ROCKY MOUNTAIN POWER
A DIVISION OF PACIFICORP

1407 W. North Temple, Suite 330
Salt Lake City, UT 84116

February 10, 2025

VIA ELECTRONIC FILING

Public Service Commission of Utah
Heber M. Wells Building, 4th Floor
160 East 300 South
Salt Lake City, UT 84114

Attn: Gary Widerburg
Commission Administrator

Re: Docket No. 24-035-09 – Rocky Mountain Power's Power Quality Report for 2024

PacifiCorp d/b/a Rocky Mountain Power ("the Company") hereby submits for filing its Power Quality Report to the Public Service Commission of Utah ("Commission"). The report attached herein contains power quality data in the template that was approved in correspondence from the Commission dated November 1, 2022 in Docket No. 22-035-34. The reporting period is January through December 2024.

Rocky Mountain Power Proposal to Consolidate Reporting Requirements

In accordance with the Commission's Order Approving Rocky Mountain Power's 2024 Electrical Power Delivery Quality Plan issued on June 19, 2024, in Docket No. 24-035-16, the Company submits a proposal to consolidate the power quality reporting requirement established at the Company's request through Docket No. 22-035-34 ("Power Quality Reports") and the Electrical Power Delivery Quality Plan reports, required by the Electrical Power Delivery Quality Act in the 2023 Utah Legislative session.[1] The Company is required to file an Electrical Power Delivery Quality Plan with the Commission biennially on April 1 of even-numbered years[2] ("Power Quality Plans") and status reports regarding the implementation of the Power Quality Plans each year on October 1[3] ("Power Quality Plan Status Report").

At the recommendation of the Division of Public Utilities ("DPU"), the Company proposes to combine the Power Quality Reports and Power Quality Plan Status Reports to maximize efficiency and resources since the two reports contain similar information and are duplicative. The Power Quality Plan Status Reports are required by Commission Rule so it is more administratively efficient to combine the Power Quality Reports into the Power Quality Plan Status Reports. The Company reviewed the information required in each report and determined that they contain the same information except the Power Quality Reports contain additional information related to

[1] Utah Code §54-25 and Public Service Commission of Utah Rule R746-316.
[2] R746-316-3.
[3] R746-316-5.

voltage sag causes and individual SEMI-F47 curves for each site. Figure 1 illustrates the current timing of the reports through 2030.[4]

Figure 1 – Current Timing of Reports

	Report Filing Date		
CY	**February 15**	**April 1**	**October 1**
2024	Power Quality Report (Reporting Period CY 2023)	Power Quality Plan	
2025	Power Quality Report (Reporting Period CY 2024)		Power Quality Plan Status Report (Reporting Period CY 2024)
2026	Power Quality Report (Reporting Period CY 2025)	Power Quality Plan	Power Quality Plan Status Report (Reporting Period CY 2025)
2027	Power Quality Report (Reporting Period CY 2026)		Power Quality Plan Status Report (Reporting Period CY 2026)
2028	Power Quality Report (Reporting Period CY 2027)	Power Quality Plan	Power Quality Plan Status Report (Reporting Period CY 2027)
2029	Power Quality Report (Reporting Period CY 2028)		Power Quality Plan Status Report (Reporting Period CY 2028)
2030	Power Quality Report (Reporting Period CY 2029)	Power Quality Plan	Power Quality Plan Status Report (Reporting Period CY 2029)

The Company will file its first Power Quality Plan Status Report on October 1, 2025 for calendar year 2024. Under the Company's proposal, the following information from the Power Quality Reports will be added to the Power Quality Plan Status Reports, beginning with the report filed October 1, 2026:

Voltage Sag Causes

- For voltage sags events below the SEMI-F47 curve:
  - Cause
  - Location
  - Duration
  - All monitors impacted by the same event
- Individual SEMI-F47 curves for each site

Based on the Company's proposal, the Power Quality Report will no longer be filed on February 15 and instead the equivalent information will be subsumed into the Power Quality Plan Status Reports filed on October 1. The revised timing of the reports is illustrated in Figure 2.

Figure 2 – Revised Timing of Reports

	Report Filing Date		
CY	**February 15**	**April 1**	**October 1**
2024	Power Quality Report (Reporting Period CY 2023)	Power Quality Plan	
2025	Power Quality Report (Reporting Period CY 2024)		Power Quality Plan Status Report (Reporting Period CY 2024)
2026		Power Quality Plan	*Power Quality Plan Status Report (Reporting Period CY 2025)*
2027			*Power Quality Plan Status Report (Reporting Period CY 2026)*
2028		Power Quality Plan	*Power Quality Plan Status Report (Reporting Period CY 2027)*
2029			*Power Quality Plan Status Report (Reporting Period CY 2028)*
2030		Power Quality Plan	*Power Quality Plan Status Report (Reporting Period CY 2029)*

Stakeholder Feedback

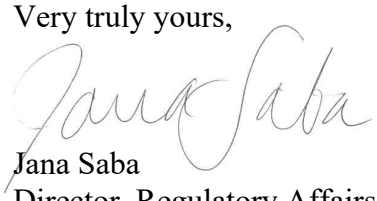
The Company developed the Power Quality Report through a collaborative process that included the Division, Office of Consumer Services, Utah Association of Energy Users, Utah Petroleum Association, Utah Mining Association, and Clean Harbors Aragonite Inc. and is open to feedback

[4] Reporting requirements continue beyond 2030. The Company provided the selected years to illustrate the cadence of filings over a number of years.

from these parties and any other stakeholder in order to ensure that the information provided in through this proposal remains useful and aligns with the original intent of the reporting.

