

**BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO**

LINDA KIRBY

Complainant,

v.

OHIO EDISON COMPANY,

Respondent.

)
)
)
)
)
)
)
)
)
)
)

Case No. 18-0691-EL-CSS

**DIRECT TESTIMONY OF MICHAEL HINTZ ON BEHALF OF
OHIO EDISON COMPANY**

INTRODUCTION

Q. PLEASE INTRODUCE YOURSELF.

A. My name is Michael Hintz and I am employed with Ohio Edison Company (“Ohio Edison” or the “Company”) as an Engineer V in the Eastern Regional Engineering Services department. Within my department, I work in the Reliability Group. The Reliability Group has a variety of roles, including investigation and resolution of customer inquiries related to voltage.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND WORK EXPERIENCE.

A. I received a Bachelor of Engineering degree from Youngstown State University in 1986. I am a licensed Professional Engineer in the State of Ohio. I received this designation in 1993.

Q. HOW LONG HAVE YOU WORKED FOR OHIO EDISON?

A. I have been employed by Ohio Edison continuously since 1986.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE COMMISSION?

A. No, I have not.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THE PRESENT CASE?

A. My testimony addresses several aspects of the Complaint pertaining to the electric service provided by Ohio Edison to Linda Kirby (“Ms. Kirby” or the “Customer”) at 2222 Cooks Lane, N. Bloomfield, Ohio 44450 (the “Property”). Specifically, my testimony addresses the circumstances surrounding the testing for and resolution of the stray voltage issue at the Property requested by Ms. Kirby, as well as other issues related to Ms. Kirby’s stray voltage complaint.

1 **Q. WHAT DID YOU DO TO PREPARE FOR YOUR TESTIMONY IN THIS**
2 **PROCEEDING?**

3 A. I reviewed the Complaint submitted by Ms. Kirby. I also reviewed business records related
4 to this case maintained and preserved within FirstEnergy's SAP and CREWS Systems and
5 my own personal notes. These records, all of which were kept in the course of regularly
6 conducted business activity, include customer contact notes and account summary. It is the
7 regular practice of FirstEnergy and Ohio Edison to make and preserve these business
8 records, and I rely upon such documents in accordance with my duties at Ohio Edison. I
9 also personally performed the follow-up investigation of the stray voltage complaint on
10 October 31, 2017. I also spoke with Ms. Kirby's son, Kevin, over the phone on November
11 13, 2017, and personally oversaw the installation of the neutral isolator at the Ohio Edison
12 transformer located on Ms. Kirby's Property on November 13, 2017, after stray voltage
13 was witnessed by an Ohio Edison troubleman on November 9, 2017. I also spoke with Ms.
14 Kirby on February 13, 2018. I therefore have personal knowledge of this matter.

15 **STRAY VOLTAGE**

16 **Q. ARE YOU FAMILIAR WITH THE CONCEPT OF STRAY VOLTAGE?**

17 A. Yes. Stray voltage is often referred to in the electric utility industry as "neutral-to-earth
18 voltage" ("NEV"). I will refer to stray voltage as NEV throughout my testimony.

19 **Q. COULD YOU PLEASE BRIEFLY EXPLAIN WHAT NEV IS?**

20 A. Yes. NEV is the voltage differential between a neutral wire and the earth. At certain voltage
21 levels, NEV may cause a sensation for an individual or animal completing the path between
22 a conductive element in the neutral system and the earth. NEV is a normal, natural

1 condition which is common to every grounded power distribution system in the United
2 States.

