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COMPLAINT OF CR PERMIAN	§	
PROCESSING, LLC F/K/A	§	**BEFORE THE STATE OFFICE OF**
CAPROCK PROCESSING, LLC	§	**ADMINISTRATIVE HEARINGS**
AGAINST ONCOR ELECTRIC	§	
DELIVERY COMPANY LLC	§	

DIRECT TESTIMONY

OF

MATT WALL

ON BEHALF OF

CLAIMANT CR PERMIAN PROCESSING, LLC
F/K/A CAPROCK PROCESSING, LLC
("CAPROCK")

DECEMBER 2, 2022

CAPROCK
DIRECT TESTIMONY OF MATT WALL
DOCKET NO. 52205

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I. INTRODUCTION AND PURPOSE OF TESTIMONY

Q1. PLEASE STATE YOUR NAME, POSITION, AND BUSINESS ADDRESS.

A. My name is Matt Wall. I am Chief Operating Officer ("COO") of Kinetik Holdings, Inc. ("Kinetik"), which is an affiliate of CR Permian Processing, LLC f/k/a Caprock Processing, LLC ("Caprock"). My business address is 303 Veterans Airpark Lane, Suite 2000, Midland, Texas 79705.

Q2. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCEEDING?

A. I am submitting this Direct Testimony to the Public Utility Commission of Texas ("Commission") on behalf of Caprock. Caprock owns and operates a gas processing plant near Pecos, Texas known as the Pecos Bend Gas Processing Plant ("Plant"). It is part of a family of entities affiliated with Kinetik, which is a midstream operator in the Delaware Basin that provides gathering, compression, processing, and transportation and water management services. Kinetik recently formed through the merger of Altus Midstream Company and BCP Raptor Holdco LP, which is the former parent company of EagleClaw Midstream ("EagleClaw"). EagleClaw acquired Caprock and the Plant in November 2018. For ease of reference, in this testimony, I may use the term "Caprock" to refer individually and collectively to Caprock and individuals who may have been employed by EagleClaw and/or Kinetik who worked on behalf or for the benefit of Caprock.

Q3. WHAT ARE YOUR CURRENT DUTIES?

A. As COO, I oversee the following groups at Kinetik: operations, engineering and capital projects, measurement services, gas control, and environmental health and safety. The most relevant of these groups to this case are operations, which is generally responsible for operating our gas processing plants and other facilities, and engineering and capital projects, which is generally responsible for new construction projects, as well as maintenance and construction relating to existing facilities.

Q4. PLEASE BRIEFLY DESCRIBE YOUR EDUCATIONAL AND PROFESSIONAL BACKGROUND.

A. In 2005, I graduated with a Bachelor of Science degree in Chemical Engineering from Texas Tech University. After graduating, I spent my professional career focused on midstream gas gathering/processing design and commissioning, as well as on operational support engineering. First, I worked for about a year-and-a-half after graduating for Schlumberger, an upstream oil-and-gas company, doing engineering work. Second, I next worked for about five years at Southern Union, a midstream company, performing design engineering and project management for expansion and operational projects. Third, I next worked for about two years at BCCK Engineering, a company that engineers, designs, fabricates, manufactures, and constructs gas processing and treating technologies, where I was responsible for process design and commissioning. Fourth, in or around 2012, I went to work for Aka Energy doing engineering work in the midstream oil-and-gas industry. In or around 2014, I was promoted to Manager of Engineering at Aka Engineering, where I remained until 2017.

In 2017, I joined EagleClaw as Vice President of Operations. In mid-2019, I was promoted to COO at EagleClaw. Following the formation of Kinetik through the merger of EagleClaw and Altrus Midstream, I was named COO of Kinetik.

Q5. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?

A. In general, I am testifying as a corporate representative for Caprock in order to provide an overview of the case as well as foundation for the direct testimonies of fact and expert witnesses Caprock is submitting. The topics my testimony covers generally include an introduction of the testimony of other witnesses filed in support of Caprock, an overview of the Plant and its electrical systems, Caprock's request from and agreements with Oncor to provide delivery services to the Plant, an overview of the June 4, 2019 incident in this case (the "Incident"), the electrical equipment damaged as a result of the Incident, the good working condition of that equipment prior to the Incident, Caprock's response to the Incident and efforts to repair or replace that damaged equipment and the costs associated with those efforts, the protections against electrical incidents on the damaged electrical equipment and how those protections complied with any applicable codes and standards, and Caprock's positions on certain issues to be decided in this case.[1]

[1] Caprock's positions on these issues stated herein are subject to and without waiver of Caprock's objections to the Commission's jurisdiction as stated in Caprock's motion to dismiss and other filings in this case.

Q6. PLEASE DISCUSS THE ROLES OF THE OTHER WITNESSES PROVIDING DIRECT TESTIMONY IN SUPPORT OF CAPROCK'S CLAIMS.

A. The following is a brief summary of the witnesses and their respective testimony that Caprock is offering among its direct testimony:

- **Terry "Brent" Duke** – Mr. Duke is a Caprock employee who works as an I&E technician. He was working at the Plant on the night of the Incident, and he witnessed the events that occurred prior to, during, and after the Incident. The general purpose of his direct testimony is to provide his eyewitness account from the night of the Incident.

- **James Dickens, PhD, P.E.** – Dr. Dickens is an electrical engineering expert retained by Caprock in this case. The general purpose of his direct testimony is to offer opinions, analysis, and evidence regarding the nature of Caprock's damages, the cause of Caprock's damages, Oncor's and Primoris' responsibility for Caprock's damages, Oncor's violations of certain authorities/standards, and Caprock's power protections and compliance with standards concerning the same.

- **Morris Mach** – Mr. Mach is an expert in electrical linemen practices and standards retained by Caprock in this case. The general purpose of his direct testimony is to testify regarding, among other things, the standards and practices concerning the electrical linemen work that Primoris was performing on Caprock's powerlines at the time of the Incident, Primoris' failure to comply with those standards, and the lack of qualifications, experience, and training of personnel performing lineman work around the time of the Incident.

- **Blake Smedley (via deposition)** – Mr. Smedley was an electrical lineman who was employed by Primoris at the time of the Incident. He was the foreman in charge of the crew responsible for the reconductor project on Oncor's powerlines at the time of the Incident. He also admitted installing the mechanical jumper that detached during the Incident. His direct testimony (via deposition) generally concerns: his and his crew's lack of experience and qualifications, the work performed by his crew leading up to the Incident, and his personal knowledge regarding the jumper that detached on the night of the Incident.

- **Lucas Silva & Cody Johnson (each via deposition)** – Mr. Silva and Mr. Johnson were electrical linemen who were employed by Primoris at the time of the Incident. They were both part of the linemen crew, led by Blake Smedley, who worked on the reconductor project at the Plant. Their direct testimonies (via deposition) generally concern: their limited experience at the time of the Incident, the work performed leading up to the Incident, and their personal knowledge regarding the jumper that detached on the night of the Incident.

- **Zach Hughes as Corporate Representative of Oncor (via deposition)** – Mr. Hughes is an employee of Oncor who testified via deposition as a corporate representative of Oncor on certain topics. His direct testimony (via deposition) primarily concerns Oncor meter data that Dr. Dickens relies upon in his testimony.

- **Cliff Snell as Corporate Representative of Oncor (via deposition)** – Mr. Snell is an employee of Oncor who testified via deposition as a corporate representative of Oncor on certain topics. His direct testimony (via deposition) generally concerns the facility extension agreements between Oncor and Caprock, work performed by Oncor and Primoris in connection with those agreements, and the load that Oncor told Caprock the Plant could pull at the time of the Incident.

- **Cade Winters as Corporate Representative of Oncor (via deposition)** – Mr. Winters is an employee of Oncor who testified via deposition as a corporate representative of Oncor on certain topics. His direct testimony (via deposition) generally concerns Oncor's system, transformers, and other equipment around the Plant at the time of the Incident.

Q7. DO YOU SPONSOR ANY EXHIBITS?

A. Yes, I sponsor the exhibit listed in the Table of Contents to my testimony.

II. OVERVIEW OF THE PLANT AND ITS ELECTRICAL SYSTEMS

Q8. DESCRIBE THE LAYOUT OF THE PLANT AT THE TIME OF THE JUNE 2019 INCIDENT AND THE TIMELINE OF ITS CONSTRUCTION?

A. The Plant processes raw natural gas received from Caprock's customers, who are upstream oil-and-gas producers. The Plant removes impurities and other contaminants from the raw gas, extracts natural gas liquids ("NGLs") such as ethane and propane, and produces the residue gas and NGLs at its tailpipe, where they are transported through a pipeline and marketed for sale.

At the time of the Incident, the Plant had four gas processing trains in operation, known as Trains 1, 2, 3, and 4. The general layout is reflected in Figure 1, which I will discuss further below.

Train 1 does not process gas. Instead, its primary function is to intake low-pressure gas that the Plant receives, compress that gas, and re-deliver that compressed gas to Trains 2, 3, and 4, where the compressed gas is processed.

Trains 2, 3, and 4 each process gas. Each of these trains receives raw natural gas at their respective inlets and then processes that gas with their own separate facilities and equipment. So, for example, the facilities and equipment at Train 2 receives and processes gas received at the inlet of Train 2, but not any of the gas received at the inlet of Trains 3 and 4, which each have their own separate processing facilities and equipment. Train 2 can process approximately 140 million cubic square feet of gas per day ("MMCFD"), and Trains 3 and 4 can each process approximately 200 MMCFD, bringing the Plant's total processing capacity to 540 MMCFD.

Q9. TO BETTER UNDERSTAND THE LAYOUT OF THE PLANT, PLEASE DESCRIBE EXHIBIT 1 AND FIGURES 1, 2, AND 3 BELOW?