Questions may be directed to Max Backlund at (801) 220-3121.

Very truly yours,



Jana Saba
Director, Regulatory Affairs

cc: Service List: Docket Nos. 24-035-16 and 22-035-34

CERTIFICATE OF SERVICE

Docket Nos. 25-035-09, 24-035-16, 22-035-34

I hereby certify that on February 10, 2025, a true and correct copy of the foregoing was served by electronic mail to the following:

Utah Office of Consumer Services

Michele Beck	mbeck@utah.gov
	ocs@utah.gov

Division of Public Utilities

dpudatarequest@utah.gov

Assistant Attorney General

Patricia Schmid	pschmid@agutah.gov
Robert Moore	rmoore@agutah.gov
Patrick Grecu	pgrecu@agutah.gov

Utah Mining Association

Brian Somers	bsomers@utahmining.org

Energy Strategies

Kelly Francone	kfrancone@energystrat.com

Utah Petroleum Association

Rikki Hrenko-Browning	rhrenko-browning@utahpetroleum.org

Clean Harbor

William Simmons	simmons.william@cleanharbor.com
Ashley Peck	aapeck@hollandhart.com
Michelle Brandt King	mbking@hollandhart.com

Chevron

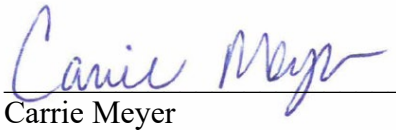
Timothy Porritt	tporritt@chevron.com

Utah Association of Energy Users

Phillip Russell	prussell@jdrslaw.com

Rocky Mountain Power

Data Request Response Center	datarequest@pacificorp.com
Jana Saba	jana.saba@pacificorp.com
	utahdockets@pacificorp.com
Max Backlund	max.backlund@pacificorp.com
Carla Scarsella	carla.scarsella@pacificorp.com



Carrie Meyer
Adviser, Regulatory Operations

Rocky Mountain Power

2024 Utah Power Quality Report

Voltage Sag Analysis for Utah's Transmission System

PacifiCorp Power Quality Engineering
2-10-2025

Contents

Glossary

CE – Product marking indicating Conformité Européenne, conforming to European Union standards for health and safety of electrical components.

Company – Represents the entity PacifiCorp d.b.a Rocky Mountain Power

IEC – International Electrotechnical Commission

IEEE – Institute of Electrical and Electronics Engineers

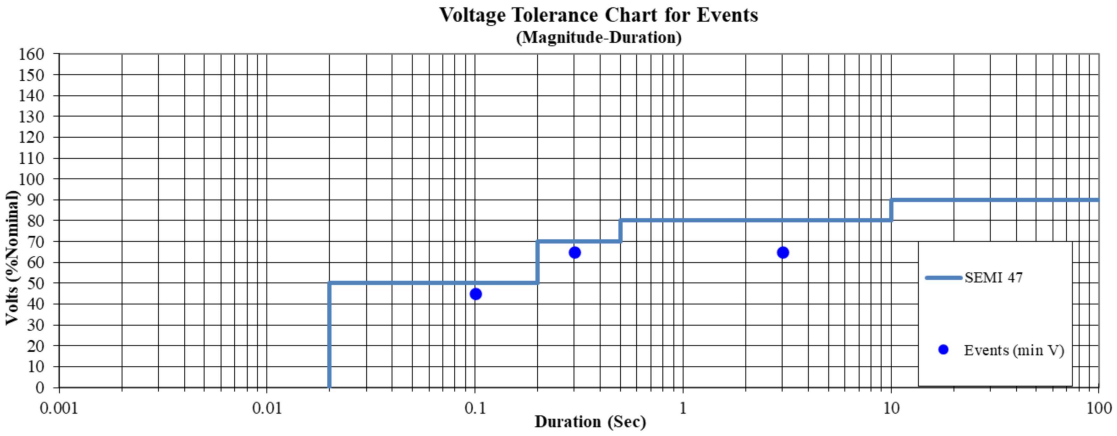
ITE – Information technology equipment

kV – kilovolt

Monitor – Device with a primary purpose to measure system values at an increased sampling rate to determine utility and customer compliance with Company power quality standards

Meter – Device with a primary purpose of recording energy use by a customer with ancillary power quality monitoring capabilities.

SEMI-F47 Curve – A voltage sag ride-through curve developed by the semiconductor manufacturing industry to ensure that control and manufacturing equipment would not require operator intervention in the event of a voltage sag. Implementation of the ride-through curve requirements to applicable control equipment ensures that equipment drop-off is not a result of control terminal sensitivity but determined by the equipment's operational limitations and safety requirements of the attached load.