3 **Q. COULD YOU PLEASE EXPLAIN WHAT CAUSES NEV?**

4 A. Yes. To understand what causes stray voltage, you must first understand the basic physical
5 structure and function of a grounded wye electrical distribution system, which is the type
6 of distribution system serving Ms. Kirby's Property, as well as the majority of electric users
7 in the United States. A grounded wye electrical distribution system has two kinds of wires:
8 a "hot wire," on which electricity travels from a substation to the user, and a "neutral wire,"
9 on which electricity returns to the substation. These are called the "primary hot wire" and
10 "primary neutral." The primary neutral is "grounded" to the earth, as are all components of
11 the grounded neutral network. Each part of the grounded neutral network, including
12 conductors, connections, the earth, and the contact between the ground rods and the earth,
13 has some resistance to the flow of electrical current. Due to this resistance, whenever there
14 is a current in the neutral system, a voltage differential—or NEV—will naturally exist
15 between the primary neutral, which in this case carries the return electrical current back to
16 an Ohio Edison substation, and the earth. Again, at certain voltage levels, NEV may cause
17 a sensation for an individual or animal completing the path between a conductive element
18 in the neutral system and the earth.

19 **Q. DOES OHIO EDISON TAKE ANY PREEMPTIVE MEASURES TO AVOID THE**
20 **PRESENCE OF NEV IN ITS ELECTRIC DISTRIBUTION SYSTEM?**

21 A. NEV is a naturally occurring phenomenon inherent to grounded wye distribution systems.
22 As such, it is not something that can be prevented. And, in most cases, the low resistance
23 of neutral-to-earth return paths keep NEV voltages to relatively small voltage differentials

1 that have no adverse impact on people or property. Ohio Edison constructs, maintains and
2 operates its distribution system in accordance with the National Electric Safety Code and
3 regulations of the Public Utilities Commission of Ohio. Pursuant to Ohio Edison's internal
4 company policies and procedures, the company invests substantial amounts of money each
5 year to maintain and improve the reliability of the distribution system. The company and
6 its employees work continuously to anticipate and eliminate potential problems that may
7 affect the reliability of the distribution system. But Ohio Edison also relies on feedback
8 from customers when customers encounter evidence of or suspect elevated NEV. It is Ohio
9 Edison's policy to promptly investigate NEV complaints from customers, and to make
10 repairs when there is confirmed evidence of elevated NEV on Ohio Edison's system. NEV
11 can also become elevated from faulty customer wiring or equipment.

12 **Q. WHAT IS THE VOLTAGE LEVEL OF NEV?**

13 A. Voltage levels in NEV vary depending on a number of factors.

14 **Q. WHAT FACTORS IMPACT THE AMOUNT OF VOLTAGE IN NEV?**

15 A. Factors that impact NEV voltage levels can include the amount and type of a utility's load,
16 grounding resistances, soil type, distance from a substation, size of wire, and issues in the
17 customer's own wiring system – i.e., on the customer-owned side of the customer's electric
18 system.

19 **Q. DOES THE STATE OF OHIO HAVE STANDARDS IN PLACE THAT**
20 **ESTABLISH ACCEPTABLE LEVELS OF NEV?**

21 A. No.

22 **Q. DOES OHIO EDISON HAVE STANDARDS IN PLACE THAT ESTABLISH**
23 **ACCEPTABLE LEVELS OF NEV?**

1 A. Yes.

2 **Q. WHAT ARE THOSE LEVELS?**

3 A. Ohio Edison uses a NEV level of 2.0 Volts at the point of contact for livestock exposure
4 as the level at which a NEV case should be further investigated and appropriate mitigative
5 steps taken. Ohio Edison uses a NEV level of 4.0 Volts at the point of contact at a residence
6 as the level at which a NEV case should be further investigated and appropriate mitigative
7 steps taken.

8 **Q. WHY IS THE NEV THRESHOLD LOWER FOR LIVESTOCK THAN FOR**
9 **RESIDENCES?**

10 A. Due to their lower body resistance and typically wet surroundings, livestock, and especially
11 dairy cows, perceive voltages at lower levels than humans do.

12 **Q. HOW IS NEV TYPICALLY PERCEIVED BY LIVESTOCK SUCH AS COWS?**

13 A. A cow may feel NEV when the cow has contact with an energized surface, such as a metal
14 component of an electric milking parlor, and the ground.