A. Exhibit 1 contains overhead images of the Plant. Page 1 of Exhibit 1 is an ariel photo of the Plant that accurately reflects the Plant prior to the Incident, but before construction on Train 4 was completed. The exact date of the photo is unknown, but it is likely between November 2018 and March 2019. Page 2 is a Google Map of the Plant from 2021 that accurately reflects the layout of the Plant at the time of the Incident.

Page 3 of Exhibit 1, which is reflected in Figure 1 below, is a zoomed-in image of the map depicted on Page 2 of Exhibit 1 that contains markings to identify different areas of the Plant, including Trains 1, 2, 3, and 4 and the control room.

FIGURE 1: OVERVIEW OF THE PLANT (EX. 1 P. 3)

Page 4 of Exhibit 1, which is reflected in Figure 2 below, is a zoomed-in image of the map from Page 2 of Exhibit 1 with markings added to identify the general layout of the utility lines and the trains to which those lines delivered electricity at the time of the Incident.

FIGURE 2: OVERVIEW OF UTILITY LINES AT PLANT (EX. 1 AT P.4)

Pages 5 and 6 of Exhibit 1 are reflected in Figure 3 below. Page 5 is a zoomed-in image of the same map in Figure 1 above, with a red circle identifying the location of the utility pole where the jumper at issue disconnected. Page 6 is a picture of the utility poles at the entrance to the Plant taken by Caprock's expert, Morris Mach, in September 2020, with a red circle identifying the pole near where the jumper at issue disconnected.

FIGURE 3: LOCATION OF WHERE JUMPER DETACHED (EX. 1 AT P. 5-6)

The other pages of Exhibit 1 are images of the photo on Page 1 and the map on Page 2, which will be further discussed in the Direct Testimony of Terry Brent Duke.

Q10. DESCRIBE THE LAYOUT OF THE ELECTRICAL SYSTEMS AT TRAINS 1, 2, 3, AND 4, AT THE TIME OF THE INCIDENT.

A. At the time of the Incident, Oncor owned the utility lines and transformers that delivered electricity to Trains 1, 2, 3, and 4. Each train had a separate set of transformers; so, the transformer at Train 1 delivered electricity only to Train 1; the transformers at Train 2 only delivered electricity to Train 2; the transformers at Train 3 only delivered electricity to Train 3; and the transformers at Train 4 only delivered electricity to Train 4.

For each train, the points of delivery were just beyond Oncor's transformers. Downstream from Oncor's transformers, each train has at least one motor control center ("MMC"), which is a building that houses electrical equipment that controls the motors and other equipment at each train. The equipment that sustained damage during the Incident in this case are located inside the MCC buildings at Trains 2, 3, and 4. The locations of these MCC buildings for Trains 2, 3, and 4 are identified by the red boxes on the map in Figure 1 above.

At Train 1, there is one MCC building. At the time of the Incident, the Train 1 MCC was connected to 480-volt transformers owned by Oncor, which were located just outside the MCC. Inside the MCC, Caprock owned secondary transformers to step down the 480-voltage electricity to 120-volts, which Caprock used powered lights and other lower voltage equipment at Train 1. Oncor's 480-volt transformers powered the rest of the electrical equipment at Train 1.

At Train 2, there are two MCC buildings. One MCC building was connected to Oncor's 4160-volt transformers, which powered the cryogenic units and refrigerant

compression at Train 2. The other MCC building was connected to Oncor's 480-volt transformers, which powered all the rest of the electrical equipment at Train 2, including motors, process equipment, lights, and other equipment at Train 2.

At Trains 3 and 4, there is one MCC building at each train that houses both 480-volt electrical equipment and 4160-volt electrical equipment. At each train, the 4160-volt equipment powers the train's cryogenic units and refrigerant compression and the 480-volt equipment powers the train's motors, process equipment, lights, and other equipment at that train.

Each train's MCC building and associated electrical equipment are separate and isolated from the MCC's and electrical equipment at other trains. For example, the MCC and associated electrical equipment at Train 1 powers and controls the equipment at Train 1; but the Train 1 MCC does not power or control any equipment or facilities at Trains 2, 3, or 4, and the Train 1 MCC is not interconnected or directly wired to the MCC buildings or associated equipment or facilities at Trains 2, 3, or 4. There are certain interconnected systems at the Plant. For example, all trains are connected to the same grounding system. Similarly, the programmable logic controller ("PLC") can trigger an emergency shutdown ("ESD") at other trains when there is an ESD at only one train. But the electrical systems that power and control each train remain separate from one another with no interconnection after the points of delivery for each train.

In sum, each train has its own separate electrical equipment housed inside its own MCC building(s). In turn, each MCC received electricity from a set of Oncor transformers that only connected to that specific MCC. The Train 1 MCC had a 480-

volt electrical system, while the MCC's at Trains 2, 3, and 4 each had both 480-volt and 4160-volt electrical systems.

Q11. AT THE TIME OF THE INCIDENT, DESCRIBE THE GENERAL LAYOUT OF ONCOR'S UPSTREAM UTILITY LINES AND EQUIPMENT LEADING UP TO THE POINT OF DELIVERY AT THE PLANT.

A. Oncor had a three-phase powerline system that delivered electricity to the Plant at the time of the Incident. The general layout of how this system is shown in Figure 2 above.

As shown in Figure 2, Oncor's system runs along Road 402. This system branches off into the Plant at the entrance road on the southeast corner of the Plant. Shortly after branching off from Road 402, Oncor's system splits in two directions at the pole circled in Figure 3 above.

First, from the pole circled on Figure 3, one set of lines run along the south/southeast fence-line of the Plant until they terminate at Oncor's transformers at Train 1. This section of lines delivers electricity to Train 1, but not Trains 2, 3, or 4.

Second, another section of lines run north from the pole circled in Figure 3, along a path that runs east of the Plant before turning into the Plant and terminating at Oncor's transformers located at Trains 2, 3, and 4, as illustrated in Figure 2 above. This section of lines delivers electricity to Trains 2, 3, and 4, but not Train 1.

As mentioned, Oncor owned, designed, maintained, and controlled the 480-volt and 4160-volt transformers that connected to Oncor's powerlines. Oncor's 480-volt transformers, in turn, connected to Caprock's 480-volt equipment at the MCCs at each

of Trains 1, 2, 3, and 4. Oncor's 4160-volt transformers, in turn, connected to Caprock's 4160-volt equipment at the MCCs at each of Trains 2, 3, and 4.

Q12. TO HELP ORIENT US, PLEASE IDENTIFY WHERE WITHIN THE PLANT CAPROCK CLAIMS IT SUSTAINED DAMAGES DURING THE INCIDENT IN THIS CASE?

A. The damage occurred to Caprock's 480-volt equipment and systems in and around the MCC buildings at Trains 2, 3, and 4. These MCC buildings are located within the red boxes at Trains 2, 3, and 4 on Figure 1 above. No damage occurred to Train 1 or Caprock's 4160-volt systems at Trains 2, 3, and 4 for reasons Caprock's expert, Dr. James Dickens, will explain.

Q13. WHERE DOES CAPROCK CONTEND THE INCIDENT ORIGINATED?

A. For reasons discussed by Dr. Dickens, Caprock claims its damages in this case were caused by an overvoltage event that originated on Oncor's side of the point of delivery, when a jumper installed by Primoris detached from Oncor's powerline on the night of June 4, 2019. The location of where the jumper detached is identified in Figure 3 above.

III. CONSTRUCTION AND OPERATION OF THE PLANT

Q14. HAS YOUR COMPANY OPERATED THE PLANT SINCE IT WAS FIRST CONSTRUCTED?

A. No, EagleClaw acquired and began operating the Plant in or around November 2018—about six months before the Incident. Therefore, my knowledge of the Plant prior to

November 2018 is generally limited to the documents and other information received from the prior owners and others who were involved with the Plant prior to that time.

Q15. DESCRIBE YOUR GENERAL UNDERSTANDING OF HOW THE PLANT'S FOUR TRAINS WERE CONSTRUCTED.

A. According to company records, Train 1 was originally built in 1982 and refurbished in 2005. The refurbished Train 1 was later installed at the Plant and brought online in or around October 2016.

Unlike Train 1, Trains 2, 3, and 4 are each newly-constructed (not refurbished) gas processing plants. Each of Trains 2, 3, and 4 were designed, engineered, and built by professional contractors that specialize in building cryogenic plants, and each started up and began operating at the Plant as soon as its construction was completed.

Train 2 was constructed pursuant to a construction agreement between Caprock and Valerus Field Solutions LP ("Valerus") dated September 30, 2016. Valerus completed construction of, and started up, Train 2 in or around August 2017—well before our company (EagleClaw) acquired the Plant.

Train 3 was constructed pursuant to a construction agreement between Caprock and UOP Russell LLC ("UOP") dated September 11, 2017. UOP is a well known and reputable contractor that specializes in building out-of-the-box gas processing plants like Train 3. UOP subcontracted with ZAP Engineering ("ZAP") for design and engineering work on Train 3, including design and engineering of the Train 3 MCC and its electrical equipment. ZAP is also a reputable contractor in the midstream industry that specializes in design and engineering for gas processing plants like Train

3. UOP and its subcontractors completed construction of, and started up, Train 3 in or around November 2018—around the same time our company (EagleClaw) acquired and assumed management of the Plant.

Train 4 is nearly identical to Train 3, because both were constructed by UOP, with design and engineering provided by ZAP The Train 4 construction agreement between Caprock and UOP is dated March 2, 2018. Most of the design, engineering, and construction for Train 4 had been completed by the time our company (EagleClaw) acquired and assumed management of the Plant in November 2018. UOP completed construction of, and started up, Train 4 a few months later—in or around late April/early May 2019.

