing Interface User Guide* (see note 5 above) explains that reporting of call completion data to rural destinations is broken down by rural "Operating Company Number" (OCN) and by state. See *id*. p. 5. Indeed, the first column in the reporting template is the state. See *id*., p, 6. Because the reporting is thus structured to permit the ready extraction of state-specific rural data, a reporting company can with no serious difficulty extract Iowa's rural data and transmit that data (along with the aggregated national non-rural data)[14] to Iowa *at the same time* it transmits 50-state rural data (along with the aggregated national non-rural data) to the FCC. Routines can be established for such simultaneous transmission at little cost. The best time to establish such routines is now, when the process is beginning.[15]

57. The approach suggested by OCA would: (i) increase efficiency by eliminating the need for requests from the state; (ii) further increase efficiency by relieving the FCC of the need to extract the state-specific data and send it to the state; (iii) improve effectiveness by accelerating the state's receipt of the data; (iv) improve effectiveness by increasing the state's familiarity with the data; (v) improve effectiveness by relieving the FCC of the sole responsibility to review and analyze the data; and (vi) generally enhance the effectiveness of the federal-state partnership.

---

[14]The data reporting might be more state-friendly if it included statewide non-rural data. That might be an improvement for future years. An amendment to the federal rules would be required.

[15]Impact argues that the proposal suggested by OCA, if implemented in each of the states in which it does business, would impose an overwhelming administrative burden on the company. That is not the case. As explained in text above, the data are already being collected, and the workbooks will already identify the state. In an advanced technological age, routines can be established with little difficulty that allow electronic transmission of the state-specific data to as many states as want it.

58. Under OCA's proposal, the state would not have to wait for the FCC to identify a problem or to depend on the FCC to identify the problem – or to identify it quickly enough. In that respect, the data retention periods in the federal rules are short,[16] and "absent any retention requirements, providers may have an incentive to purge data quickly to avoid having relevant information available for any possible investigation." *In the Matter of Rural Call Completion*, WC Docket No. 13-39, Report and Order and Further Notice of Proposed Rulemaking, 28 F.C.C.R. 16154 (2013) ¶ 89.

59. Reporting companies are required to provide "explanations" of the methodologies they use to identify call attempt categories. These explanations will "help ensure that the [FCC] is able to interpret the reported data accurately." See *Form 480 Filing Interface User Guide*, p. 8. The explanations are needed because different companies' systems categorize call attempts differently. *In the Matter of Rural Call Completion*, WC Docket No. 13-39, Declaratory Ruling, DA 15-217 (2015). Because the explanations will similarly help the state interpret the data correctly, the explanations should be included in copies provided to the state.

60. In response to OCA's further proposal that the companies commit to sharing with the Board and OCA any FCC analysis of the Iowa data, CenturyLink states that the FCC does not make its analysis of specific state data available to CenturyLink or any other carrier. *Allison*, CenturyLink report, Feb. 26, 2015, p 16. The basis for this statement is not provided. Nor has the data collection yet begun. It is not clear what value the FCC's analysis will have if the analysis is not shared with the company.

---

[16]For providers that do not meet the requirements for the safe harbor, records must be maintained for six months. 47 C.F.R. § 64.2103(a). For providers that do meet the requirements for the safe harbor, records must be maintained for three months. 47 C.F.R.. § 2107(b).

61. The FCC has not included intermediate carriers in its proposed rules. Unless and to the extent Airus is originating long distance services or otherwise falling within the scope of the FCC rules, step 7 would not apply to Airus.

62. Impact subsidiary Matrix agreed as part of its consent decree, for the three-year life of the consent decree, to comply with the data rules, regardless of whether it would otherwise fall with their scope. *In the Matter of Matrix Telecom*, 29 F.C.C.R. 5709 (2014) ¶ 17(d). Impact states it has chosen to apply the requirements of the consent decree to its own traffic, which may or may not mean that Impact as well as Matrix will be recording, retaining and reporting the data. As is apparent in OCA's initial report in *Hancock*, Impact's data recording and retention processes have been excellent.

63. The approach suggested by OCA is precisely the approach recently suggested by another public utility commission in a related context: "[F]ederal and state coordination of regulatory information and policy development promotes the shared goals of reliable, resilient and survivable . . . networks nationwide . . . . [Companies that submit reports to the FCC should] simultaneously submit such information to . . . state officials." Comments, Washington Utilities and Transportation Commission, *In the Matters of 911 Governance and Accountability and Improving 911 Reliability*, PS Docket Nos. 14-193 and 13-75(FCC Mar. 17, 2015), pp. 2, 8.

Step 8

Keep routing tables up-to-date.

64. CenturyLink evidently supports OCA's proposal that companies update their routing tables using the Local Exchange Routing Guide (LERG) of the Traffic Routing Administration. CenturyLink's comment that "ported numbers also require that

the local routing number (LRN) be obtained via the dip of the database" is confusing and extraneous.[17] Airus and Impact agree that companies should properly update their routing tables.