15 **Q. IS THERE ANYTHING THAT CUSTOMERS CAN DO TO MITIGATE NEV IN**
16 **THEIR OWN WIRING SYSTEMS?**

17 A. Yes. Customers can minimize NEV in their own wiring systems by using proper bonding
18 and grounding techniques in accordance with the National Electric Code. At dairy farms,
19 this includes the installation of properly bonded equipotential grids in milking parlors.
20 However, it is important to remember that NEV is a natural result of serving load from a
21 multi-grounded electrical system, and therefore cannot be entirely eliminated.

22 **Q. WHAT IS AN EQUIPOTENTIAL GRID?**

1 A. An equipotential grid is a wire-mesh grid system embedded in the concrete floor and
2 interconnected with all metallic/conductive structures, feeders, water troughs, and
3 structures within a given area. Equipotential grids are most typically installed in milking
4 parlors, drinking areas, and other locations where cattle are exposed to metallic or
5 conductive structures. If an entire area (such as a milking parlor) and the equipment in that
6 area is properly connected, constructed and installed within the equipotential grid, then
7 cattle will not be subjected to NEV in that area.

8 **Q. CAN EQUIPOTENTIAL GRIDS FAIL?**

9 A. Yes. If an equipotential grid is not properly bonded or grounded, or if the bonding or
10 grounding corrodes over time, the equipotential grid will not function as intended. Further,
11 NEV may exist where flooring that does not have an equipotential grid abuts flooring that
12 does have an equipotential grid, as the electrical potential may differ between these two
13 areas of floor.

14 **Q. IF NEV IS DETECTED IN A MILKING PARLOR WITH AN EQUIPOTENTIAL**
15 **GRID, COULD THAT INDICATE THAT THE EQUIPOTENTIAL GRID HAS**
16 **FAILED OR WAS NOT PROPERLY INSTALLED?**

17 A. Yes. In my experience, if an equipotential grid is properly bonded, grounded and installed,
18 then elevated NEV should not exist in the milking parlor.

19 **Q. ARE CUSTOMERS RESPONSIBLE FOR THE MAINTENANCE AND REPAIR**
20 **OF THEIR OWN INTERNAL ELECTRICAL FACILITIES?**

21 A. Yes, customers are responsible for repairing and replacing their own defective equipment,
22 as well as deficiencies in their internal electrical facilities, such as wiring, connections, and

1 equipotential grids. Ohio Edison does not take responsibility for repairs or maintenance of
2 customer-owned equipment.

3 **Q. DOES OHIO EDISON EVER TAKE STEPS TO MITIGATE ELEVATED NEV?**

4 A. Yes, Ohio Edison will take steps to mitigate elevated NEV once elevated NEV has been
5 reported to Ohio Edison and confirmed by Ohio Edison.

6 **Q. WHAT STEPS WILL OHIO EDISON TAKE TO MITIGATE NEV IN THOSE**
7 **CIRCUMSTANCES?**

8 A. Ohio Edison will start by conducting a site investigation to determine whether the course
9 is external or internal to the customer's equipment. If the source of the elevated NEV is
10 found to be external and cannot be reduced to Ohio Edison's 2.0 Volt or 4.0 Volt standard
11 within a reasonable time frame, Ohio Edison will install a neutral isolator at the transformer
12 serving the customer.

13 **Q. HOW DOES A NEUTRAL ISOLATOR MITIGATE NEV?**

14 A. A neutral isolator installed in combination with the physical separation of the transformer
15 service neutral from the distribution system neutral interrupts and isolates the path of the
16 elevated NEV between the distribution system and the service side of the transformer.