Q16. AT THE TIME OF THE INCIDENT, DESCRIBE HOW CAPROCK OPERATED AND STAFFED THE PLANT.

A. Consistent with industry practices, the Plant typically operates 24-hours a day, 7-days a week, as long as customers are sending enough gas to the Plant to process. The Plant, therefore, is staffed at all times by a team of 2-3 employees, known as "operators," who work 12-hour shifts. During their shifts, operators continuously monitor conditions at the Plant and respond to any issues that arise. The operators are supervised and supported by the Plant's onsite operations manager, and other operations managers who work at nearby plants and offices in West Texas. These managers report to a VP of operations, who in turn reports to me.

In addition, at least one I&E technician is always on-call at the Plant. The I&E technician is generally responsible for maintenance of the various instrumentation,

electrical systems, and equipment throughout the Plant, as well as responding to any instrumentation or electrical issues that arise. The I&E technicians report to an I&E supervisor, Dane Anderson, who reports to me.

Q17. HOW DO OPERATORS MONITOR CONDITIONS AT THE PLANT?

A. Two ways. First, the Plant has a programmable logic control ("PLC") system that tracks various conditions at the Plant. For example, the PLC tracks temperature, pressure, volumes, and various other conditions relevant to Plant operations. If a condition (e.g., pressure) deviates beyond a specified set-point, the PLC may provide an alert or alarm depending on the level of severity. Typically, during each shift, one operator sits at a computer station in the control room and monitors the conditions, alerts, and alarms tracked by the PLC.

Second, the Plant is also monitored by operators and other employees in the field (i.e., outside the control room). During each shift, one or two operators roam around the Plant monitoring conditions that may not be picked up by the PLC, performing routine checks, and responding to issues or requests from the operator in the control room.

The operator in the control room is also generally responsible for recording any significant or notable events in the Plant's logbook. This ensures that other operators and management are aware of and have a record of such events.

Note, there are devices in the MCC's that record voltage and other electrical data relevant to this case that I will discuss later, but the PLC does not track or record

that data. And there are no other systems at the Plant that allow employees to monitor voltage or other electrical data inside the 480-volt MCC's on a real-time basis.

Q18. WHAT IS THE PROCEDURE IF AN OPERATOR DISCOVERS AN EMERGENCY CONDITION AT THE PLANT?

A. The Plant has detailed written procedures for responding to various conditions and emergencies that may arise at the Plant. But in general, the procedure for responding to an emergency is the operator should execute an emergency shutdown of the Plant, notify all personnel at the Plant of any hazards or emergencies at the Plant and direct them to safety, notify any relevant authorities or emergency responders (e.g., fire department or Oncor), and notify and coordinate with all relevant off-site employees.

Q19. WHAT IS AN EMERGENCY SHUTDOWN ("ESD")?

A. An ESD shuts down a plant's gas processing operations, meaning all motors and processing operations inside the plant shut down, and all inlets and outlets close to seal the plant off from gas coming in or out.

An ESD can be initiated to shut down one or more specific trains (e.g., Trains 1 and 2 only), or the entire Plant. An ESD can be initiated manually by pulling the ESD switches located throughout the Plant and in the control room. In addition, the PLC is programmed to automatically initiate an ESD when certain conditions occur. For example, the PLC can be programmed to automatically initiate an ESD based on pressure exceeding a certain set-point.

Q20. DOES AN ESD STOP THE FLOW OF ELECTRICITY TO THE PLANT?

A. No, an ESD only shuts down operations. It does not, however, stop the flow of electricity into the MCC's or isolate the MCC's from electricity coming in through the utility. An ESD could not, for example, prevent an overvoltage originating on Oncor's side of the point of delivery from flowing into the MCC's.

Q21. DOES THE OCCURRENCE OF AN ESD NECESSARILY MEAN THERE WAS AN EMERGENCY CONDITION AT THE PLANT?

A. No, not necessarily. For example, the PLC may trigger a false ESD because the PLC is not accurately reading a particular process condition (e.g., reading pressure is higher than it actually is). As another example, around the time of the Incident, the PLC was programmed to initiate an ESD at Train 2 wherever there was an ESD at Train 1; so, whenever an ESD at Train 1 occurred due to a condition at Train 1, that ESD would automatically trigger an ESD at Train 2, even though there was no emergency condition that required Train 2 to go into ESD.

Q22. CAN AN ELECTRICAL EVENT, SUCH AS THE OVERVOLTAGE IN THIS CASE, OCCUR WITHOUT TRIGGERING AN ESD?

A. Yes, as discussed, the PLC does not track or record the quality of electricity flowing into the MCCs, such as the voltage or current. Thus, an overvoltage or other electrical event could occur at the MCCs without causing the PLC to initiate an ESD.

IV. CAPROCK'S RELATIONSHIP WITH ONCOR AND PRIMORIS

Q23. PLEASE DESCRIBE CAPROCK'S GENERAL RELATIONSHIP WITH ONCOR.

A. At the time of the Incident, Oncor Electrical Delivery Services ("Oncor") was the electrical utility that supplied electricity to Trains 1, 2, 3, and 4.

Company records show that before bringing a new train online at the Plant, Caprock submitted a load request form to Oncor. Each load request form detailed the type of service that Caprock needed at the new train (e.g., 480-volt and/or 4160-volt), the electrical load Caprock expected to add once the new train came online, and the date by which Caprock expected to bring the new train online. Once Oncor approved the load request, Oncor and Caprock would sign a facility extension agreement concerning the electrical facilities that Oncor agreed to extend to the new train.

Exhibit 2 is a true and correct copy of the facility extension agreement between Caprock and Oncor signed February 16, 2017 relating to Train 2. This agreement provided that Oncor "shall extend standard Delivery System facilities," including 4160-volt and 480-volt facilities, "necessary to serve [Caprock's] estimated maximum demand requirement of 5717 kW" at Train 2.

Exhibit 3 is a true and correct copy of the facility extension agreement between Caprock and Oncor signed March 22, 2018 relating to Train 3. This agreement provided that Oncor "shall extend standard Delivery System facilities," including 4160-volt and 480-volt facilities, "necessary to serve [Caprock's] estimated maximum demand requirement of 5150 kW" at Train 3.

Exhibit 4 is a true and correct copy of the facility extension agreement between Caprock and Oncor signed March 26, 2018 relating to Train 4. This agreement provided

that Oncor "shall extend standard Delivery System facilities," including 4160-volt and 480-volt facilities, "necessary to serve [Caprock's] estimated maximum demand requirement of 5150 kW" at Train 4.

Collectively, Exhibits 2, 3, and 4 required Oncor to extend facilities "necessary to serve" a combined maximum load of 16,017 kW at Trains 2, 3, and 4.

Q24. DID CAPROCK HAVE ANY CONTROL OVER ONCOR'S UPGRADES TO ITS SYSTEM AFTER SIGNING THE FACILITY EXTENSION AGREEMENTS?

A. No. Based on the information submitted by Caprock, my understanding is that Oncor—directly and/or through contractors such as Primoris—decided what, if any, facilities to add to its system to accommodate the additional electrical load requested by Caprock. Caprock had no involvement or control over this decision. I also understand that Oncor——directly and/or through contractors such as Primoris—also controlled the design, construction, installation, and maintenance of any electrical facilities it decided to add.

For example, I understand that Oncor was reconductoring its powerlines outside the Plant at the time of the Incident, i.e., replacing existing powerlines with upgraded powerlines to handle the additional electrical load that Oncor agreed to provide under the facility extension agreements. Oncor made the decision to reconductor its powerlines without asking or involving Caprock. And Oncor controlled the reconductor project's planning, design, and engineering; the materials and facilities used; and how the reconductor project was completed. Caprock had no input or control over any of these matters.

Q25. PLEASE DESCRIBE CAPROCK'S RELATIONSHIP, IF ANY, WITH THE INTERVENORS (PRIMORIS) IN THIS CASE.

A. Caprock has no relationship or agreements with the Intervenors Primoris Services Corporation ("Primoris Corp.") or Primoris T&D Services, LLC ("Primoris T&D") (together, "Primoris"). My understanding is that, after entering into the facility extension agreements with Caprock, Oncor hired Primoris to perform some of the facility upgrades to Oncor's system, including the reconductor project around the time of the Incident. To my knowledge, Caprock had no input or control over Oncor's decision to hire Primoris for the facility upgrades, the work that Primoris performed, or the personnel that Primoris used to complete that work.

Q26. WHAT IS CAPROCK'S POSITION IN THIS CASE AS TO THE RELATIONSHIP BETWEEN ONCOR AND PRIMORIS?

A. Caprock's position is that Primoris is not protected by, or entitled to enforce, any provision of Oncor's Tariff purporting to limit the liability of Oncor. But the trial court in the Consolidated Lawsuit granted a motion for partial summary judgment filed by Primoris T&D holding that Primoris T&D is an "agent" of Oncor and therefore protected by the Tariff's limited liability clause. Although Caprock respectfully disagrees with and reserves the right to appeal this ruling, Caprock has alleged claims against Oncor for vicarious liability for the acts and omissions of Primoris T&D based on the trial court's ruling that Primoris T&D is an agent of Oncor.

V. THE JUNE 4, 2019 INCIDENT

Q27. ON THE NIGHT OF JUNE 4, 2019, WHO WAS WORKING AT THE PLANT?

A. The Plant was staffed with a team of three operators: Phillip Acho, Francis Allotey, and Edgar Wislar. Their 12-hour shift started at 6 PM on June 4, 2019—just a few hours before the Incident. The Plant operations manager, Joe Varela, ended his dayshift around 6 PM, but remained on call. Brent Duke, who is also submitting direct testimony in support of Caprock, was the I&E technician on call on June 4.

