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December 9, 2014

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Via Email

Jeffrey Goldthorp  
Chief, Communications Systems Analysis Division  
Public Safety and Homeland Security Bureau  
Federal Communications Commission  
445 12th Street, SW  
Washington, DC 20554

Re: NRSC Member Data Analysis Findings of Fiber Cut Outage Reports  
(2012-2013) in NORS

Dear Jeff:

On behalf of its Network Reliability Steering Committee (NRSC), the Alliance for Telecommunications Industry Solutions (ATIS) is writing to provide you with the results of its analysis of fiber cut related outage reports.

As you know, the NRSC formed a Task Force to collect and analyze its service provider member data related to the upward trend in industry outage reports caused by fiber cuts that have been filed in the FCC's Network Outage Reporting System (NORS). At the May 2014 NRSC meeting, the NRSC presented the initial results of its analysis. The following points summarize these results:

- The outage increase was not as evident in the two-year NRSC study as it was in the 4 years of data presented by the Commission (some leveling may have occurred).
- The majority (~80%) of the non-sympathy reports indicated the reason reportable was 1350 DS3 Minutes.
- A large percentage (~60%) of the direct cause was "Cable Damage – Other", which does not provide enough information for further analysis.

As a consequence of these results, the Fiber Cut Task Force performed an analysis of two text fields – "Description of Causes" and "Description of Incident". Additionally, members agreed to examine their company data to determine if additional information was available.

The Task Force has since completed these two items and also examined several additional factors. In looking at the text fields of those ~60% of records reported as "Cable Damage – Other", approximately 50% contained a small amount of

additional data(*e.g.*, whether a contractor was involved or “Call before you dig” was used). Unfortunately, the analysis did not provide insight into the specific cause of the outage.

An analysis of the count per state showed that 10 states account for 60% of the outages. In order to understand this better, the NRSC examined external data from the Common Ground Alliance (CGA) and their Damage Information Reporting Tool (DIRT) Report. The team reviewed the DIRT Reports for 2012 and 2013 corresponding to the period for which NRSC member data was analyzed. The 2013 DIRT Report indicated the number of damage incidents had declined from 2012, while both reports indicated increases in the number of locate requests made, which is encouraging. In both reports, the two utility sectors most often impacted by damage incidents were natural gas and telecommunications – 41% each in 2012, and 39% and 42% respectively in 2013. Both reports indicate the seasonality of incidents, as has been noted in the FCC and NRSC analyses.

In the 2012 DIRT Report, the CGA provided an analysis of “Call before you dig” regulations and exemptions to the regulations. The report indicated that states with 5 or more exemptions had a damage rate 108% higher than states with fewer than 5 exceptions. Within the NRSC data, 7 of the top 10 states reporting outages have 5 or more exemptions from the “Call before you dig” regulations; however, New York, California, and Maryland have less than 5 exemptions and are all in the top 10 outage reporting states. Population was also examined as a contributing factor, which was not considered in the 2012 DIRT Report. All of the states that were ranked as the top 10 outage reporting states were also in the top 50% of the states with the densest populations. In addition to the population factor, the DIRT reports note the relationship between construction spending in the US and the number of reports.

In the 2013 DIRT Report, the CGA provided an analysis of the causes of incidents. While failure to make the appropriate notification(s) remained steady at roughly 25% year over year, incidents reports citing that insufficient excavation practices increased from 45% to 50%.

Noting the apparent relationship between business activity in the US and the number of incidents, along with the team members’ knowledge of their own companies’ increased deployment of fiber, the team looked into data on fiber deployment by the US telecom industry. The team reviewed fiber optic cable data from the FCC’s Automated Reporting Management Information System (ARMIS) reports covering the period from 2001-2007 and from the Telecommunications Industry Association’s 2011-2012 STAR Report with TR-42 data covering the period from 2005-2015. It is clear that with over 10 million miles of fiber being deployed in the US over each of the last 10 years, the industry has been working hard to meet customer demand for greater quality and quantity of services and has also dramatically increased its exposure to backhoes and trenchers and shovels.

The final analysis looked at the number of DS3s involved for those fiber cut outages that had “1350 DS3 User Minutes” as the reason reportable. The NRSC determined that almost 80% of the outages were an OC192 or smaller and most of them were significantly smaller [50% involved less than 14 DS3s and Large DS3 outages (greater than 1000 DS3s) accounted for less than 10% of the outages].

The NRSC team also reviewed the existing CSRIC Best Practices relating to buried facilities. There are 18 Best Practices on the topic – 3 of which specifically mention the Common Ground Alliance and 2 others which specifically mention the importance of adherence to state one-call regulations. Also reviewed were the CGA's Best Practices ([http://www.commongroundalliance.com/Template.cfm?Section=Best\\_Practices](http://www.commongroundalliance.com/Template.cfm?Section=Best_Practices)), many of which are applicable to carriers particularly as they are often customers of companies that use backhoes and trenchers and shovels.

The NRSC Fiber Cut Task Force has concluded that, while NRSC member companies do have a narrowly prescribed role in preventing fiber cut outages, neither NRSC member company data and externally available data provide a clear cause for the rising number of fiber cut outages.

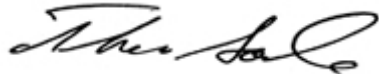
The NRSC recommends the following actions:

- Operating companies should use the “other” category when submitting FCC NORs and CGA DIRT reports only when no other category is applicable.
- Operating companies should review most recent NRSC DS3 Bulletins<sup>1</sup>.
- Operating companies should be aware of the importance of “Call before you dig” programs.
- Operating companies should be aware of the existing CSRIC Best Practices related to buried facilities.
- Operating companies should familiarize themselves with the Common Ground Alliance's (CGA) Best Practices.
- Operating companies should maintain their support of the North American Telecommunications Damage Prevention Council's (NTDPC) work (<http://www.ntdpc.com>).

The NRSC Fiber Cut Task Force has concluded its study and presented its final results, as outlined above, at the NRSC 4Q2014 meeting in December 2014.

Thank you for your consideration. Please contact me if additional information is necessary.

Sincerely,



Thomas Goode  
General Counsel

cc: John Healy, Associate Division Chief, Cybersecurity and Communications Reliability Division

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<sup>1</sup> ATIS-0100052, *NRSC Bulletin No. 2013-002: DS3 Simplex Conditions*, and ATIS-0100045, *NRSC Bulletin No. 2009-2: DS3 Outages*; and ATIS-0100050, *NRSC Bulletin No. 2006-1: DS3 Simplex*, are available from the Alliance for Telecommunications Industry Solutions (ATIS) at < <https://www.atis.org/docstore/default.aspx> >.