Step 9

Provide periodic progress reports to the Board on implementation.

65. CenturyLink argues that the filing of progress reports with the Board regarding the progress it is making in fulfilling any commitments it makes to Board be waived for companies that intend to invoke the federal safe harbor. The argument assumes that companies invoking the federal safe harbor will by virtue of that fact provide reliable connections to rural destinations. As discussed more fully below, that is not what the federal safe harbor is. The federal safe harbor is a safe harbor from some but not all federal reporting requirements. It is an aid in solving the problem, not a panacea or talisman.

66. Impact argues that progress reports to the Board might duplicate reports to the FCC, evidently referring to reports under the consent decree of subsidiary Matrix. To the extent Iowa solutions for intrastate calls may parallel federal solutions for interstate calls, it is not unduly burdensome for a company to submit periodic reports to both jurisdictions.

67. Airus agrees that companies should make reports to the Board regarding their progress in implementing solutions.

---

[17] A great majority of numbers are ported. For both ported and un-ported numbers, routing is done on the NPA-NXX of the LRN. The LERG is the authoritative reference for both ported and un-ported numbers.

Filed with the Iowa Utilities Board on July 22, 2016, FCU-2012-0019

OTHER PROPOSED SOLUTIONS

CenturyLink

68. For reasons stated in its initial reports, OCA supports CenturyLink's expressed intent to invoke the federal safe harbor. While the results remain to be seen, successful invocation of the safe harbor is likely to address some of the difficulties identified in these dockets. In particular, as observed by CenturyLink, quoting the FCC, limiting the number of intermediate providers that may handle a call limits the potential for lengthy call setups and looping. *Allison*, CenturyLink report, Feb. 26, 2015, p. 6. "Limits" does not mean "eliminates."

69. CenturyLink, however, has not provided information concerning its plans to invoke the safe harbor beyond that provided in its federal waiver filing last July and its subsequent draft template contract. As observed by Dumont and Interstate 35, the efficacy of the draft template contract depends on whether its provisions have in fact been adopted or will in fact be adopted as described by CenturyLink, whether they are properly and routinely monitored, and whether they are adequately enforced against intermediate providers that violate contract terms. *Allison*, Dumont report, Feb. 26, 2015, p. 2; *Adolphson*, Interstate 35 report, Feb. 26, 2015, p. 2.

70. It is inaccurate, moreover, for CenturyLink to state or imply that a company's invoking the safe harbor gives its customers the "highest" confidence in the company's abilities to complete the calls. See *Allison*, CenturyLink report, Feb. 26, 2015, pp. 8, 17. As indicated above, the safe harbor is intended as an aid in solving a problem, not as a final solution. Reporting requirements are reduced, not eliminated. Indeed, following comment by the National Association of Regulatory Utility

NOTE: Confidential material has been identified by placing it between curly brackets {}.

Commissioners and rural associations that the safe harbor as originally proposed was premature without validation by a history of reporting, the FCC modified the provision so as to require the same reporting for a period of one year as for providers not invoking the safe harbor. *In the Matter of Rural Call Completion*, WC Docket No. 13-39, Report and Order and Further Notice of Proposed Rulemaking, 28 F.C.C.R. 16154 (2013) ¶¶ 87, 89. As CenturyLink acknowledges, the FCC also determined that there are additional significant steps beyond those required by the safe harbor that providers can take to ensure calls to rural areas are completed. *Id.*, ¶ 85; *Allison*, CenturyLink report, Feb. 26, 2015, p. 7.

71. The safe harbor does not relieve CenturyLink of its responsibility to address the problems identified in these dockets. A reduction in the number of intermediate carriers on its call routes will not, for example, dispense with the need to ensure that the carriers chosen to complete the calls have sufficient capacity to complete the calls at busy times or that they have appropriate alarms in place that can be activated in cases of outage. It remains to be seen, moreover, whether or to what extent CenturyLink's plans to invoke the safe harbor include the elements proposed by OCA based on the problems identified in these dockets, or their equivalent. See also *Allison*, Dumont report, Feb. 26, 2015, p. 3, and *Adolphson*, Interstate 35 report, Feb. 26, 2015, p. 2 ("limiting a downstream carrier to one entity does not necessarily address call completion problems of post dial delay, dead air, echo, hearing, etc.).

72. There are many questions regarding the processes by which the data will be recorded and reported and regarding the nature of the conclusions that will in time be drawn from the data. OCA has raised a substantial number of such questions. *Allison*,

OCA report, Dec. 19, 2014 ¶¶ 52-56; *Frahm*, OCA report, Nov. 13, 2014 ¶¶ 54-73. Dumont questions whether the metrics used by CenturyLink in reporting data reliably identify the scope of the problems. *Allison*, Dumont report, Feb. 26, 2015, pp. 3-4. The FCC states: "The Commission . . . cannot determine the accuracy of respondent call completion data until such data are obtained and analyzed." *In the Matter of Rural Call Completion*, WC Docket No. 13-39, Declaratory Ruling, DA 15-217 (2015), ¶ 13.