Q28. DESCRIBE WHAT CAPROCK CONTENDS OCCURRED DURING THE INCIDENT ON THE NIGHT OF JUNE 4, 2019.

A. As further discussed in the direct testimonies of Brent Duke and Dr. James Dickens, Caprock contends that around 9:15PM on the night of June 4, a mechanical jumper installed by Primoris near the entrance to the Plant disconnected from Oncor's powerline, causing a long-sustained overvoltage event that ended around 9:30-9:45 PM and culminated in arcing and frying the 480-volt systems at Trains 2, 3, and 4.

Q29. HOW DID CAPROCK'S EMPLOYEES RESPOND TO THE INCIDENT?

A. As Brent Duke will further explain in his direct testimony, Mr. Duke and Francis Allotey first witnessed arcing and equipment blowing up at the 480-volt MCC's at Trains 2, 3, and 4. Then, Mr. Duke radioed the operator in the control room (Phillip Acho) to ESD the Plant and instructed everyone to stay away from the MCCs at Trains 2-4. Mr. Acho immediately initiated an ESD of the entire Plant.

Because an ESD does not cut power to the MCCs, Mr. Duke testified that he manually pulled the main breakers to the MCCs for Trains 3 and 4, but he could not do the same for Train 2 because the main breaker switch was located in the Train 2 MCC that had smoke and fire coming from it. Mr. Duke then went to the control room and called Oncor to send someone to cut power to the Plant. On his way, he saw the downed power line and failed jumper hanging in the air near the entrance to the Plant; he radioed everyone onsite to stay away from the downed powerline.

The operators and Mr. Duke immediately communicated the Incident to relevant personnel internally. The Plant operations manager, Joe Varela, arrived shortly after the Incident. Various other employees arrived later that night as soon as they were able, including Dane Anderson (I&E supervisor) who helped work to ensure all measures to mitigate electrical damage and ensure safety were taken; Greg Wells (safety team) who gathered information and witness statements, and took various pictures discussed further below; additional senior operations managers, including Lee Baker and Lane Wise (VP of operations); and various other I&E techs and other employees who were able to travel to the Plant and help in the immediate aftermath.

Q30. DID CAPROCK'S EMPLOYEES COMPLY WITH YOUR COMPANY'S POLICIES AND PROCEDURES IN RESPONDING TO THE INCIDENT?

A. Yes, Mr. Duke immediately ensured the safety of everyone onsite by telling them to stay away from the MCCs and downed powerline as soon as he discovered these dangerous conditions; the operators quickly initiated an ESD of the entire Plant; within minutes of discovering the MCCs blowing up, Mr. Duke did everything he could

reasonably and safely do to cut power to the MCCs, and he called Oncor as soon as he could to cut the rest of the power to the Plant; and after ensuring the safety of everyone onsite and taking the only available measures to mitigate further damage from the overvoltage, the onsite employees immediately communicated to relevant personnel in the company, who quickly arrived onsite to assist.

Q31. IN YOUR SUBSEQUENT INVESTIGATION, DID YOU FIND ANYTHING THAT CAPROCK'S EMPLOYEES FAILED TO DO OR SHOULD NOT HAVE DONE IN RESPONDING TO THE INCIDENT?

A. No. On the night of the Incident, our employees were suddenly placed into a difficult and dangerous situation that they did not create. Without prior warning, they witnessed the utilities and MCCs suddenly blowing up, sparking, catching fire, and smoking. At a plant filled with explosive gas, this is a very dangerous situation. But despite the stress and danger posed, our employees followed their training and all emergency policies and procedures. Their swift and commendable actions avoided serious bodily injury (or worse) and prevented the damage from further spreading.

VI. POST-INCIDENT: THE DAMAGED EQUIPMENT & REBUILD PROCESS

Q32. WHAT DID YOUR COMPANY DO IN THE AFTERMATH OF THE INCIDENT?

A. The first priority was ensuring the health and safety of everyone in and around the Plant. As discussed, we had a number of employees travel to the Plant to make sure all health and safety measures and precautions were taken, and that the Plant would remain

safe and secure following the catastrophic damage and understanding that the Plant would potentially be out of commission for an extended period.

The next priority was documenting the damage and conditions at the Plant in the immediate aftermath of the Incident, taking statements from witnesses, preserving relevant evidence, and generating a safety incident report. I'll discuss these efforts in more detail below.

Once those priorities were squared away, we next turned our focus and attention to assessing the damage, working to get the Plant repaired and back online, and mitigating our losses. As mentioned, the Plant typically operates 24 hours a day, 7-days a week, and every hour that the Plant is down is potential lost revenue. Moreover, our customers rely on our company to process their gas, so it was imperative to find solutions to avoid damaging our customer relationships while the Plant remained offline. To address these concerns, we quickly formulated plans to (1) determine the scope of damaged equipment that needed to be repaired or replaced before bringing Trains 2, 3, and 4 back online; (2) repair/replace/rebuild the damaged equipment; and (3) find alternative places to send our customers' gas for processing while the Plant remained out of commission. Only after the above priorities were addressed did we begin committing resources and attention to investigating the cause of the Incident.

Q33. HOW DID CAPROCK ASSESS THE SCOPE OF DAMAGE FOLLOWING THE INCIDENT?

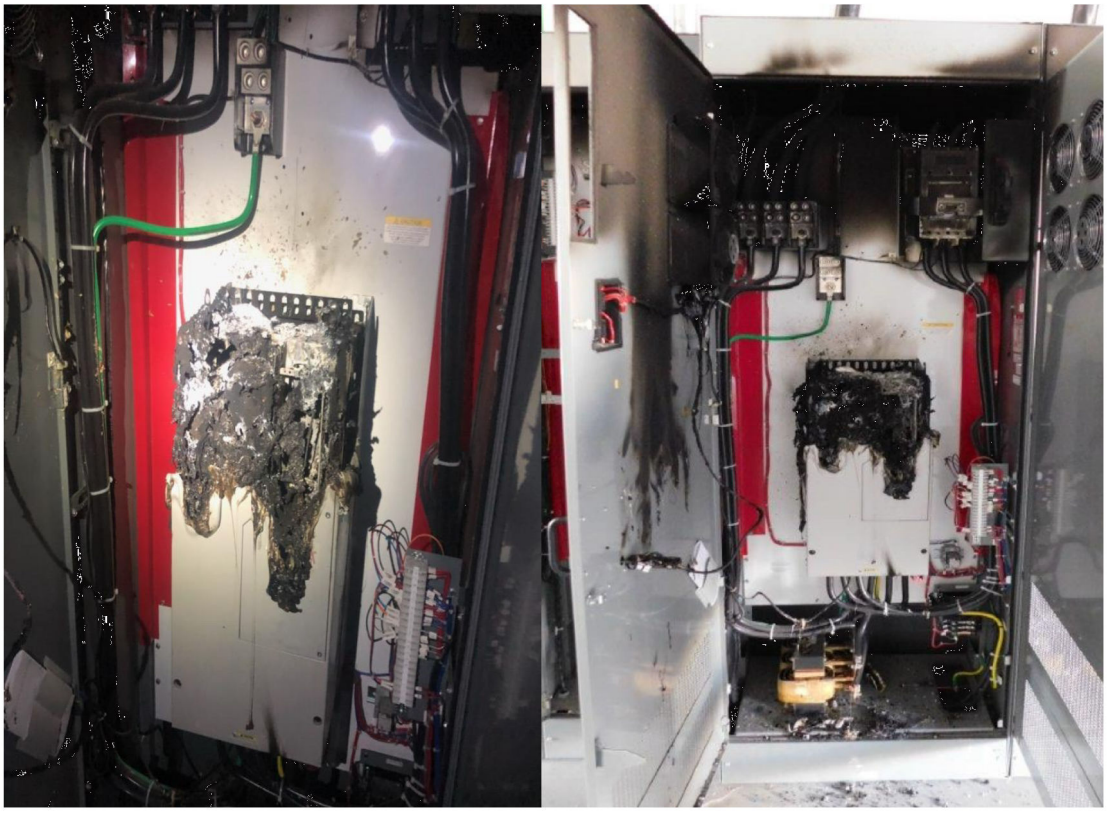
A. First, we were able to identify much of the damage by visual inspection. Exhibit 5 is true and correct copies of pictures of the damaged equipment taken following the

