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September 18, 2015

VIA EMAIL: [NDPSC@ND.GOV](mailto:NDPSC@ND.GOV)

**VIA E-FILING**

Mr. Darrell Nitschke  
Executive Secretary  
North Dakota Public Service Commission  
600 E. Boulevard Ave., Dept. 408  
Bismarck, ND 58505-0480

Re: ALLETE Clean Energy through Thunder Spirit Wind, LLC  
Thunder Spirit Wind Project  
Case No. PU-11-601

Dear Mr. Nitschke:

Please find attached ALLETE Clean Energy's weekly construction reports for the week ending **September 18, 2015** in the above-referenced case. Please also note, attached is an update on the OSHA recordable incident that occurred on September 12, 2015.

Yours truly,

David R. Moeller

DRM:sr

Attachments

c: Emmy Baskerville - Houston Engineering ([ebaskerville@houstoneng.com](mailto:ebaskerville@houstoneng.com))  
Jerry Lien - North Dakota Public Service Commission ([jlein@nd.gov](mailto:jlein@nd.gov))  
Dan McCourtney  
Wells McGiffert  
Frank Frederickson  
Tim Sweeney  
John Hollingsworth

AN ALLETE CO

133 PU-11-601 Filed: 9/21/2015 Pages: 5  
Thunder Spirit Wind progress report – week ending  
9-18-2015

Allete, Inc.



## Thunder Spirit Wind Weekly PSC Update

Case #: PU-11-601

Week Ending 09/18/2015

The Thunder Spirit Wind site reviewed the increasing trend of incidents on Sunday and Monday. All crews resumed construction on Tuesday 9/15.

Wanzek's civil crews continued reclaim work around turbine sites and wind turbine string roads. On Wednesday 9/16 crews resumed trenching in the vicinity of the previous week's fiber strike after receiving approval from PSC Staff that construction could resume in the area. They also continued setting padmount transformers and terminating conductor in turbines. The substation crew finished dressing the main power transformer, added oil and started transform pre-energization testing. Substation crews also continued to weld buss bars, and install the ground grid.

Nordex continued deliveries this week and has completed 31 full turbine sites. There were also numerous other nacelles, drivetrains, hubs, blades and tower sections delivered. Wanzek has fully erected 13 turbines, built 18 rotors, and completed 4 mechanical completion inspections.

### Workforce:

ALLETE Clean Energy - 4

Wanzek - 156

Nordex - 18

## **Employee Shocked During VLF Testing Colstrip Electric Inc.**

**Description:** On September 12<sup>th</sup>, 2015 an employee made contact with a medium voltage power line during VLF testing procedures of collection feeder 4. The affected employee was not directly related to testing operations but was helping out and was not fully aware of the steps involved. The employee received a shock as a result of this contact which resulted in a small burn on the palm of their hand and a small burn on their upper forearm. Employee was transported to the hospital where an IV was administered and he was kept overnight for observation only. No serious injuries resulted and he was released the next morning.

### **Timeline of Events:**

7:00 AM – During the stretch and flex meeting, all in attendance were notified of the VLF testing activities for the day. Substation personnel were not present at this meeting.

8:30 AM – 10:30 AM – Collection feeder transformers for feeder 4 were walked down to verify that all switches and breakers were open and all transformers were locked.

9:30 AM – Nordex employee requested to look at breaker and switch for T 42. At this time their LOTO was placed on the transformer.

10:30 AM – VLF testing crew went to the substation to hook up tester for phase verification testing of the circuit. Linemen working on Feeder 3 were instructed to place testing clamps on feeder 4 terminations, using their bucket truck (terminations approx. 25 feet in the air).

10:30 AM -12:30 PM – Crew worked through feeder for transformers and junction boxes to verify phasing was correct.

12:30 PM – Collection foreman called the substation foreman to notify him the VLF test was complete and that the generator could be turned off and the test clamps removed.

12:00 PM – 1:15 PM – Crews took lunch at varying times during this period.

1:15 PM – VLF Testing crew returned to the substation to collect phase testing equipment.

During this time Collection foreman informed terminators working on feeder 3 that they were going to be performing the Hi-Pot (VLF) test next.

1:20 PM – VLF Testing crew left the substation to head for turbine 36 (where testing would be occurring from)

### **Testing Crew:**

1:30 PM – Testing crew met at T 36 to talk through the testing procedure and what would occur.

1:40 PM – VLF (very low frequency) testing started on A phase of feeder 4 from T 36 to the substation. A passing test lasts 30 minutes.

2:10 PM – Testing of A phase of feeder 4 is completed. Tester proceeds to move equipment to B phase.

2:20 PM – VLF testing started on B phase of feeder 4 from T 36 to the substation.