UL – Underwriters Laboratories certification of safety for electrical equipment

Voltage sag – A short duration reduction in voltage. The severity of a voltage sag is defined by how deep the voltage is reduced as a percentage of its normal operating value, and the duration of the voltage reduction. Voltage sags are typically caused by short-circuit or fault conditions on the electric power system.

VFD – Variable Frequency Drive

Power Quality Introduction

Report Scope

This report identifies the quantity and sources of voltage disturbances, primarily voltage sags, observed at 46-345 kV Company substations. This report includes data collected during 2024. Subsequent reports will be provided on an annual basis and include the prior year's data. The report utilizes existing power quality monitors located within transmission substations in various locations throughout Utah. The future deployment of power quality monitoring devices will be incorporated into subsequent reports.

Customer Ride-Through Capability

Customers are encouraged to develop systems to ride through less severe voltage sags. The Company recommends customers utilize the SEMI-F47 curve as a guideline to determine the voltage sag ride-through parameters of their equipment. Events below the SEMI-F47 curve will likely cause customers' equipment to shut off, whereas customers are encouraged to design systems to ride through events occurring above the curve. Voltage sag events occurring below the SEMI-F47 curve during the data collection period are included in this report.

The Company has found the items in the bullet list below are common methods customers have utilized to mitigate the impact of voltage sags. These identified methods are examples of actions taken by customers; however, a detailed analysis of a customer's systems and processes is typically required to enable voltage sag resilience.

- **UL & CE Listed** – Equipment with both markings are tested to IEC power quality standards and have improved ride-through capabilities
- **Update Ice Cube Relays** – Update from electromechanical styled relays to solid state
- **Ferroresonant Transformer** – Low voltage transformers that can maintain voltage during sags
- **Static Transfer Switch** – Provides an unaffected source in the event of an outage
- **VFD Settings** – Configuration of the VFD controllers can expand the allowable operation window
- **Latching Relays** – For processes that can resume operation without inspection a latched start can minimize the impact of restarting.
- **Uninterruptible power supply** – Hardening low voltage control systems can prevent process stops due to the control system restarting.
- **Dynamic Volt-Amp Devices** – For mission critical devices and processes on low voltage a voltage conditioning resources can allow heavy load equipment to maintain voltage and improve their ride-through.

Power Quality Monitor Locations

Monitoring locations selected for this report are located at Company transmission substations. Monitor data availability at each location is not guaranteed as power quality monitors may have communication issues, hardware/software reset needs, or monitor failure. Voltage levels reported from Company monitors may vary from customer monitoring systems due to variables that include the distance of the fault from the customers' monitors as compared to the distance to the Company's monitors.

Company power quality monitor models:

- Nexus 1500 & 1252
- Shark 250
- ION 8650
- GE KV2C
- PMI Revolution

Power quality monitor locations:

- See Appendix – Site Index

- See Site Map (see page 5)
    - Monitor regions
        - Appendix – Regional Site Maps (see page 14)
            - North: service area north of Salt Lake County line
            - Central: service area between Salt Lake and Provo Counties
            - West: service area west of Salt Lake County
            - South: service area south of Provo County
    - Monitor voltage range identification

The 2022 Utah power quality report included 24 monitoring points. 16 of these monitoring points have been retained in the 2024 reporting period due to 8 monitors retired from service. The 2023 Utah power quality report added 23 monitoring points, 23 of these monitoring points have been retained in the 2024 reporting period. 4 new monitoring points have been added for the 2024 reporting period and in 2025 the Company plans to add 31 new monitoring points.

Table 1: Cumulative Yearly Monitor Locations

Year	Cumulative Count of Monitoring Locations Used in 2024 Reporting
2022	16
2023	39
2024	43
2025 Planned Monitors	74

Site Map

Regional maps can be found in the Appendix under Regional Site Maps (see page 13).