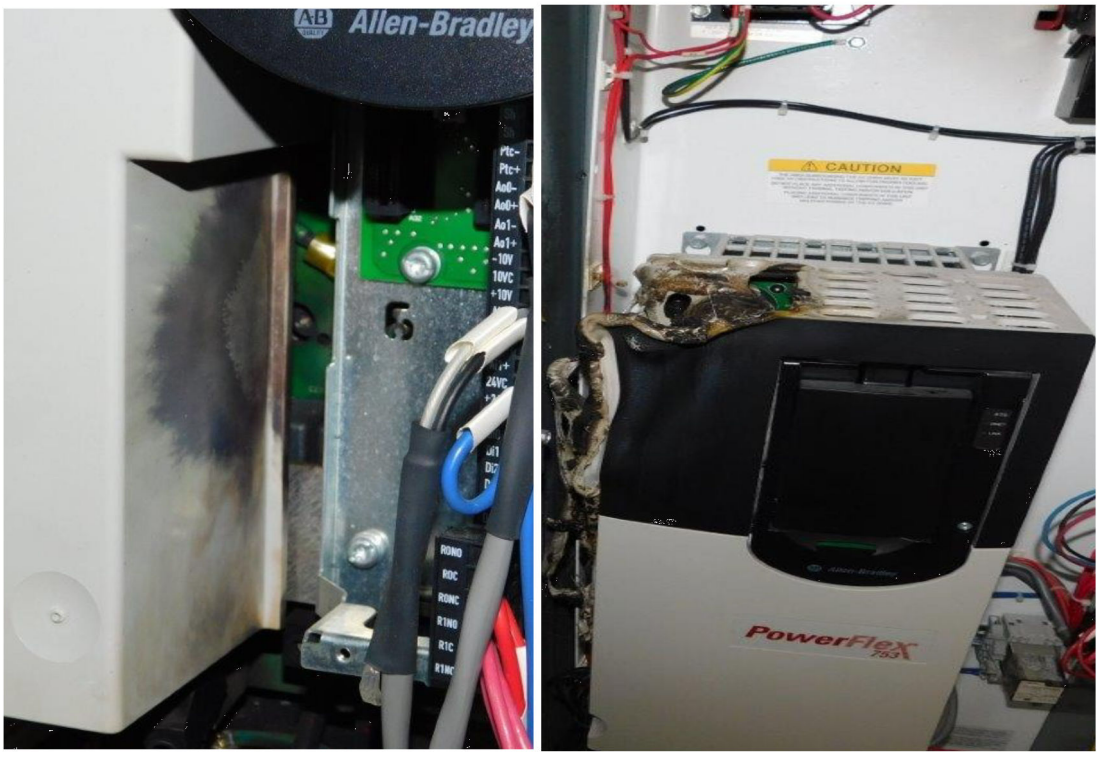
Incident and prior to the rebuild. Examples of these pictures are reflected below in Figure 4.

Second, employees and contractors tested the damaged equipment during the rebuild process to confirm what equipment was damaged and what equipment was not damaged. For example, we tested and found no damage to the Train 1 MCC.

Finally, our expert, Dr. James Dickens, also inspected and tested the equipment during the lawsuit to confirm the damage, which he will discuss in his direct testimony.

Figure 4: Examples of Damaged Equipment (Ex. 5)





Q34. WHAT EQUIPMENT AND PROPERTY DID CAPROCK DETERMINE WERE DAMAGED DURING THE INCIDENT?

A. In general, the damage occurred to Caprock's equipment and property in and around the MCCs at Trains 2, 3, and 4. There are hundreds, if not thousands, of individual parts and components that were damaged, but the damaged equipment at each train generally includes: at Train 2, 480 VAC power distribution and control equipment and LED flood lights; at Train 3, 480 VAC power distribution, control equipment, and cabling, MCC HVAC components, LED flood lights, and the uninterruptible power supply; and at Train 4, 480 VAC power distribution and control equipment and LED flood lights. Exhibit 6 is a true and correct copy of a list compiled by Caprock that identifies the damaged equipment more specifically.

Q35. DID THE EQUIPMENT AND PROPERTY YOU IDENTIFIED IN YOUR ANSWER TO THE PRECEDING QUESTION SUSTAIN "PHYSICAL DAMAGE" AS A RESULT OF THE INCIDENT, PER ISSUE 4(E) OF THE COMMISSION'S PRELIMINARY ORDER IN THIS CASE?

A. Yes, the equipment and property I identified in my last answer sustained "physical damage" from the Incident. The equipment and property were essentially fried from the overvoltage event. See, for example, the pictures in Figure 4 above. Also, the equipment and property were not functional due to physical damage caused by the overvoltage.

Q36. DESCRIBE THE PROCESS OF REPAIRING/REBUILDING/REPLACING THE DAMAGED EQUIPMENT AND PROPERTY.

A. Caprock brought all available hands-on deck to expedite the rebuild of the damaged MCCs and mitigate its damage. This includes bringing in supervising managers not typically assigned exclusively to the Plant and employees at gas plants of Caprock's affiliates to immediately begin working to help bring the Plant back online. For example, Dane Anderson is the I&E Supervisor who typically has responsibilities for overseeing I&E issues at the Plant and the plants of Caprock's affiliates, but he dedicated significant time exclusively working with contractors at the Plant to ensure a timely and safe rebuild of the damaged MCCs.

After the Incident, Caprock quickly hired numerous contractors to procure and expedite shipment of replacement parts, components, and equipment and to perform the engineering and electrical work needed to replace the damaged equipment and property in and around the MCCs.

In addition to pulling out damaged equipment and installing replacement equipment, Caprock's contractors (with direction and supervision from Caprock's employees) had to meticulously test the replacement equipment and corresponding equipment throughout the Plant to ensure the safe start-up of each plant. As a result of these efforts, Caprock was able to repair and startup Trains 2, 3, and 4 in less than two months of the Incident.

Q37. HOW MUCH DID IT ULTIMATELY COST TO REPAIR/REBUILD/REPLACE THE DAMAGED EQUIPMENT AND PROPERTY?

A. Ultimately, the rebuild cost Caprock a total of around $4 million in replacement equipment/parts and labor. Exhibit 7 is a true and correct summary of the voluminous invoices from contractors, distributors, and manufacturers relating to work performed during the rebuild and replacement part, components, and equipment installed in place of the damaged equipment and Exhibit 8 is a true and correct summary of additional labor costs that Caprock incurred in rebuilding the Plant after the Incident.

Based on my experience and the experience of my team, these invoices and calculations are reasonable and reflect parts and labor necessary for the repair/replacement of the damaged equipment. The replacement equipment and parts used in the rebuild and reflected in the contractor invoices are the same or reasonably similar in terms of type and quality in comparison to the damaged equipment and parts that they replaced. Any upgrades made or added during the rebuild are not included in the calculations or summaries in Exhibits 7 and 8.

VII. CAPROCK'S INVESTIGATION & KEY CAUSATION EVIDENCE

Q38. APPROXIMATELY WHEN DID YOUR COMPANY BEGIN INVESTIGATING THE CAUSE THE INCIDENT?

A. As mentioned, we began documenting the damage and conditions at the Plant immediately after the Incident, including taking pictures of the damage and the failed jumper, gathering written statements from witnesses, and preserving relevant evidence. But this was done initially by the safety group as part of the standard procedure for

reporting significant health and safety incidents, not necessarily as part of an effort to determine the root cause of the Incident.

Instead, the investigation into the cause of the Incident did not really begin until we had plans in motion for the rebuild.

Q39. BEFORE THE INVESTIGATION STARTED, WERE THERE DISCUSSIONS ABOUT WHAT YOU OR YOUR TEAM THOUGHT CAUSED THE DAMAGE?

A. Yes, for example, on the night of the Incident, there was speculation that lightning, or some other adverse weather may have caused the damage, including at least one email from me on the night of June 4 where I speculated that lightning damaged the MCCs. But those comments were not based on any statements or information from our employees who were at the Plant during the Incident or any evidence we had at the time. Those comments were pure speculation made before we did any investigation into the cause of the damage.

Q40. DESCRIBE THE KEY EVIDENCE CAPROCK GATHERED INTERNALLY REGARDING THE CAUSE OF THE INCIDENT.

A. First, Caprock gathered various relevant pictures taken after the Incident. These include pictures, discussed above, taken of the detached jumper on the night of the Incident (see Exhibit 9) and of the damaged equipment (see Exhibit 5 and Figure 4 above).

Second, Caprock gathered power quality data recorded on two PQM meters located on the 480-volt system at Train 4. True and correct copies of PQM data from these two PQM meters are reflected in Exhibits 10 and 11. This PQM data reflects

voltage and current of the electricity on the 480-volt systems in the Train 4 MCC during the time period of April 29, 2019 through July 9, 2019, which is approximately when the data was downloaded. The data is recorded in 5-minute increments and measures voltage and current on each of the three phases of the incoming 3-phase electricity. The voltage and current values were downloaded directly from the PQM meters and exported to the spreadsheets that are Exhibits 10 and 11 without any modification. Because the clock on the PQM meters did not match the local time at the Plant, the contractor that downloaded and exported the data for Caprock created an "Adjusted Time" column under the "overall" tab in the spreadsheets in an attempt to match the "Adjusted Time" of the data to the actual local time at the Plant; however, the "Adjusted Time" is at least 1 hour behind the actual local time at the Plant. Using Oncor's meter data, I understand that Dr. Dickens has synched the adjusted time on the PQM data to more accurately match the local time per Oncor's meters. Caprock's expert Dr. Dickens will further discuss this data and the overvoltage it shows in his direct testimony.

Third, we searched and reviewed other data as well. We asked Rockwell Automation to provide any data they recovered from the variable frequency drives ("VFDs") inside the MCCs, but that data did not include any voltage or power quality data; it only shows timestamps for when the VFDs shutdown on the night of June 4, which are consistent with the timeline discussed in Dr. Dickens' testimony. Likewise, we recovered and produced voluminous Wonderware data, including spreadsheets of the operational data generated and stored in Wonderware for the dates June 1, 2019 through June 5, 2019; however, that data, at best, only records things such as when motors or other process equipment (i.e., not electrical equipment in the MCCs) was off

or on during the night of June 4; it does not provide any information about the electrical condition of the Plant or the voltage or quality of the power in the MCCs; but again, I have reviewed timestamps in the Wonderware data showing when process equipment was on or off, and the data is consistent with the timeline discussed by Dr. Dickens.

Fourth, Caprock gathered written statements from eyewitnesses and logbook entries from on and around the date of the Incident. Exhibits 12 and 13 are true and correct copies of written statements from Brent Duke and Phillip Acho, who were both working at the Plant at the time of the Incident. Exhibit 14 is a true and correct copy of pages from the Plant's logbook for the dates June 1, 2019 through June 4, 2019, and Exhibit 15 is a true and correct copy of an email at 9:35PM on the night of the Incident from the operator at the computer in the control room (Phillip Acho), noting they were still trying to figure out "what caused the plants to [ESD]" as of the time of his email. Exhibit 16 is a true and correct copy of an email on the night of June 4, 2019 from Caprock's Operation Specialist, Jonathan Lingmann, who is referenced in Brent Duke's written statement, providing a contemporaneous account of the issue with the PLC at Train 1 that he and Brent Duke were trying to resolve on the night of June 4.

