

MEMORANDUM

TO: Mr. Steven Scialabba
FROM: Mr. Gregory L. Booth, PE
TOPIC: National Grid August 29, 2013 Contact Voltage Compliance Report
Recommendations and Review Comments. Docket 4237A
DATE: December 19, 2013

I have reviewed National Grid's Annual Contact Voltage Compliance Report dated August 29, 2013. Following in this memorandum are my comments concerning the Company's Contact Voltage Program and my recommendations for future reports and processes.

I found that the report meets the requirements set forth in §39-2-25(b)(6)¹, however, I find the reported results² could benefit from some increased clarity and explanation. The Company states that the mobile surveying crew made "several hundred stops to investigate", but the definition of a "Mobile Event", provided by the Company as a footnote to the chart on page 8 of the report, discusses possible mobile readings of 1V or greater. The number of Mobile Events is not in the order of hundreds (equaling the estimated number of stops due to elevated mobile readings) therefore, the Mobile Events must be the number of events confirmed through manually testing to be less than 1V and therefore not actionable, however the footnote does not clearly state this. The Company needs to define the difference in possible readings by the mobile scans and verified manual readings clearly in its reported results, however from the table footnote³ it is evident that the "Readings" are those events which were identified by mobile readings and confirmed by manual readings.

Following, I have provided several recommendations that would be beneficial for the Company to include in its reporting:

1. The Company should include in the reporting table the estimated number of mobile survey stops,
2. The Company should include a glossary or listing of terminology used in the document to differentiate between the various uses of "events" and "readings" which reference mobile, manual, and Total Harmonic Distortion ("THD") methods similar to the guidance offered in Company's report in the footnote to the table on page 8 of 28,
3. The Company should provide a summary table of events and readings by asset type,
4. The Company should include representative pictures showing the as-found condition and current state of facilities after corrective action for various types of facilities, and
5. The Company should include before and after mitigation THD readings to the applicable contact voltage events.

In regard to the Company's mobile scanning program process, I find that their staged approach of using mobile, manual, and THD analyses is an adequate approach using current

¹ 4. §39-2-25(b)(6)- Annually report on contact voltage findings, including, but not limited to, the number and type of energized objects on both company-owned and customer-owned assets, voltage level, corrective action taken, shocks that occur to members of the public or to pets owned by members of the public, and any other information that the commission deems appropriate.

² Rhode Island Annual Contact Voltage Report, Page 8 of 28.

³ Id.

technologies. I recommend that the Company continue to record and evaluate the use of THD readings for elevated voltages ranging between 1 and 4.5 volts, along with the continued use of the 4.5 volt contact voltage threshold for definite mitigation action. I further recommend that the Company address not only objects with THD readings less than 10%, but also those that register above 10% to provide confidence and experience that the 10% threshold being considered by the Company is actually an accurate guide for addressing contact voltage issues. As addressed in my initial comments, the Company also needs to add THD readings to its detailed findings reports. For example, there were instances addressed based on THD levels with the Company proactively replacing assets; however the Company did not indicate the initial and final harmonic readings for these assets.

I agree with both the Company's proposal to complete mobile scanning of 100% of the Designated Contact Voltage Risk Areas ("DCVRA") in 2014 to both gain experience in the process and build a foundation of readings in each area. I additionally agree with the Company's proposal to add a DCVRA for High Street, Westerly for 2014.

I do have a number of additional recommendations that should be addressed by the Company's current program:

1. The Company should implement follow up scans in areas with remediation work prior to the annual scanning to verify that the object found and corrected completely addressed the mobile scan's elevated level and that no other underlying issues were present,
2. The Company needs to implement a process where random objects are selected in each DCVRA and manually tested for contact voltage to spot verify areas not indicated by mobile technology,
3. The Company should manually measure voltage and visually inspect streetlight facilities in areas adjacent to streetlight assets requiring remediation effort, and
4. The Company should seek bids on a 2-year basis to ascertain if new processes and technology will be offered by vendors to complete future scans, and if any competing vendor offering would be beneficial to the contact voltage program.

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