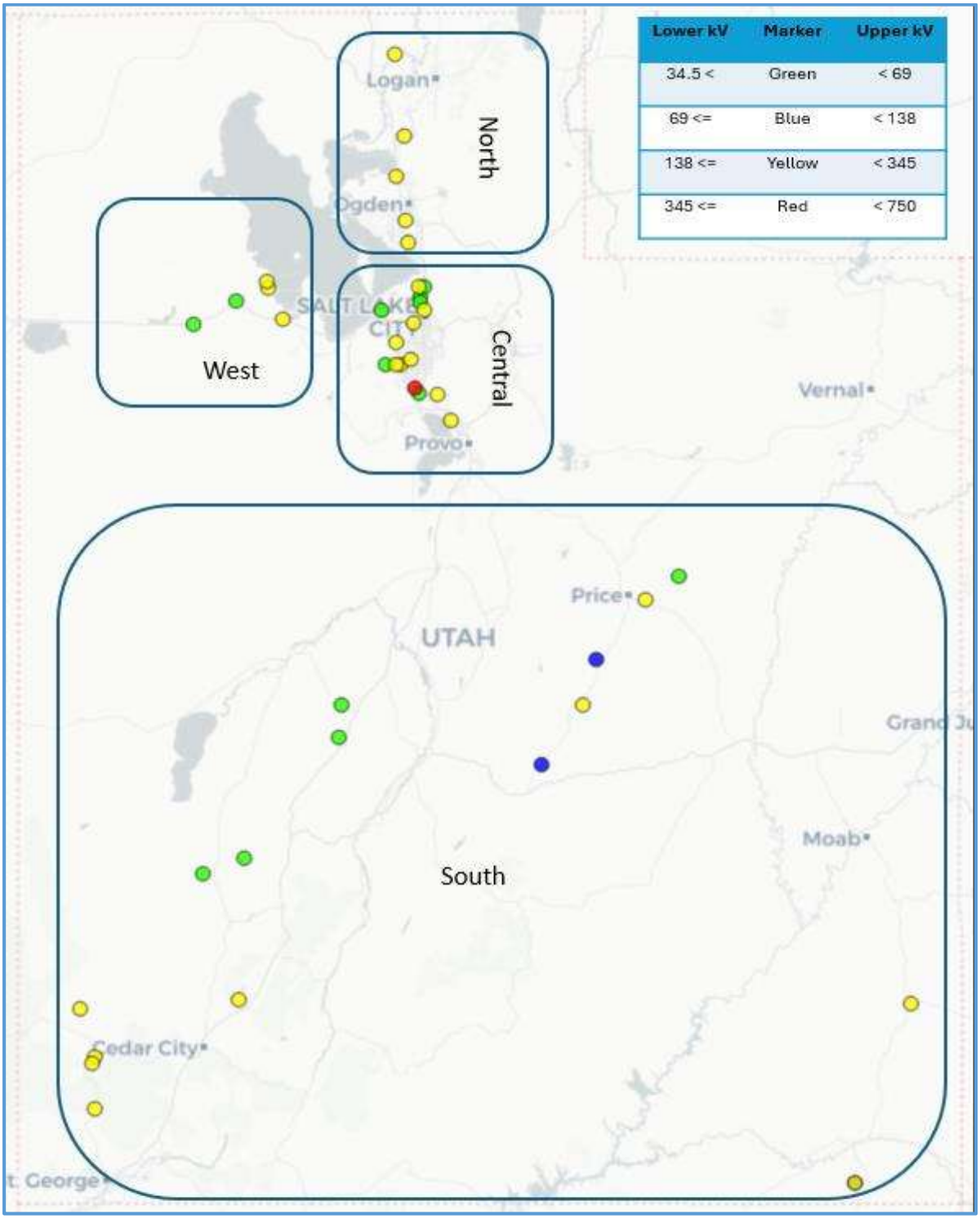


Figure 1: Monitoring Locations

Voltage Sag Event Summary

Voltage sags below the SEMI-F47 curve captured by monitoring devices for the calendar year 2024 are included in this report. Company monitors are configured to capture system voltage events when voltage deviates less than 90 percent of the monitoring point's normal voltage. The report's dataset only includes events below the SEMI-F47 curve.

Utah SEMI-F47 2024 Trend

The 2024 year included new monitoring locations that are located at transmission interconnections. Power quality monitors captured and increased number of shallower voltages sags with longer durations. For individual sites, the respective SEMI-F47 plot can be found in the Appendix –

SEMI-F47 Plots (see page 26).