Lastly, Caprock preserved and made available to each side's expert witnesses the equipment that sustained damage during the Incident.

Q41. DURING ITS INVESTIGATION AND THESE LEGAL PROCEEDINGS, DID CAPROCK PROVIDE ITS EXPERT, DR. JAMES DICKENS, WITH THIS KEY EVIDENCE DISCUSSED IN YOUR ANSWER TO THE PRECEDING QUESTION?

A. Yes, and he will further discuss this evidence and what the evidence shows caused the electrical damage in this case.

VIII. CAPROCK'S DAMAGED EQUIPMENT WAS IN GOOD WORKING CONDITION AT THE TIME OF THE INCIDENT

Q42. BEFORE THE INCIDENT, DID CAPROCK HAVE ANY CONCERNS ABOUT THE POWER THAT ONCOR WAS DELIVERING TO THE PLANT?

A. We had concerns about power *reliability*, i.e., Oncor's ability to deliver power needed to operate the Plant on a reliable basis. As mentioned, Oncor agreed to extend its facilities to accommodate a maximum combined electrical load of over 16,000 kW at Trains 2, 3, and 4. But as reflected in Exhibit 17, Oncor told Caprock that it could only run up to 11,870 kW for the entire Plant. To make matters worse, the Plant sustained outages from conditions on Oncor's side of the point of delivery that periodically placed the Plant out of service.

However, prior to the Incident, we did not have any concerns about the *quality* of the power that Oncor delivered, such as the voltage levels. We did call Oncor a couple times about voltage issues on the Plant's 4160-volt systems, but those each occurred shortly after Trains 3 and 4 started up. Those type of issues, particularly on 4160-volt systems (which did not sustain damage in this case), are common after

starting up a new train and not any cause for concern. And we are not aware of any prior power quality or overvoltage issues at the 480-volt systems that sustained damage.

Q43. AT THE TIME OF THE INCIDENT, HOW LONG HAD THE TRAINS THAT WERE DAMAGED BEEN IN OPERATION?

A. As mentioned, only Trains 2, 3, and 4 were damaged during the Incident. At that time, each of these trains had brand-new equipment and facilities that had only recently been installed by reputable contractors that specialize in designing and building cryogenic plants.

As of the June 4, 2019 Incident, Train 2 had been operating for less than two years (since August 2017); Train 3 had been operating about six months (since November 2018); and Train 4 had been operating for less than two months (since late April 2019).

Q44. IS THE COMPANY AWARE OF ANY LIGHTNING STRIKES OR ADVERSE WEATHER EVENTS, BEFORE THE JUNE 4, 2019 INCIDENT, THAT COULD HAVE CAUSED THE DAMAGE THAT CAPROCK CLAIMS IN THIS CASE?

A. Our investigation, which I will discuss further below, did not uncover any evidence that the damaged equipment at Trains 2, 3, or 4 sustained damage from lightning strikes or adverse weather conditions before the June 4, 2019 Incident. In fact, between late April 2019 (when Train 4 came online) and May 31, 2019, we found no evidence of any lightning storms or adverse weather conditions that impacted the Plant or its electrical systems. Moreover, none of the trains' electrical systems displayed any signs

of damage from various storms, weather conditions, and power outages at the Plant between the time each train came online through at least May 31, 2019.

We did find evidence that a lightning storm occurred in the vicinity of the Plant on the night of June 1, 2019. For example, the night-shift operator on June 1, 2019 noted lightning in the Plant's logbook, and the Plant appears to have lost power that night from a storm, which was restored early in the morning on June 2, 2019. But we found no evidence that this storm damaged the electrical systems at Trains 2, 3, or 4. In fact, after this June 1 storm, Trains 2, 3, and 4 and their electrical systems showed no visible signs of damage, and they continued operating normally and without incident over the ensuring days leading up to the night of June 4, 2019.

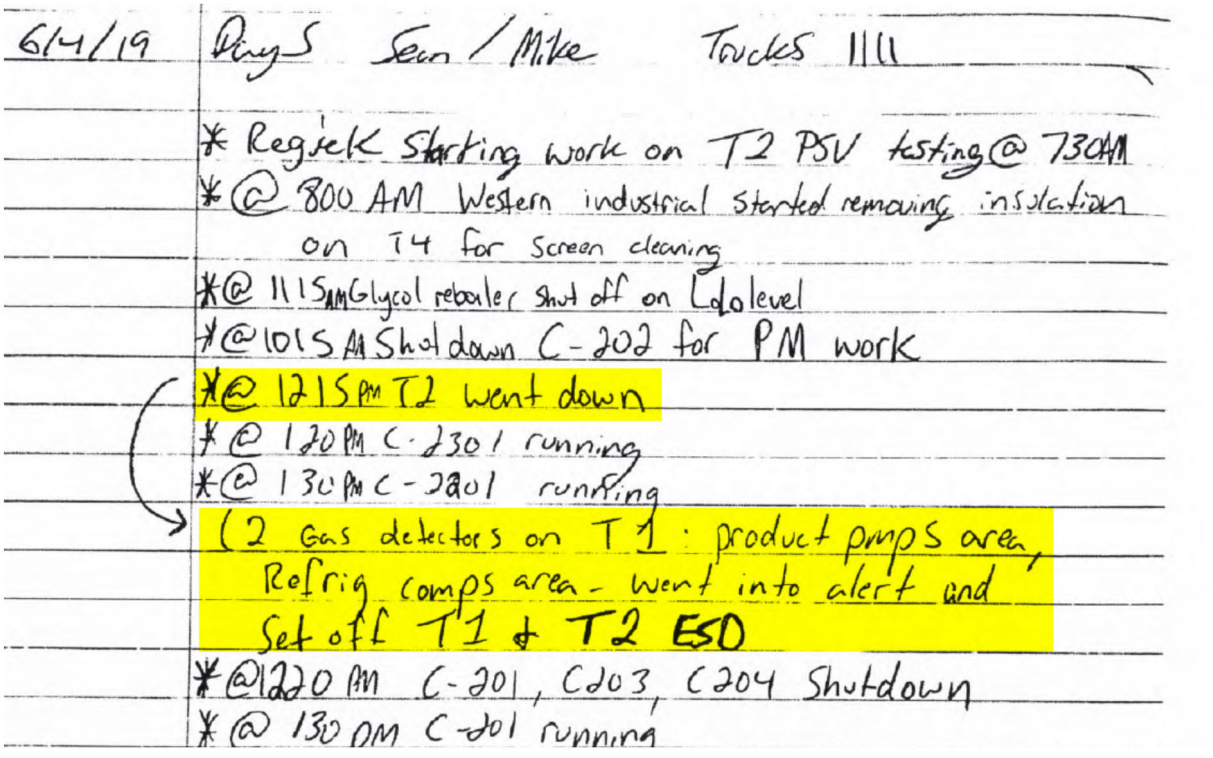
Q45. THE PLANT'S LOGBOOK SHOWS AN EVENT ON JUNE 4, 2019, AT 12:15PM, CONCERNING TRAINS 1 AND 2, WHICH IS EXCERPTED IN FIGURE 5 BELOW. DID YOUR TEAM DETERMINE WHAT CAUSED THIS EVENT?

A. Not entirely, but we found no evidence that the event has any connection or relevance to the damage that occurred in this case for at least two reasons. First, the event was triggered by an issue at Train 1, but Train 1 did not sustain damage during the Incident. Second, the issue concerned gas detectors, not any electrical equipment in the MCC's.

To illustrate, in the logbook, the operator wrote "[Train 2] went down" at 12:15PM, but the operator then drew an arrow to indicate why Train 2 went down: "2 gas detectors on" Train 1 "went into alert and setoff" an emergency shutdown ("ESD") at Trains 1 and 2. In other words, an issue at Train 1 ("2 gas detectors…went into alert") set off an ESD at Train 1, which in turn, automatically triggered an ESD at Train 2

pursuant to the ESD settings on the Plant's programmable logic control ("PLC") system at the time. There was no issue or condition at Train 2 (or Trains 3 or 4); Train 2 was simply programmed to automatically ESD anytime an ESD occurred at Train 1, which in this instance occurred due to an issue with the "gas detectors," not electrical equipment in the MCC's.

FIGURE 5: EXCERPT FROM PLANT LOG BOOK (HIGHLIGHTS ADDED) (EX. 14)


6/4/19 Days Sean / Mike Trucks 1111
* Regiek Starting work on T2 PSV testing @ 730AM
*@ 800 AM Western industrial started remaving insulation on T4 for screen cleaning
*@ 1115AM Glycol reboiler shut off on Lolo level
*@ 1015 AM Shut down C-202 for PM work
*@ 1215 PM T2 went down
*@ 120 PM C-2301 running
*@ 130 PM C-2201 running
(2 Gas detectors on T1 : product pmps area, Refrig comps area - went into alert and set off T1 & T2 ESD
*@ 220 PM C-201, C203, C204 Shutdown
*@ 130 PM C-201 running

Q46. TO BE CLEAR, DO YOU HAVE ANY REASON TO BELIEVE THAT THIS 12:15PM EVENT ON JUNE 4 IS LINKED TO THE ELECTRICAL DAMAGE THAT OCCURRED ON THE EVENING OF JUNE 4?

A. No, as discussed, the damage that occurred on the night of June 4 was at the MCCs for Trains 2, 3, and 4. But the 12:15PM event appears to have been caused by a process

condition ("2 gas detectors…went into alert") at Train 1, and no equipment at Train 1 was damaged during the June 4 Incident.