17 **LINDA KIRBY'S COMPLAINT**

18 **Q. TURNING NOW TO THE COMPLAINT IN THIS MATTER. WHEN WAS OHIO**
19 **EDISON FIRST MADE AWARE OF A POSSIBLE NEV ISSUE AT MS. KIRBY'S**
20 **PROPERTY?**

21 A. Ms. Kirby initially contacted FirstEnergy call center by telephone regarding a potential
22 NEV issue in the milking parlor in the barn on her Property on Monday, October 30, 2017.
23 She indicated during the call that the barn had stray voltage between 1-3.5 Volts.

1 **Q. HOW DID OHIO EDISON RESPOND TO MS. KIRBY’S CONCERN?**

2 A. Ohio Edison dispatched a troubleman to Ms. Kirby’s Property on October 30, 2017. A
3 follow-up order was generated in the FirstEnergy CREWS system following the October
4 30, 2017 troubleman visit to Ms. Kirby’s Property. As a result of this follow-up order, I
5 contacted Ms. Kirby by telephone and then went to Ms. Kirby’s Property on Tuesday,
6 October 31, 2017, to perform an on-site investigation.

7 **Q. WHAT HAPPENED DURING YOUR OCTOBER 31, 2017 INVESTIGATION?**

8 A. I spoke with Ms. Kirby and she told me that a milking parlor was installed in the barn on
9 Ms. Kirby’s Property in the early 2000s, and that the milking parlor has an equipotential
10 grid in it. Ms. Kirby stated that they had been experiencing issues with NEV at the Property
11 for approximately one month.

12 **Q. DID MS. KIRBY OR HER SON TELL YOU WHY THEY WAITED A MONTH TO**
13 **NOTIFY OHIO EDISON OF THIS ISSUE?**

14 A. No.

15 **Q. WHAT HAPPENED NEXT?**

16 A. During my October 31, 2017 site visit, I tested for NEV using a voltmeter. I took a reading
17 at the pad-mounted transformer on the Property and witnessed 0.25 Volts or less. I also
18 took multiple readings in the milking parlor and at water bowls in the barn on the Property.
19 There, I observed contact voltage measurements less than 0.1 Volts, both with the
20 equipment in the milking parlor turned on and turned off.

21 **Q. DID YOU OBSERVE ANY ELEVATED NEV AT THE PROPERTY ON OCTOBER**
22 **31, 2017?**

1 A. No. The highest level I observed was 0.25 Volts at the Ohio Edison-owned pad mounted
2 transformer on Ms. Kirby's Property.

3 **Q. DID YOU OBSERVE ANY ELEVATED NEV IN THE MILKING PARLOR AT**
4 **THE PROPERTY ON OCTOBER 31, 2017?**

5 A. No.

6 **Q. DID YOU TAKE ANY OTHER ACTION AT THE PROPERTY DURING YOUR**
7 **OCTOBER 31, 2017 VISIT?**

8 A. Yes. I explained to Ms. Kirby and her son, Kevin, that the low voltage levels I observed
9 did not justify the installation of a neutral isolator at that time. I further explained that
10 neutral isolators are not typically considered until NEV levels above 1 Volt are consistently
11 observed. Kevin told me that the NEV comes and goes on the Property. Keven added that
12 he was expecting Hill's Supply to investigate further to determine if their equipment was
13 the cause. I provided a business card to Kevin and told him to call me if they had any
14 further evidence of elevated NEV.

15 **Q. DID MS. KIRBY OR HER SON CALL OHIO EDISON AGAIN?**

16 A. Yes, Ms. Kirby's son, Kevin, called my office telephone number on Wednesday,
17 November 8, 2017. He left a voicemail reporting that a technician from Precision Ag
18 Automation was measuring 1.1 Volts from an isolated ground to the Ohio Edison system.
19 Kevin also called into the main FirstEnergy Call Center on Thursday, November 9, 2017.
20 He reported that he was getting 1-3.5 Volts of NEV on concrete in the milking parlor at the
21 Property.