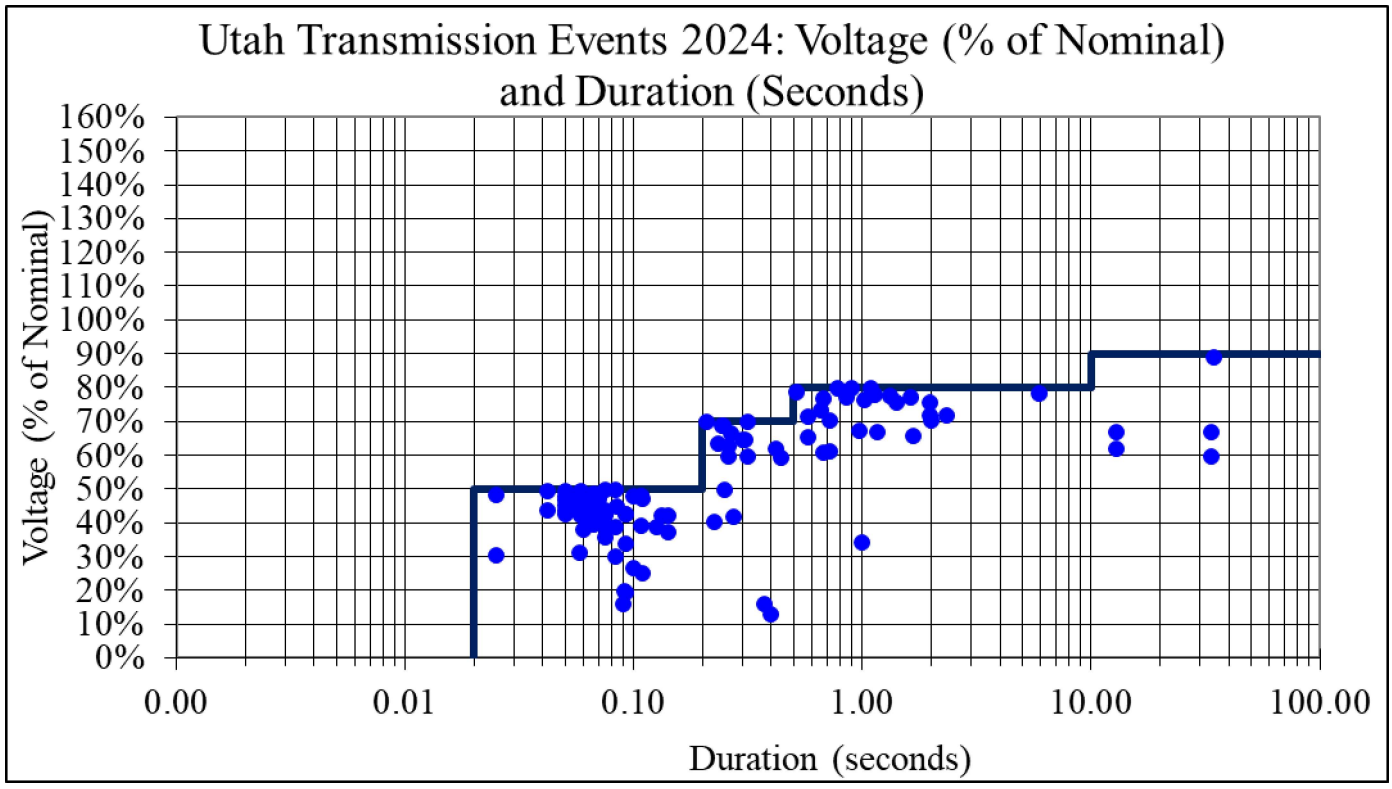


Figure 2: Utah Transmission SEMI-F47 Plot

Voltage Sag Event Site Index

Monitors captured 127 total events. 85 unique voltage sag events were captured, a 14.9% increase of recorded events from 2023. 55% of the increase in recorded events was due to adding monitors in new locations for the year 2024.

Oquirrh substation is a primary contributor to the increase of events. Oquirrh substation experienced a higher number events due to bird: activity, perching, and nesting than in previous years. Bird nesting and activity on transmission towers can shift due to several environmental factors which will result in varying number of events year to year. The San Juan and McCracken substations share a regional network that is subjected to a higher amount of weather induced events which impact both Company networks and other connected utilities that traverse large areas.

Table 2 Site Event Index

Total Events	Unique Events	Events From New Monitors
127	85	5

Substation	Kilovolt	2022	2023	2024	Event Count Change
Angel	138	0	9	5	-4
Arapaho Solar	46	0	0	5	5
Beck Street	138	0	2	2	0
Ben Lomond	138	0	2	3	1
Bluffdale	46	0	0	0	New Monitor
Blundell	46	0	1	1	0
Brigham City	138	0	1	0	-1
Camp Williams	345	3	1	0	-1
Clawson	138	0	0	0	0
Clive	46	0	0	2	2
Cove Mountain	138	0	0	3	3
Craner Flat	138	0	1	2	1
Dugout	46	0	5	2	-3
Dynamo (Lakeside 1, 2, 3)	138	13	2	2	0
Emmery	69	0	0	0	New Monitor
Enterprise Solar	138	0	0	3	3
Enterprise Valley	138	0	0	2	2
Homestead Knoll	138	11	5	1	-4
Horseshoe	138	2	3	2	-1
Kennecott	46	0	1	2	1
Lone Peak	138	0	1	0	-1
Magna	46	0	1	2	1
Mathington	138	0	2	3	1
McCracken	69	2	8	13	5
McFadden	69	0	3	5	2
Milford	46	0	0	5	New Monitor
Mountain View	138	3	2	1	-1

North Salt Lake	46	0	3	1	-2
Old Field	46	0	1	5	4
Onion	138	0	1	2	1
Oquirrh	138	3	5	15	10
Parowan	138	0	0	1	1
Pinto	138	0	4	1	-3
Red Butte	138	0	0	0	New Monitor
Remington	138	0	2	3	1
Riverdale	138	0	0	3	3
San Juan	138	1	12	16	4
Skunk Ridge	46	11	9	2	-7
Topaz	138	0	0	2	2
Wasatch Springs	46	3	3	3	0
Wheelon	138	0	0	2	2
Wights Fort Metering	138	0	3	2	-1
Woods Cross	46	0	3	1	-2

Voltage Sag Event Density Map

The Voltage Sag Density Map provides a hotspot view of voltage sags on the Utah transmission system.

