



December 11, 2015

Ms. Patricia Van Gerpen, Executive Director  
South Dakota Public Utilities Commission  
500 E. Capitol  
Pierre, SD 57501-5070

**RE: Docket Number RM15-001 – In the Matter of Rules Regarding Stray Electrical Current and Voltage Remediation**

Dear Ms. Van Gerpen:

NorthWestern Corporation, d.b.a. NorthWestern Energy ("NorthWestern"), appreciates this opportunity to provide comments regarding the development of rules to define standards for the measurement of Stray Voltage as required by state law.

Below, are NorthWestern's comments regarding the draft rules as currently proposed under Docket RM15-001:

1. NorthWestern proposes that the "Testing Sequence" as proposed in § 20:10:39:17 be adjusted to a 24 hour test rather than the current proposed 48 hour testing sequence. It would seem the intent of the testing sequence is to cover two milking cycles which can be accomplished within a 24 hour testing sequence period.

Below are NorthWestern's suggestions as to how sections of the proposed rule can be modified to accomplish this request:

- a. **20:10:39:16. Stray current or voltage test.** Subject to § 20:10:39:17, there are six tests used to detect and measure stray voltage: cow contact test; 48 24 hour test; primary profile test; secondary neutral voltage drop test; load box test; and signature test. Efforts must be made to perform the tests under conditions substantially similar to those conditions existing at the times the dairy producer believes stray voltage to be a problem.
- b. **20:10:39:17. Testing sequence.** The cow contact test and 48 24 hour test are used to determine the presence and level of stray voltage and are performed in all investigations, subject to the provisions of § 20:10:39:21. The cow contact test is performed first. The primary profile test, secondary neutral voltage drop test, load box test, and signature test may be performed in any order and may be performed without first determining that these tests are required under § 20:10:39:19. The primary profile test, secondary neutral test, load box test, and signature test may be performed prior to starting the recording for the 48 24 hour test or while the 48 24 hour test is in progress. The 48 24 hour test may be interrupted as necessary to conduct the secondary neutral voltage drop test, load box test, and signature test, or for review and analysis of the data recorded up to that point.
- c. **20:10:39:18. Preventive action level not exceeded.** If the results from the cow contact test and 48 24 hour test indicate that the stray voltage does not exceed the preventive action level as defined in SDCL 49-47-1(5), the utility has no further testing or remediation obligations under these rules during the test cycle.
- d. **20:10:39:19. Preventive action level exceeded.** .....If the preventive action level is exceeded, and the portion of the stray current or voltage attributable to an off-farm source exceeds 50 percent of the preventive action level, the utility shall conduct remediation pursuant to SDCL 49-



7-3. Under this condition, the 48-hour recording of the 48-hour test may be reduced to no fewer than 24 hours. (This last sentence could be deleted if a 24-hour testing sequence is adopted.)

- e. **20:10:39:27. Purpose of the cow contact test.** The purpose of the cow contact test is to determine the locations, if any, where stray current or voltage exceeds the preventive action level and to identify the locations at which the cow contact voltage will be recorded in the 48 24-hour test.
  - f. **20:10:39:34. Purpose of the 48 24-hour test.** The purpose of the 48 24-hour test is to determine whether stray current or voltage exceeds the preventive action level at selected locations over a 48 24-hour period, subject to § 20:10:39:19 and 20:10:39:38. The test also demonstrates whether the primary or secondary sides of the system have a specific impact on the recorded current or voltage at specific times of day. The results of the 48 24-hour test may be highly indicative of the presence of stray voltage.
  - g. **20:10:39:35. Data collection for the 48 24-hour test.** .....
  - h. **20:10:39:36. Measurement requirements for the 48 24-hour test.** When conducting the 48 24-hour test, measurements to the earth or concrete surface.....
  - i. **20:10:39:37. Recording the 48 24-hour test data.** All of the data gathered by the recording equipment during the 48 24-hour test, including transient deviations, is downloaded and retained with the records of the investigation.....The identification of the cow contact point and transient deviations are recorded on the 48 24-hour test forms on file with the commission.....
  - j. **20:10:39:38. Reduced recording period for the 48-hour test.** This section of the proposed rules could be struck in its entirety if a 24-hour testing sequence is adopted.
  - k. **20:10:39:44(5).** Cow contact voltage or cow contact current at the same points used in the 48 24-hour test;
  - l. **20:10:39:48. Timing of the load box test.** The load box test is performed at the same time of day as the times of the highest cow contact voltage found in the 48 24-hour test.
  - m. **20:10:39:49(8).** Cow contact voltage or cow contact at the same points used in the 48 24-hour test.
  - n. **20:10:39:54. Data collection for the signature test.** During.....These measurements are taken at the same locations at the dairy where measurements were taken for the purpose of the load box test and 48 24-hour test.....
  - o. **20:10:39:56. Analysis of the data collected during the tests.** The person analyzing the data collected examines the data recorded for the 48 24-hour test.....These values are recorded as Vcc4824 hr, Icc4824 hr, or Vp4824 hr....
2. In a general sense, NorthWestern would like to explore the possibility of creating a Two-Phase approach to the overall testing regime. Phase One testing (a load box test would not be required at this stage) could be used as a preliminary investigative step to determine if the preventive action level has been exceeded. If the preventive action level is exceeded, testing would proceed to Phase Two, which could include a load box test. Not all complaints will warrant the need to do a load box test that can be time intensive as well as expensive to conduct.



3. Overall, NorthWestern believes there will be long-term benefit to having standards in place regarding stray voltage investigations and remediation responsibilities. The rules as currently proposed appear to follow industry guidelines and approaches taken by other states.

NorthWestern looks forward to working the Commission and other interested parties in this proceeding. If there are any questions regarding our comments, please feel free to call me at your convenience.

Sincerely,

**Pamela A. Bonrud**

*Director – Government and Regulatory Affairs*

[Pam.bonrud@northwestern.com](mailto:Pam.bonrud@northwestern.com)

O 605-978-2990

C 605-321-4025