73. As noted above, there were commenters who were skeptical about the safe harbor from the beginning. Given the extent, seriousness and complexity of the problems, the transitioning technology, the interoperability challenges, the incomplete state of development of relevant standards at ATIS, and CenturyLink's resistance to OCA's suggested elements of responsible intermediate carrier management with which other companies have said they substantially comply, one can reasonably question CenturyLink's ability and resolve to address the difficulties satisfactorily in the course of the safe harbor's single year, especially absent substantially more information regarding CenturyLink's plans and actions to date. Effective long-term solutions may well require a longer period of development and implementation, and not just for CenturyLink.

74. In summary, the data recording, retention and reporting is about to begin. There is no track record. The role of the states in the federal-state partnership has yet to be addressed in any significant detail. Although an encouraging potential development, the safe harbor is not designed to replace the data requirements but is rather designed to reduce them. If and when invoked, it will not by itself ensure that calls complete. It will potentially address some, but will not address other, of the difficulties identified in these dockets. To the extent CenturyLink will be making commitments to

the FCC that address these difficulties, CenturyLink should be willing to make the same commitments to the Board. To the extent CenturyLink will not be making commitments to the FCC that address these difficulties, additional commitments will be needed in order to address them.

Airus

75. Airus, stating that rural local exchange carriers have declined to discuss direct interconnections with Airus, proposes that they be required to offer direct interconnections on a non-discriminatory basis. *Hancock*, Airus report, Feb. 26, 2015, pp. 11, 16, 22. OCA is willing to discuss this proposal with Airus and other affected parties. For reasons stated above (¶ 10), however, the proposal does not appear to offer a solution to the rural call completion problem.[18]

76. Airus suggests that the Board consider establishing an online portal to be used by consumers to submit rural call completion complaints and by carriers to respond. The Board already has a complaint mechanism that includes the ability to submit and respond to complaints electronically. The mechanism is functioning well.

[18]Airus may be seeking to avoid the cost, which OCA understands will remain in place following intercarrier compensation reform, of interconnecting through INS. INS is a statewide fiber-optic network and switching system that provides centralized equal access services to facilitate the delivery of long distance calls in Iowa. Its services were approved by the Board more than 25 years ago. *In re Iowa Network Access Division, Division of Iowa Network Services*, Docket No. RPU-88-2, Final Decision and Order (Oct. 18, 1988). OCA is not aware of any instances in which INS services or equipment were responsible for call failures and therefore doubts whether bypassing INS would contribute to solving the rural call completion problem. INS makes the same observation. *Allison*, INS report, Feb. 26, 2015, p. 3.

Impact

77. As noted above, Impact claims to have processes and procedures in place that go beyond the nine steps proposed by OCA. Impact has not yet described those processes and procedures. See ¶ 11 above.

Dumont and Interstate 35

78. OCA agrees with Dumont and Interstate 35 that enforcement proceedings and financial penalties against repeat offenders may well be needed to restore network reliability to rural Iowa. The recent enforcement history at the FCC, cited by Dumont and Interstate 35, supports their assessment.

79. Building a strong federal-state partnership with respect to the nascent data initiative would be more productive than requiring carriers to make reports to the Board regarding each complaint they receive. Companies will commonly deny responsibility for the difficulties and may purge records if not required to retain them. It is only through studied effort that meaningful conclusions are possible. The resources are limited. The Board and OCA have become accustomed to relying on the ability and good sense of the Iowa consuming public to begin the process of sifting through the inevitable difficulties and separating the excusable annoyances from the real problems that the companies are unwilling or unable to correct and that threaten network reliability and hence public health, safety and economic well-being. The current complaint processes work well.

Filed with the Iowa Utilities Board on July 22, 2016, FCU-2012-0019

CONCLUSION

Rural Iowa depends on reliable telephone service. Technology changes should preserve or enhance, not sacrifice, reliability. The companies carrying intrastate long distance traffic in Iowa – CenturyLink, Airus, Impact, Bluetone and InterMetro – should commit to appropriate specific actions that will restore reliable telephone service to rural Iowa. OCA looks forward to working with these companies in an effort to reach agreement on what these commitments should be.

Respectfully submitted,

Mark R. Schuling
Consumer Advocate

/s/ Craig F. Graziano
Craig F. Graziano
Attorney

1375 East Court Avenue
Des Moines, IA 50319-0063
Telephone: (515) 725-7200
E-Mail: IowaOCA@oca.iowa.gov
E-Mail: Craig.Graziano@oca.iowa.gov

OFFICE OF CONSUMER ADVOCATE

NOTE: Confidential material has been identified by placing it between curly brackets {}.