Q47. DO YOU HAVE ANY REASON TO BELIEVE THAT ANY OF THE DAMAGED ELECTRICAL EQUIPMENT IN THIS CASE SUSTAINED DAMAGE DURING A JUNE 1 STORM OR AT ANY OTHER POINT BEFORE THE JUNE 4 INCIDENT?

A. No, again, our investigation did not uncover any problems with the electrical equipment at Trains 2, 3, or 4 before the Incident. Our investigation found that the electrical equipment was operating normally after June 1 and before the June 4 Incident. In fact, as discussed, the electrical equipment that sustained damage on June 4 was brand new and in good working condition. And there were no signs that any of the electrical equipment damaged during the Incident was defective or had been damaged at any point before the evening of June 4.

IX. THE PLANT DID NOT EXCEED THE MAXIMUN ELECTRICAL LOAD AT WHICH ONCOR TOLD CAPROCK THE PLANT COULD OPERATE

Q48. BEFORE THE INCIDENT, DID ONCOR UPGRADE ITS FACILITIES TO SERVE THE COMBINED MAXIMUM LOAD OF 16,017 KW AT THE PLANT PER THE FACILITY EXTENSION AGREEMENTS?

Not according to Oncor's representatives. Exhibit 17 is true and correct copies of emails by and between representatives of Caprock (Clint Marcoux) and Oncor (Andrew Lange). In these emails, Oncor represented to Caprock that its service was capable of supplying 11,870 kW nominal load effective March 25, 2019. See Figure 6 below.

Q49. DID THE PLANT EXCEED THIS MAXIMUM ALLOWABLE LOAD—11,870 KW—DURING THE INCIDENT?

A. Again, not according to Oncor's representative. Exhibit 17 is a true and correct copies of emails between representatives of Oncor (Andrew Lange) and Caprock (Clint Marcoux) following the Incident—on June 12, 2019. In these emails, Oncor confirmed that the Plant's "peak load" on June 4, 2019 never exceeded the peak load (11,870 kW) that Oncor told Caprock that the Plant could safely pull. See Figure 6 below. Therefore, the Plant operated within its maximum allowable load on the day of the Incident, according to Oncor's representatives.

FIGURE 6: ONCOR EMAILS CONFIRMING PLANT DID NOT EXCEED MAX LOAD (EX. 18)

From: Lange, Andrew
Sent: Thursday, March 14, 2019 8:51 AM CDT
To: Clint Marcoux
Subject: **External**RE: Pecos Bend oncor service

[CAUTION] This email has been received from outside of our organization. Please be careful when opening attachments or clicking links.

okay, planning got back with us and said we had capacity for 1000KW of the train 4 load before all the upgrades need to be in place.. So when the recloser gets installed and in service, you should be able to add 11,870 KW.
Also, all contract crews and personnel have been working storm repairs since Monday . I do not know how much longer that will go on, but when you add required rest time, it will probably be next week before things get back to normal and they can all get back to their projects.
Stay Safe,
Andrew J. Lange
Oncor New Construction Management -Senior Project Manager
Oncor Electric Delivery

From: Lange, Andrew
Sent: Monday, March 25, 2019 7:56 AM CDT
To: Clint Marcoux
Subject: **External**Updates

[CAUTION] This email has been received from outside of our organization. Please be careful when opening attachments or clicking links.

Hi Clint - Couple of good news items - the transformers are scheduled to be there in the morning and Primoris is scheduled to be there to unload them I do not know for sure how much more they will do but would imagine they will try and install the wiring as well The reclosure is online and the fuses have

From: Lange, Andrew
Sent: Wednesday, June 12, 2019 10:38 AM CDT
To: Clint Marcoux
CC: Snell, Cliff; Quintanilla, Carlos
Subject: **External**Eagle Claw Pecos Plant question
Importance: High

[CAUTION] This email has been received from outside of our organization. Please be careful when opening attachments or clicking links.

Hi Clint- question – On June 4th the Oncor meter reading indicated a peak load of **10,192KW (10.2 MW)**

X. CAPROCK'S POWER PROTECTIVE DEVICES

Q50. AT THE TIME OF THE INCIDENT, WHAT PROTECTIONS DID THE DAMAGED EQUIPMENT HAVE AGAINST LIGHTNING OR ELECTRICAL SURGES?

A. There were a number of things in place to protect the 480-volt systems at Trains 2, 3, and 4—which again, were essentially brand new at the time of the Incident—from lightning or electrical surges, including: (1) each train's robust grounding system and explosion-proof construction; (2) circuit breakers; (3) metal oxide varistors ("MOVs"); and (4) upstream lightning arrestors and other protections on the utility side.

Q51. DESCRIBE THE GROUNDING SYSTEMS AND EXPLOSION-PROOF CONSTRUCTION, AND WHAT PROTECTIONS THOSE PROVIDED.

A. The Plant and its connecting pipelines are designed to process and transport large volumes of highly flammable natural gas. If special precautions are not taken, the Plant and the gas it processes would be at serious risk of exploding anytime a lightning storm passed through the area. Therefore, contractors that specialize in building gas processing plants—such as the contractors that designed and built Trains 2, 3, and 4—must take special precautions to guard against lightning penetrating or damaging a plant's facilities.

To that end, the Plant is equipped with: (1) explosion-proof construction, which guards against lightning, electrical charges, or fire from penetrating the Plant's facilities and igniting the gas contained therein, and (2) a robust grounding system to shunt any lightning or external electricity to ground and away from the Plant's facilities and equipment. The grounding system is a full metallic conduit with multiple redundant

connections that surround the entire Plant and each of its trains. It is more robust and extensive than grounding systems used in typical commercial buildings and residences. Exhibit 18 contains true and correct copies of pictures showing examples of the grounding system throughout the Plant.

Q52. DESCRIBE WHAT PROTECTION THE BREAKERS AND MOV'S PROVIDED.

A. Each of the 480-volt systems in Trains 2, 3, and 4 had circuit breakers. There were breakers between each piece of equipment in the MCCs that sustained damage and Oncor's transformers. The breakers were designed and programmed to trip and protect the MCC equipment from a surge in electrical current, such as the high electrical current produced by a lightning strike. Specifically, the breakers were set to trip at 3,000 amps. So, for example, if a 10,000-amp electrical current reached the 480-volt MCCs from an upstream lightning strike, the breakers would trip and break the circuit before that current reached or damaged the electrical equipment in the MCCs. The breakers, however, are not designed to trip based on high voltage (as opposed to high current), such as the long duration over-voltage that caused the damage in this case.

The MOV's were located on the damaged electrical equipment in the MCC's downstream from the breakers. They are designed to protect against surges in voltage that typically accompany the high current from a lightning strike. But as Caprock's expert Dr. Dickens explains in his testimony, MOVs are not designed to protect against long-duration over-voltage events (as opposed to transient/momentary surges in voltage from a lightning strike).

Q53. WHAT EXISTED UPSTREAM ON THE UTILITY SIDE TO PROTECT AGAINST LIGHTNING STRIKES OR OTHER ELECTRICAL SURGES?

A. At the time of the Incident, Oncor had a number of lightning arrestors on its powerlines in and around the Plant. There were also fuses located at various points on Oncor's upstream utilities. These additional devices offer further protection in the event of an electrical surge from lightning striking the utility lines upstream from the MCCs.

Q54. WERE THERE ANY ANALYSES OR TESTS PERFORMED REGARDING THE PROTECTIONS ON THE DAMAGED EQUIPMENT BEFORE THE INCIDENT?

A. Yes, multiple professional engineers and contractors were involved in designing, testing, analyzing, and inspecting the 480-volt systems on Trains 2, 3, and 4 prior to the Incident. And we are not aware of any concerns or issues raised with the protections on those systems before the Incident.

For example, professional engineers and contractors performed short circuit studies, analyses of protective devices, power coordination study, and arc flash analysis for the 480-volt systems at Trains 2, 3, and 4 before Incident. True and correct copies of these reports are included in Exhibits 19, 20 and 21, including an April 2017 protective device report and short circuit analysis from Shermco Industries for Train 2, an October 2018 protective device report from Eaton (incorporating revisions/comments from ZAP) for Train 3, and a February 2019 protective device report from Eaton (approved by ZAP) for Train 4. None of the reports identified violations of the National Electrical Code, nor did any report recommend additional protective devices for the 480-volt systems. Moreover, to the best of our company's

knowledge, all recommendations for protective device settings were implemented as of the time of the Incident.

In addition, process hazard analyses were performed before the Incident, in which contractors and management review hundreds of areas of potential hazards to the Plant and the controls in place to mitigate those risks, as well as recommendations for any risks that are not addressed. None of these analyses identified or recommended additional protections against lightning or foreseeable electrical incidents. For instance, a process hazard analysis for Train 3, which considered over 500 different potential risks or hazards to Train 3, found that there sufficient protections to mitigate the risks posed by an electrical fault, a lightning strike, or other weather, including plant design, compliance with applicable codes, the grounding system, and overcurrent protection. A true and correct copy of excerpts from this Process Hazard Analysis of Train 3, dated November 30, 2017, are reflected in Exhibit 22.

Q55. WHY DID THE 480-VOLT SYSTEMS AT TRAINS 2, 3, AND 4 NOT HAVE CERTAIN PROTECTIVE DEVICES THAT EXISTED ON OTHER ELECTRICAL SYSTEMS AT THE PLANT?