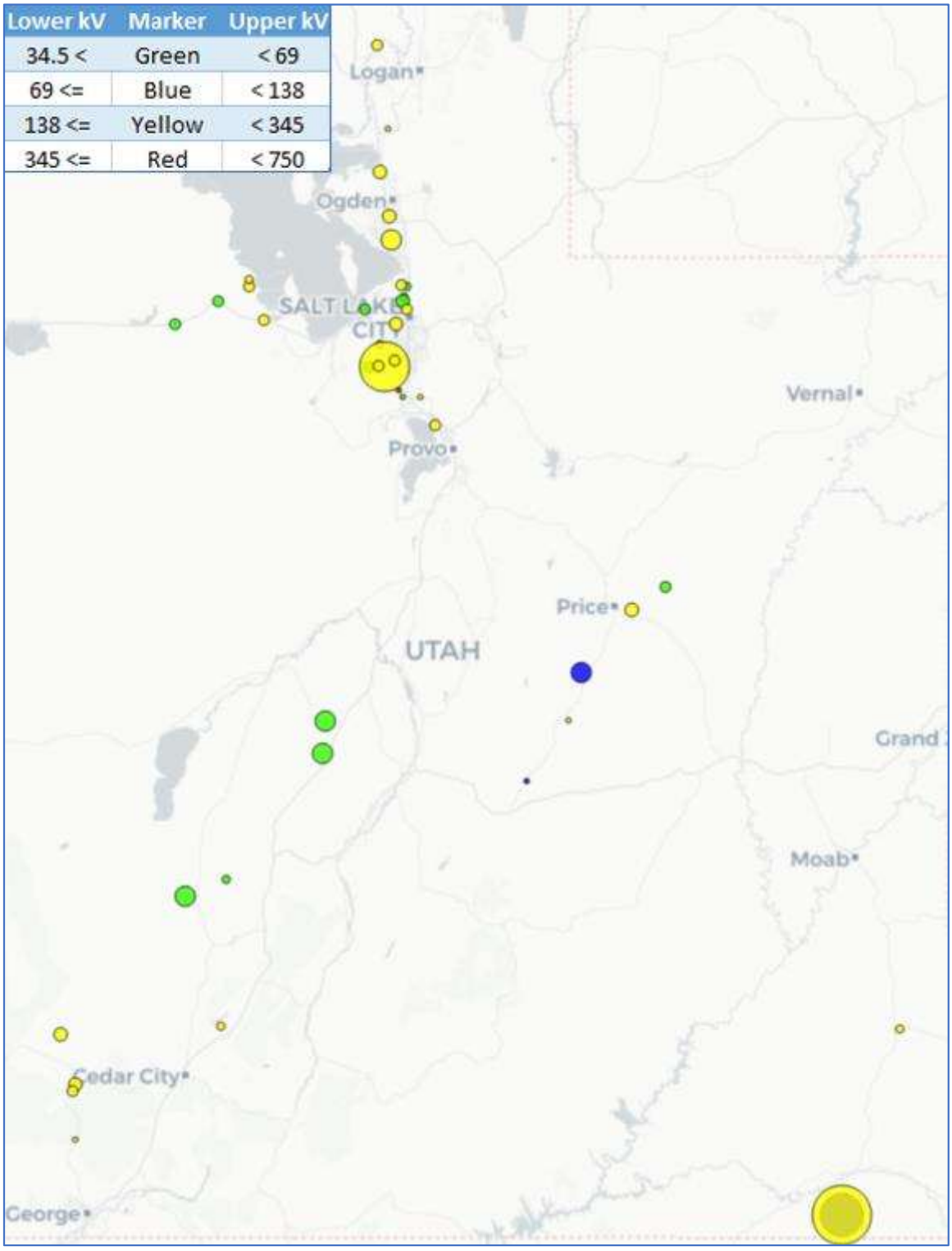
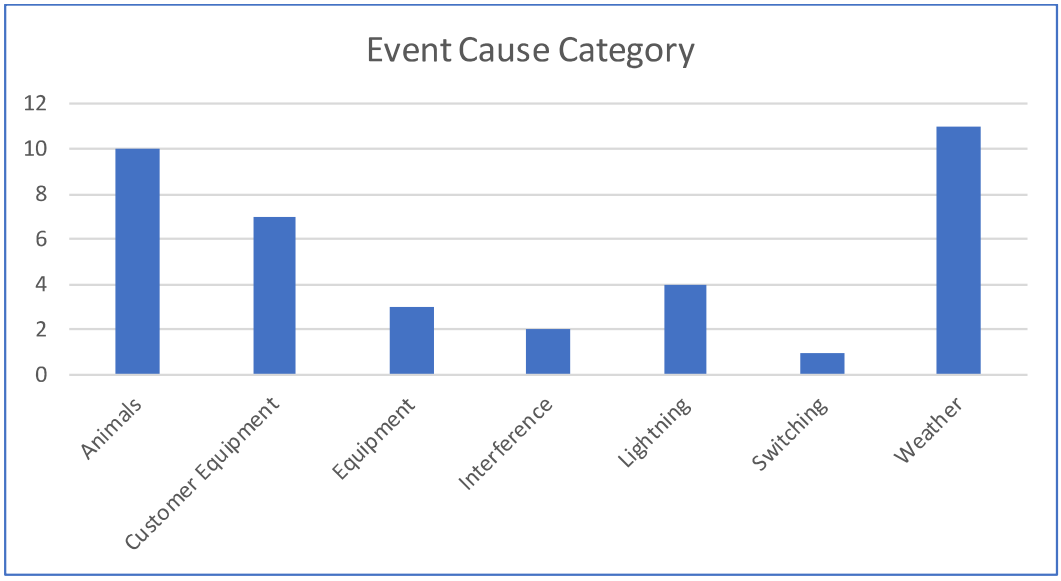