22 **Q. WHAT HAPPENED NEXT?**

1 A. As a result of Kevin's November 9, 2017 call to the FirstEnergy Call Center, Ohio Edison
2 dispatched a troubleman to the Property the same day. The troubleman confirmed elevated
3 NEV of 5.5 Volts at the Ohio Edison pad-mounted transformer. As a result, the troubleman
4 created a follow-up order requesting installation of a neutral isolator

5 **Q. DID THE TROUBLEMAN DETECT ELEVATED NEV IN THE MILKING**
6 **PARLOR ON HIS NOVEMBER 9, 2017 VISIT?**

7 A. I do not know. The only information I have is that the Ohio Edison troubleman detected
8 elevated NEV of 5.5 Volts from the transformer case and ground to earth 6 feet away.

9 **Q. DID MS. KIRBY OR HER SON CALL OHIO EDISON AGAIN?**

10 A. Yes. Ms. Kirby called the FirstEnergy Call Center again on the morning of Monday,
11 November 13, 2017, and again reported NEV at the Property. Ms. Kirby's son, Kevin,
12 called me shortly thereafter.

13 **Q. DID ANYONE FROM OHIO EDISON'S ENGINEERING DEPARTMENT**
14 **CONTACT MS. KIRBY OR HER SON BETWEEN HER SON'S CALL TO YOUR**
15 **WORK LINE ON November 8, 2017, AND MS. KIRBY'S CALL TO THE**
16 **FIRSTENERGY CALL CENTER THE MORNING OF NOVEMBER 13, 2017?**

17 A. No.

18 **Q. WHY IS THAT?**

19 A. There were major storms in Northeast Ohio beginning on Sunday, November 5, 2017.
20 During the week that followed, Ohio Edison engineering personnel, including me, were
21 assigned to hazard response and damage assessment patrol duties and were therefore not
22 in our offices. I was not aware of Kevin's or Ms. Kirby's Wednesday, November 8 and

1 Thursday, November 9, 2017 calls until I returned to my office on Monday, November 13,
2 2017.

3 **Q. DID OHIO EDISON TAKE ACTION ON NOVEMBER 13, 2017?**

4 A. Yes.

5 **Q. WHAT ACTION DID OHIO EDISON TAKE ON NOVEMBER 13, 2017?**

6 A. After I received Kevin's telephone call on the morning of November 13, 2017, I made
7 arrangements to have an Ohio Edison line crew meet me at the Property to install a neutral
8 isolator that same day.

9 **Q. WHAT DID YOU DO WHEN YOU ARRIVED AT MS. KIRBY'S PROPERTY?**

10 A. The elevated NEV that the Ohio Edison troubleman detected on November 9, 2017,
11 provided sufficient justification for me to install a neutral isolator at the pad-mounted
12 transformer, so I oversaw the installation by the Ohio Edison line crew. The neutral isolator
13 installation was completed during my visit on November 13, 2017.

14 **Q. DID INSTALLING THE NEUTRAL ISOLATOR RESOLVE THE NEV ISSUE?**

15 A. I do not know if the isolation at the transformer resolved the issue as I did not personally
16 witness any elevated levels on the property. I used a voltmeter to check the NEV levels at
17 the isolator to confirm that isolation at the transformer was achieved that day; therefore,
18 eliminating the direct path of potential off-farm sources of elevated NEV from contacting
19 the customer's service neutral at the transformer.

20 **Q. IN YOUR OPINION, DID OHIO EDISON TAKE REASONABLE STEPS TO**
21 **INVESTIGATE AND RESOLVE THE NEV ISSUE AT MS. KIRBY'S**
22 **PROPERTY?**