A. The 4160-volt systems at Trains 2, 3, and 4 had additional protective devices than those included on the 480-volt systems, but those two systems are subject to different codes and standards. A 4160-volt system is classified as medium voltage, whereas a 480-volt system is classified as low voltage, and there are different standards and codes that govern medium voltage and low voltage systems, with the medium voltage systems generally requiring more protections in light of the higher voltages they use. In any

event, we are not aware of any overvoltage protections on 4160-volt systems at Train 2, 3, and 4 tripping or preventing those systems from sustaining damage during the Incident. Dr. Dickens will further explain in his testimony the reasons the 4160-volt systems did not sustain damage, which had to do with differences in the configurations of the 4160-volt transformers versus the 480-volt transformers.

The Train 1 MCC also avoided damage, but again, as Dr. Dickens discusses further in his testimony, the Train 1 MCC was not impacted the same by the Incident. Specifically, when the jumper detached, the powerline leading to Train 1 fell to the ground and the voltage/current on that line went to zero, whereas the powerline leading to Trains 2, 3, and 4 that detached from the jumper remained hanging in the air and energized per the PQM data discussed above. Train 1, therefore, did not experience an overvoltage event, and as Brent Duke will explain in his testimony, the main breaker at Train 1 tripped due to a current phase loss, not an overvoltage. Also, although there was an additional protective device inside the Train 1 MCC, known as a SEL-751A relay, Brent Duke will explain in his testimony that another device at Train 1—not the SEL-751A—tripped during the Incident.

And the fact that there was a SEL-751A device in the Train 1 MCC, but not in Trains 2, 3, or 4 MCC's, is merely the result of the trains being built by different contractors at different times, with different equipment from different manufacturers and purchased from different suppliers. Simply put, the contractors that built the MCCs for Trains 2, 3, and 4 installed out-of-the-box equipment that did not happen to come with a SEL-751A device, whereas the Train 1 MCC happened to have a SEL-751A device (even though such device was not required and may not have even been enabled

at the time of the Incident), which in any event, did not trip or protect the Train 1 MCC from any electrical damage on the night of the Incident.

Q56. IN YOUR EXPERIENCE, WERE THE PROTECTIONS IN PLACE AT THE TIME OF THE INCIDENT CONSISTENT WITH INDUSTRY STANDARDS AND PRACTICES IN REGARD TO 480-VOLT SYSTEMS?

A. Yes, in my experience with gas processing plants and similar facilities that utilize 480-volt electrical systems, the protections on the 480-volt systems at Trains 2, 3, and 4 had power protections that were consistent with industry standards and practices. It is common for facilities like the Plant to utilize robust grounding systems, overcurrent breakers, and MOVs to protect their 480-volt systems without adding further protective devices such as a SEL-751A device.

XI. CAPROCK'S POSITION ON CERTAIN ISSUES TO BE ADDRESSED IN THE COMMISSION'S PRELIMINARY ORDER[2]

Q57. AS CORPORATE REPRESENTATIVE, WHAT IS CAPROCK'S GENERAL POSITION REGARDING ISSUE NO. 4 IN THE COMMISSION'S PRELIMINARY ORDER IN THIS CASE?

A. In general, Caprock contends that a long duration overvoltage event damaged Caprock's electrical equipment at the Plant on the night of June 4, 2019. Caprock

[2] Caprock submits the testimony under this section subject to and without waiver of Caprock's ongoing objections to the Commission's jurisdiction over various issues in this case that Caprock contends it has a right to try to a civil jury in state court, including but not limited to the issues that Caprock moved to dismiss earlier in this case.

contends that the overvoltage and ensuing damage were caused by issues that were on Oncor's side of the point of delivery, not Caprock's. Specifically, Caprock contends that a mechanical jumper that Primoris installed on Oncor's powerline detached on the night of June 4, causing a long duration overvoltage event that last around 20-30 minutes. Caprock further contends that the jumper detached and caused the ensuing long duration overvoltage, because the jumper was not properly installed or maintained, and for the other reasons discussed by Caprock's experts in this case. Caprock contends that the long duration overvoltage caused catastrophic, physical damage to its low-voltage equipment at Trains 2, 3, and 4.

Caprock's Brent Duke called and reported the damage to Oncor shortly after it was discovered on the night of June 4. Separately, a few days before the Incident—on June 2, 2019—Caprock's Brent Duke called Oncor about a low-hanging powerline that Primoris' Blake Smedley admitted was caused by the failure of his crew to properly install/tighten/maintain a piece of equipment located close to where the jumper detached on June 4. Oncor responded by dispatching the inexperienced Blake Smedley to inspect and fix the issue that he caused.

Caprock relies primarily on the direct testimony of Dr. James Dickens and the exhibits cited therein to support its position on this topic. Caprock also relies secondarily on the direct testimony of Morris Mach. In addition, my direct testimony as well as the direct testimonies submitted for Brent Duke, Blake Smedley, Lucas Silva, and Cody Johnson provide foundation and additional evidence supporting Caprock's positions on issues concerning the cause of Caprock's damages in this case.

Q58. AS CORPORATE REPRESENTATIVE, WHAT IS CAPROCK'S GENERAL POSITION REGARDING ISSUE NOS. 7(F) AND 7(G) IN THE COMMISSION'S PRELIMINARY ORDER IN THIS CASE?

A. Regarding Issue No. 7(F), Caprock contends that Oncor failed to comply with the power quality requirements under 16 TAC § 25.51 for reasons discussed in the direct testimony of Dr. James Dickens.

Regarding Issue No. 7(G), Caprock contends that Oncor—directly and/or through Primoris—failed to operate and maintain its delivery system in accordance with good utility practices for reasons discussed in the direct testimonies of Dr. James Dickens and Morris Mach. Caprock also relies on the direct testimonies submitted for Blake Smedley, Lucas Silva, and Cody Johnson for foundation and additional evidence supporting its position on this issue.

Q59. AS CORPORATE REPRESENTATIVE, WHAT IS CAPROCK'S GENERAL POSITION REGARDING ISSUE NO. 8 IN THE COMMISSION'S PRELIMINARY ORDER IN THIS CASE?

A. In general, Caprock contends that Oncor violated or breached Oncor's Tariff, and that such violations or breaches caused or contributed to Caprock's damages in this case. Without addressing all provisions Oncor may have violated, Caprock primarily contends that Oncor breached its Tariff in three keyways.

First, Caprock contends that Oncor—directly and/or through Primoris—violated Tariff § 4.2.1 by failing to "make reasonable provisions to supply steady and continuous Delivery Service," which resulted in the long duration overvoltage event on

the night of June 4, 2019 that caused Caprock's damages in this case. Oncor's failures to "make reasonable provisions" include, among other things, having inexperienced and unqualified linemen perform the complex reconductor project at the Plant, failing to adequately supervise those linemen, failing to adequately inspect the work performed by those linemen, supplying an undersized wire for the amount of load Oncor told Caprock the Plant could pull, and failing to reasonably program or operate the Nova recloser at the time of the Incident.

Second, for the same reasons, Caprock contends that Oncor—directly and/or through Primoris—failed to "use reasonable diligence" under Tariff § 3.13 to provide continuous and adequate delivery services to the Plant, which caused or contributed to the overvoltage event that damaged Caprock's equipment.

In support of its above contentions regarding Oncor's violations of the Tariff §§ 4.2.1 and 3.13, Caprock relies on the direct testimonies of Dr. James Dickens and Morris Mach, along with the exhibits cited therein. In addition, the direct testimonies submitted for Blake Smedley, Lucas Silva, and Cody Johnson provide foundation and additional evidence supporting Caprock's contentions as to these two breaches.

Lastly, Caprock also contends that, in breaching its common law standard of care, Oncor failed to adhere to its Tariff § 5.5.2 with respect to complying with power quality requirements. Specifically, Caprock contends that Oncor violated the power quality requirement concerning the maximum voltage above the nominal voltage (480 volts) during the long duration overvoltage event that exceeded 130% above the nominal voltage. Caprock relies on the direct testimony of James Dickens in support of its contentions on this topic.

Q60. AS CORPORATE REPRESENTATIVE, WHAT IS CAPROCK'S GENERAL POSITION REGARDING ISSUE NOS. 8(N) & 8(O) IN THE COMMISSION'S PRELIMINARY ORDER IN THIS CASE?

A. In general, Caprock contends that it complied—directly or through the professional engineers and contractors that built Trains 2, 3, and 4—with the obligations imposed by Oncor's Tariff § 5.4.1, if any, regarding the design, installation, operation, and maintenance of power protections on its low-voltage equipment that sustained damage during the Incident. Moreover, Caprock contends that the power protections on the damaged equipment at the time of the Incident were compliant with all applicable codes, legal authorities, and industry standards. Caprock further contends that additional protective devices, such as additional surge protections, would not have prevented or mitigated Caprock's damages from the long duration overvoltage on the night of June 4, 2019.

In support of these contentions, Caprock relies on my direct testimony herein, the exhibits cited herein concerning power protections on the damaged equipment at the time of the Incident, and the direct testimony of Dr. James Dickens on this topic.

Q61. AS CORPORATE REPRESENTATIVE, WHAT IS CAPROCK'S GENERAL POSITION REGARDING ISSUE NO. 8(Q) IN THE COMMISSION'S PRELIMINARY ORDER IN THIS CASE?

A. In general, Caprock contends that its damages in this case were not the result of adverse effects from "voltage fluctuations" or "single phase events," as those terms are used and/or intended in Oncor's Tariff § 5.5.3. Caprock further contends that the power

protections installed on the damaged equipment at the time of the Incident complied with any obligations imposed by Oncor Tariff § 5.5.3.

In support of these contentions, Caprock relies primarily on the direct testimony of Dr. James Dickens. In addition, Caprock relies on my direct testimony herein, and the exhibits cited herein concerning power protections on the damaged equipment at the time of the Incident.

XII. CONCLUSION

Q62. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.