2:49:52 – VLF test trips out with 8 seconds remaining until a passing test is achieved.

2:51 – The decision is made to try the test for 5 more minutes to determine whether it was a true failure.

2:57 – CEI Site supervisor receives a call from the substation lineman foreman that an employee has made contact with one of the collection lines and received a shock.

2:57 – CEI Site supervisor leaves for the substation while remaining testing crew packs up equipment and stands down.

**Substation/ Termination Crew:**

1:15 PM – 2:40 PM – Termination crew continues task of terminating feeder cables for collection feeder 3.

2:42 PM – Substation lineman foreman requests a drill bit from the crews bucket truck, so termination crew returns to the ground to give it to him.

2:48 PM – Crew notices a potential issue with the cables on feeder 4 and decide to go investigate.

2:48 PM – 2:52 PM – While crew is “massaging” cold shrinks at the termination point on the circuit being tested, one of the employees makes contact with the termination on B phase and receives a shock.

2:53 – Other employee returns the crew to the ground and immediately notifies substation lineman foreman.

2:57 – Substation foreman notifies site supervisor of the shock.

3:06 – Site supervisor arrives at the substation to assess the situation. The employee is checked over to verify that he is stable and there are no immediate concerns. Employee is responsive and talking with the remaining crew.

3:40 – General contractor management team is notified that an incident has occurred.

3:45 – The decision is made to take the employee to the hospital to get checked out.

**Contributing Factors:**

- 1) Communication
  - A) Failed to do a Pre-task plan with all parties concerned.
  - B) Failed to inform all substation crews of the test being done as was done at the 7:00 Safety meeting that morning at the laydown yard. Substation crews only attend on Thursdays.
  - C) Failure to have established radio communication with all parties involved.
  - D) Termination crew was not given clear indication that testing would occur from turbine 36, not the substation. Previous testing was performed from the substation.
- 2) Assignment of duties
  - A) Roles were not clearly defined for all individuals involved in the testing procedure.
- 3) Procedural Issues
  - A) Pre Energization/Testing meeting with subcontractor, Wanzek, the owner, and turbine vendor was not performed.
  - B) Lock Out Tag out Procedure
    - Tags were used instead of locks on collection transformer switch. Transformer door was locked.
    - No barricades were placed around substation switch and test affected area.
    - No protective boots were placed over paddle terminations.
  - C) Notification of Start and Finish times.
    - Radio communication was not effective to the substation.

- Acknowledgement of the start of the test by all affected parties did not occur.
  - An all clear was not given at the completion of tasks.
- D) Substation Control – Lack of signage, contact information and prohibited access without permission.

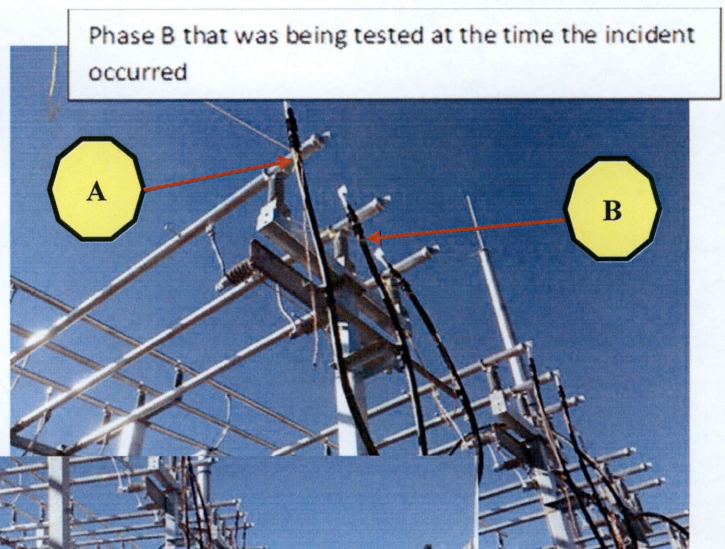
### Corrective Measures Including Accountability:

1. Testing procedures revised to include safety steps and hold points.
2. Pre Energization/ Testing meeting will be held with subcontractors, owner's reps, Wanzek and any other affected parties.
3. Communication with all site personnel, 2 days prior to testing, at morning Stretch.
4. Pre task plan with substation crews and testing crews prior to test.
5. Collection feeder to be cleared before any testing takes place.
6. Barricades and LOTO in place during walk down.
7. Roads guards and substation guard in place.
8. Early notice of testing to facilitate planning for crews while testing.
9. Install good radio communication at the substation.
10. Install substation control measures – signage and contact information for entrance

#### Pictures:



Circuit 4 that was to be tested, circuit 3 that the substation crew were working on



Boom truck the individual was in when the contact occurred.