1 A. Yes. Ohio Edison treats voltage complaints, including NEV complaints, with high priority
2 due to the potential for injury and/or property loss. Ohio Edison investigated Ms. Kirby's
3 complaint within 24 hours of her first call on October 30, 2017. Ohio Edison did not detect
4 elevated NEV at that time, but encouraged Ms. Kirby and her son, Kevin, to contact Ohio
5 Edison in the event of future problems. Kevin did that on Wednesday, November 8, 2017.
6 Ohio Edison again dispatched a troubleman within 24 hours of that call, on Thursday,
7 November 9, 2017, and the troubleman confirmed elevated NEV at the Ohio Edison pad-
8 mounted transformer on Ms. Kirby's Property. Ohio Edison's line department installed a
9 neutral isolator to resolve the NEV issue two business days later, on Monday, November
10 13, 2017. In my professional experience, this is reasonable, fast service that reflects the
11 high priority with which Ohio Edison treats NEV complaints, but it is important to note
12 that a consistent level of elevated NEV was never established which is not common.

13 **Q. DID OHIO EDISON CONTACT MS. KIRBY AFTER THE ISOLATOR WAS**
14 **INSTALLED ON NOVEMBER 13, 2017?**

15 A. Yes.

16 **Q. WHAT WAS THE NATURE OF THAT CONTACT?**

17 A. I contacted Ms. Kirby on February 13, 2018, in response to a PUCO inquiry. She told me
18 that her milking operation was still experiencing issues, and that her cows had mastitis. She
19 said that she recently had to transport several cows off of her farm. She said she had no
20 present concerns with Ohio Edison's service, and she made no complaints regarding NEV
21 during the call. I provided her with options to begin the claims process with Ohio Edison.

22 **Q. IN YOUR PROFESSIONAL EXPERIENCE, DOES INSTALLING A NEUTRAL**
23 **ISOLATOR TYPICALLY RESOLVE ELEVATED NEV?**

1 A. Yes, if the elevated NEV is coming from the utility's distribution system, as opposed to
2 other sources such as the customer's wiring or equipment.

3 **Q. WAS THE NEUTRAL ISOLATOR INSTALLED TO ISOLATE ANY POTENTIAL**
4 **ELEVATED NEV FROM OHIO EDISON'S DISTRIBUTION SYSTEM?**

5 A. Yes.

6 **Q. WAS THE SOURCE OF THE NEV THAT MS. KIRBY CLAIMS CAUSED HARM**
7 **TO HER LIVESTOCK LOCATED ON THE OHIO EDISON-OWNED SIDE OF**
8 **MS. KIRBY'S ELECTRICAL SYSTEM?**

9 A. I do not know. All I know is that elevated NEV was witnessed by an Ohio Edison
10 troubleman at an Ohio Edison-owned pad-mounted transformer on Ms. Kirby's Property
11 and that on behalf of Ohio Edison I promptly installed a neutral isolator to isolate any
12 potential elevated levels of off-farm NEV from contacting the customer's service neutral
13 through the pad-mounted transformer.

14 **Q. BASED ON YOUR PROFESSIONAL EXPERIENCE, COULD A PROBLEM ON**
15 **THE CUSTOMER-OWNED SIDE OF MS. KIRBY'S ELECTRICAL SYSTEM**
16 **HAVE CAUSED THE HARM TO MS. KIRBY'S LIVESTOCK THAT MS. KIRBY**
17 **CLAIMS?**

18 A. Yes. The source of the elevated NEV reported was never identified so the possibility that
19 a problem on the customer-owned side of Ms. Kirby's electrical system or some other
20 unrelated issue cannot be ruled out. The only elevated NEV that Ohio Edison observed was
21 just one time at the transformer and based on that observance, Ohio Edison promptly
22 installed a neutral isolator. After the neutral isolator was installed, Ohio Edison did not

1 detect any further elevated NEV. Moreover, Ohio Edison never detected elevated NEV in
2 the milking parlor at the Property.

3 **Q. HAS MS. KIRBY COMPLAINED TO OHIO EDISON REGARDING ELEVATED**
4 **NEV SINCE FEBRUARY 2018?**

5 A. Yes. On June 15, 2020, either Ms. Kirby or her son Kevin contacted Ohio Edison and left
6 a voicemail on my office line reporting that their cows' cell counts were elevated and the
7 cows were "getting edgy again". They noted that their ground rod reading and our
8 transformer reading were the same. Kevin also contacted the FirstEnergy Call Center the
9 same day. I returned Kevin's call the morning of June 16, 2020 and confirmed to him that
10 later that morning Ohio Edison would replace the neutral isolator on their property that was
11 installed on November 13, 2017.

