

EXHIBIT D

**UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION**

Midcontinent Independent        )  
System Operator                    )       Docket No. ER15-\_\_\_\_  
  )  
  )

**AFFIDAVIT OF STEVEN L. WALSH**

STATE OF MICHIGAN        )  
  ) ss  
COUNTY OF ONTONAGON )

Mr. Steven L. Walsh, being first duly sworn, hereby deposes and says:

1. I have personal knowledge of the facts stated herein, and if called and sworn as a witness, can competently testify to these facts.
2. My business address is 33707 Power Plant Road, White Pine, MI 49971.
3. I am employed by Porcupine Mountain Power Group (“PMPG”), a subsidiary of Prairie Plant Systems, as Chief Executive Officer. PMPG in turn owns White Pine Electric Power, LLC (“WPEP”), which operates the White Pine Electric Power Plant (“WHP”) which includes Unit No. 1 (“White Pine 1”).
4. My responsibilities include operating, maintaining, and otherwise restructuring two power stations, including WHP, as well as a power marketing business and copper refinery, all of which are located in the Upper Peninsula of Michigan. I am the final decision maker on all capital expenditures

made at WHP and thus on White Pine 1, and my oversight responsibilities include maintenance as well as capital repair projects.

5. In 1979, I received a Bachelor's of Science Degree from the United States Naval Academy in General Engineering. I also hold a Master's of Science in Business Administration in Finance from Strayer University, conferred in 1996, and completed the Advanced Management Program at Harvard Business School in 2001.

#### **Problem and Repair Actions**

6. EthosEnergy, a consultant providing services related to an ongoing capital repair project at the site of Unit 1, has determined that White Pine 1's generator has hydrogen leaks, the root cause of which is located on the horizontal joint of the H2 gland (on both the turbine end and exciter ends). Leak detection resulted from EthosEnergy's conducting of a standard test following the major turbine/generator overhaul on White Pine 1. EthosEnergy reported that the leak test on the generator and gas system was conducted using air pressure. The air leak test for White Pine 1 consisted of pressurizing the generator with air to 20 psi. The hydrogen pressure, barometric pressure, and air temperature were then recorded for a 12 hour period and used to calculate the air and hydrogen leakage rate.

7. Based on a review of the original Westinghouse manual for the relevant facilities, the allowable Westinghouse hydrogen leakage rate for White Pine 1 is 67.4 cubic feet per day. The maximum uncontrolled leakage permitted under industry standards (which use international standard DIN VDE 0530) is 635 cubic feet per day. The hydrogen leakage was calculated by EthosEnergy to be 2058 cubic feet per day based on the air leak test conducted on May 28-29. During the air leak testing period, WPEP and EthosEnergy personnel checked the generator hydrogen system for leaks with a soap and water mixture, as well as with an ultrasonic compressed air detector. Air leak tests were conducted on the following dates in 2015: May 10, 18, 23, 24, 28, and 29. During air leak testing, minor leaks were found

around the generator end bell (turbine end), hydrogen dryer, and three manual valves on the bottom of the generator. All of these leaks were fixed. The H2 gland horizontal joint leak was found after the leak location was isolated to the generator itself, and some disassembly of the unit was necessary.

8. EthosEnergy advised WPEP that the leakage is greatest on the turbine end. The reason for hydrogen leaks on both ends is that the H2 gland brackets are distorted by .005"-.007", compromising the metal-to-metal seal between the upper half and lower half brackets. EthosEnergy recommends that the H2 gland brackets (upper & lower halves, both turbine and exciter ends) be rotary surface ground (*i.e.* Blanchard ground) to correct the distortion of the brackets.

9. Repair actions were attempted before EthosEnergy made the final recommendation that the brackets should be ground in an effort to place White Pine 1 back into service as early as possible and at least cost. These attempts were as follows: a) EthosEnergy entered the generator through the upper turbine end manhole and re-torqued the internal bolts on the turbine and exciter ends to 10 percent above specification. This did not eliminate the leak on the turbine end, and minimally improved the leak on the exciter end; b) EthosEnergy disassembled the generator and applied hylomar to the horizontal joints between the H2 gland brackets on the turbine end, the hylomar cured for 24 hours, but this did not eliminate the leak on the turbine end.

10. The H2 gland brackets are located at both ends of the generator, positioned behind the main generator end bells. Each bracket has an upper and lower half. The purpose of these parts is to keep the hydrogen cooling system gas-tight so there is no mixing of hydrogen and air. This mixing is explosive over a wide range of proportions, and presents a danger to personnel and the equipment of White Pine 1 if the unit is operated without repair of the hydrogen leaks. The leaks exceed the maximum allowable uncontrolled leakage rate as specified by Westinghouse and international standards. The leaks increase operating costs by increasing hydrogen usage, and reduce the maximum capacity of White Pine

1 due to the decreased effectiveness of hydrogen cooling system for the unit. The repairs will provide safe and full generator operation.

**Anticipated Timeline and Costs Associated with the Recommended Repairs**

11. Based on discussions with EthosEnergy personnel, repair of the hydrogen leaks requires the following approximate time periods: a) four days to disassemble the White Pine 1 generator and repair H2 gland brackets for shipment; b) two days for shipping to RRP Machine Repairs in Ohio; c) one to two weeks for rotary surface grinding of H2 gland brackets; c) two days for shipping back to White Pine, Michigan; d) four days to reassemble the generator; and e) one day to conduct an air leak test. These periods are based on current availabilities, and could be extended if the direction to proceed is delayed such that White Pine 1 may not be available for summer of 2015.

12. The costs associated with the recommended repairs are estimated, based on consultation with EthosEnergy, to total \$101,600, comprised of a) \$35,000 for labor to disassemble the generator and prepare the H2 gland brackets for shipment; b) \$3,800 for shipping to RRP Machine Repairs located in Ohio; c) \$24,000 to rotary surface grinding the H2 gland brackets; d) \$3,800 for shipping back to White Pine, Michigan; d) \$35,000 for labor to reassemble the generator; and e) *de minimis* additional costs to conduct a follow-up air leak test.

Further affiant sayeth not.

Signature page follows.

SIGNATURE PAGE



Steven L. Walsh

Subscribed to and sworn to before me this 5<sup>th</sup> day of June, 2015.



Notary Public

Marjorie L Axley  
Notary Public - State of Michigan  
County of Ontonagon  
My Commission Expires 4/12/16

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