Figure 3: Voltage Sag Density Map

Voltage Sag Event Categorization

Power quality events captured by the Company are typically associated with faults (short circuit) on the transmission network. Tracking events to identify patterns in system issues can provide preventative maintenance and system improvement recommendations. If a Company system fault occurred at the time of a recorded event, it is assigned a category and short description in Table 4. 49 "Fault" events were also captured by monitors but removed from the table to improve other category readability. Events that were caused by an unknown or directly unidentifiable cause and were confirmed to have fault current in relay records were given a cause category of Fault. Review the fault records description and corrective actions taken for individual events are in the Appendix - Event Information (see page 18).



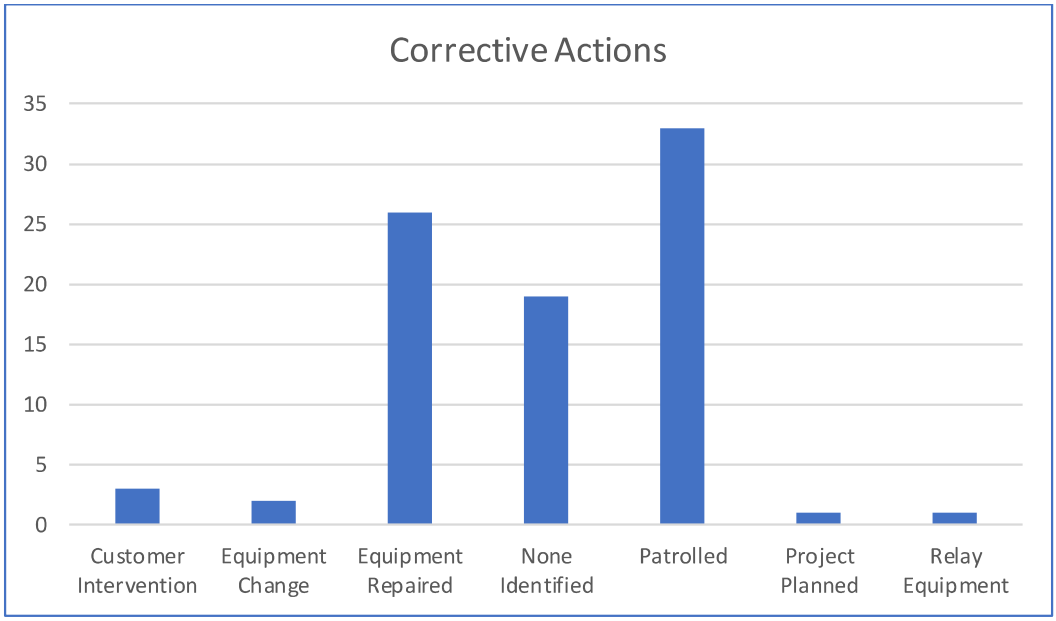


Figure 4: Event Cause Categories & Corrective Actions

Appendix

Site Index

Table 3 Site Information

Monitor Type	Substation	Area	kV	Year Added to Report
ION 8650	Angel	Layton	138	2023
ION 8650	Arapaho Solar	Millard County	46	2023
ION 8650	Beck Street	Salt Lake City	138	2023
Nexus 1500	Ben Lomond	Ogden	138	2022
KV2C	Bluffdale	Bluffdale	46	2024
ION 8650	Blundell	Milford	46	2022
ION 8650	Brigham City	Brigham City	138	2022
Nexus 1252	Camp Williams	Jordan Valley	345	2022
ION 8650	Clawson	Price	138	2023
Nexus 1252	Clive	Tooele	46	2023
ION 8650	Cove Mountain	Enterprise	138	2023
ION 8650	Craner Flat	Grantsville	138	2023
ION 8650	Dugout	Wellington	46	2023
ION 8650	Dynamo (Lakeside 1, 2, 3)	Provo	138	2022
Shark 250	Emmery	Emmery	69	2024
ION 8650	Enterprise Solar	Newcastle	138	2023
ION 8650	Enterprise Valley	Enterprise	138	2022
Nexus 1500	Homestead Knoll	SLC Metro	138	2022
ION 8650	Horseshoe	Grantsville	138	2023
ION 8650	Kennecott	Salt Lake City	46	2023
ION 8650	Lone Peak	Lehi	138	2023
ION 8650	Magna	Magna	46	2023
ION 8650	Mathington	Price	138	2023
ION 8650	McCracken	Moab	69	2022
ION 8650	McFadden	Price	69	2023
ION 8650	Milford	Milford	46	2024
Nexus 1500	Mountain View	Jordan Valley	138	2022
KV2C	North Salt Lake	SLC Metro	46	2023
ION 8650	Old Field	Holden	46	2023
ION 8650	Onion	West Bountiful	138	2023
Nexus 1500	Oquirrh	Jordan Valley	138	2022
ION 8650	Parowan	Cedar City	138	2023
ION 8650	Pinto	Monticello	138	2023