12 **Q. HAS THERE BEEN ANY OTHER COMMUNICATION REGARDING THE**
13 **CUSTOMER'S COMPLAINT IN JUNE 2020?**

14 A. Yes. Later in the morning on June 16, 2020, after Ohio Edison replaced the neutral isolator
15 on Ms. Kirby's property, Ms. Kirby's son called and stated that he was measuring
16 approximately 0.25 Volt on both secondary and primary grounds. After learning of this, I
17 decided to make a site visit later that afternoon to verify that the newly replaced neutral
18 isolator was working properly. During my June 16, 2020 site visit, I tested for NEV using
19 a voltmeter. I took a reading at the pad-mounted transformer on the Property, and got a
20 reading of 0.25 Volts under no load, and a reading of 1.0 Volts with load. I then conducted
21 a similar check with Mr. Kirby's son's voltmeter and I discovered that he was using his
22 meter in error by taking "DC" readings instead of "AC" readings. I proceeded to
23 demonstrate to him how to take proper readings in the future.

1 **Q. HAS OHIO EDISON RECEIVED ANY OTHER COMPLAINTS ABOUT NEV AT**
2 **MS. KIRBY'S PROPERTY?**

3 A. To my knowledge, no.

4 **Q. IS IT POSSIBLE THAT ALL OF THE TROUBLE CALLS MS. KIRBY AND HER**
5 **SON MADE TO OHIO EDISON COULD HAVE BEEN AS A RESULT OF THE**
6 **IMPROPER READING OF THE VOLTMETER?**

7 A. It is possible.

8 **Q. IF NEV FROM OHIO EDISON'S SYSTEM WAS NOT THE CAUSE OF THE**
9 **HARM MS. KIRBY IS ALLEGING TO HER COWS, THEN WHAT IS THE**
10 **CAUSE?**

11 A. I do not know. I have never experienced a case with so little evidence of consistent elevated
12 NEV resulting in such harm. The customer claimed to still being having issues following
13 the isolator installation and my experience has been that when elevated sources were
14 determined to be entering through the utility connection, the installation of a neutral
15 isolator has rectified the problem. If the customer is being advised that the cause is elevated
16 NEV, I would then conclude that the source of the elevated NEV is on the farm and
17 therefore customers are responsible for identifying, repairing, and replacing their own
18 defective equipment, as well as deficiencies in their internal electrical facilities, such as
19 wiring and connections. Ohio Edison does not take responsibility for investigation, repairs
20 or maintenance of wiring, appliances, or other equipment in a customer's property after the
21 Ohio Edison meter.

22 **CONCLUSION**

23 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

1 A. Yes, however, I reserve my right to supplement my testimony.

CERTIFICATE OF SERVICE

I hereby certify that a true and accurate copy of the forgoing Direct Testimony of Michael Hintz on Behalf Ohio Edison Company was filed electronically through the Docketing Information System of the Public Utilities Commission of Ohio on this 19th day of July 2021. The PUCO's e-filing system will electronically serve notice of the filing of this document on counsel for all parties.

Brian M. Garvine
Law Office of Brian M. Garvine
5 E. Long Street, Suite 1100
Columbus, Oh 43215
Attorney for Complainant

/s/ John W. Breig, Jr.

John W. Breig, Jr. (0096767)
One of the Attorneys for Ohio Edison Company

This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

7/19/2021 12:12:53 PM

in

Case No(s). 18-0691-EL-CSS

Summary: Testimony Direct Testimony of Michael Hintz electronically filed by Mr. John W Breig on behalf of Ohio Edison Company