Nexus 1252	Red Butte	Cedar City	138	2024
ION 8650	Remington	Salt Lake City	138	2023
Nexus 1252	Riverdale	Ogden	138	2022
ION 8650	San Juan	Bluff	138	2022
Nexus 1500	Skunk Ridge	Tooele	46	2022
ION 8650	Topaz	South Jordan	138	2023
ION 8650	Wasatch Springs	SLC	46	2022
PMI Revolution	Wheelon	Tremonton	138	2022
ION 8650	Wights Fort Metering	West Jordan	138	2023
KV2C	Woods Cross	SLC Metro	46	2023

Regional Site Maps

North

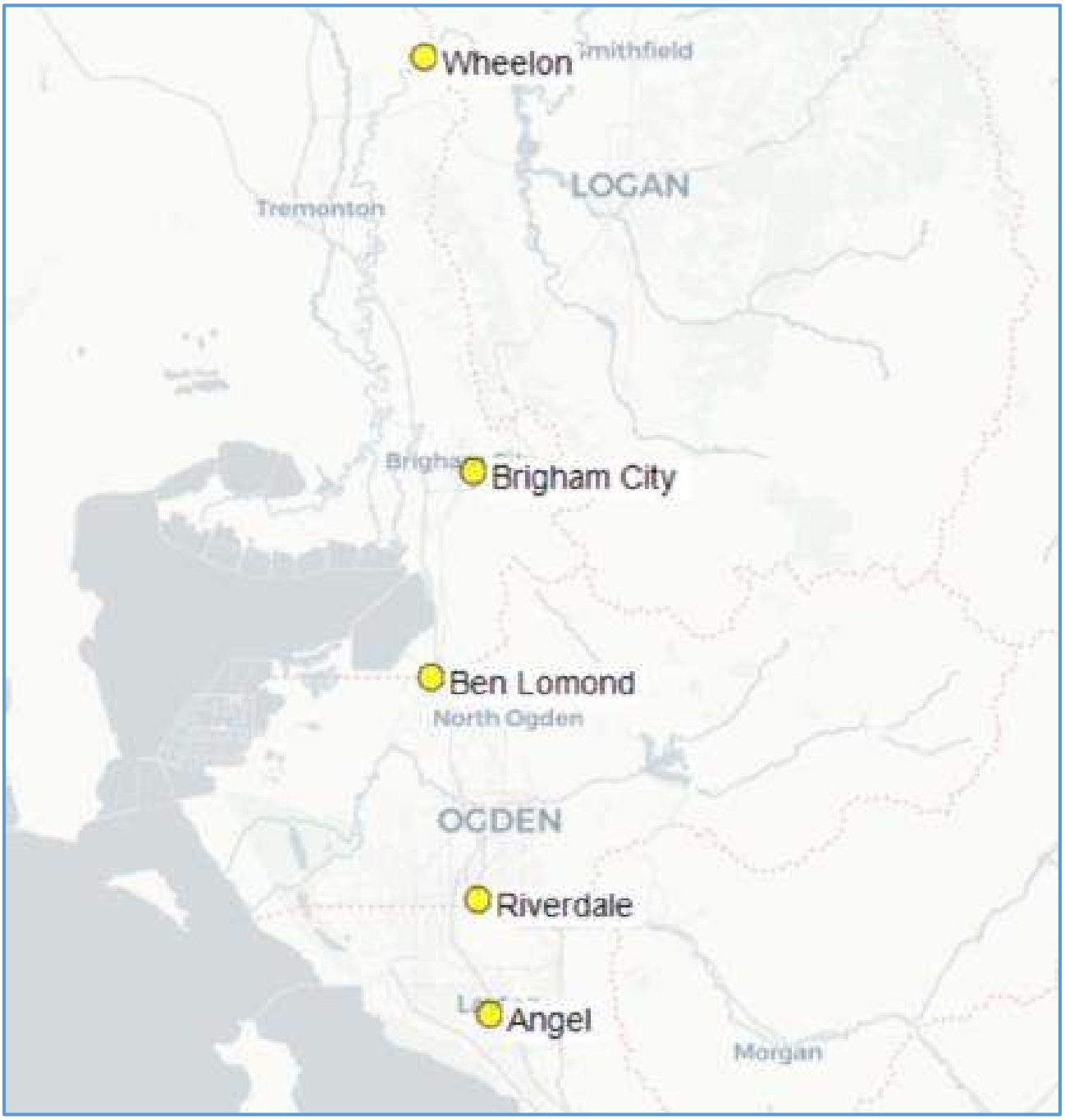


Figure 5: North Monitor Locations

Central

Figure 6: Central Monitor Locations

West

Figure 7: West Monitor Locations

South

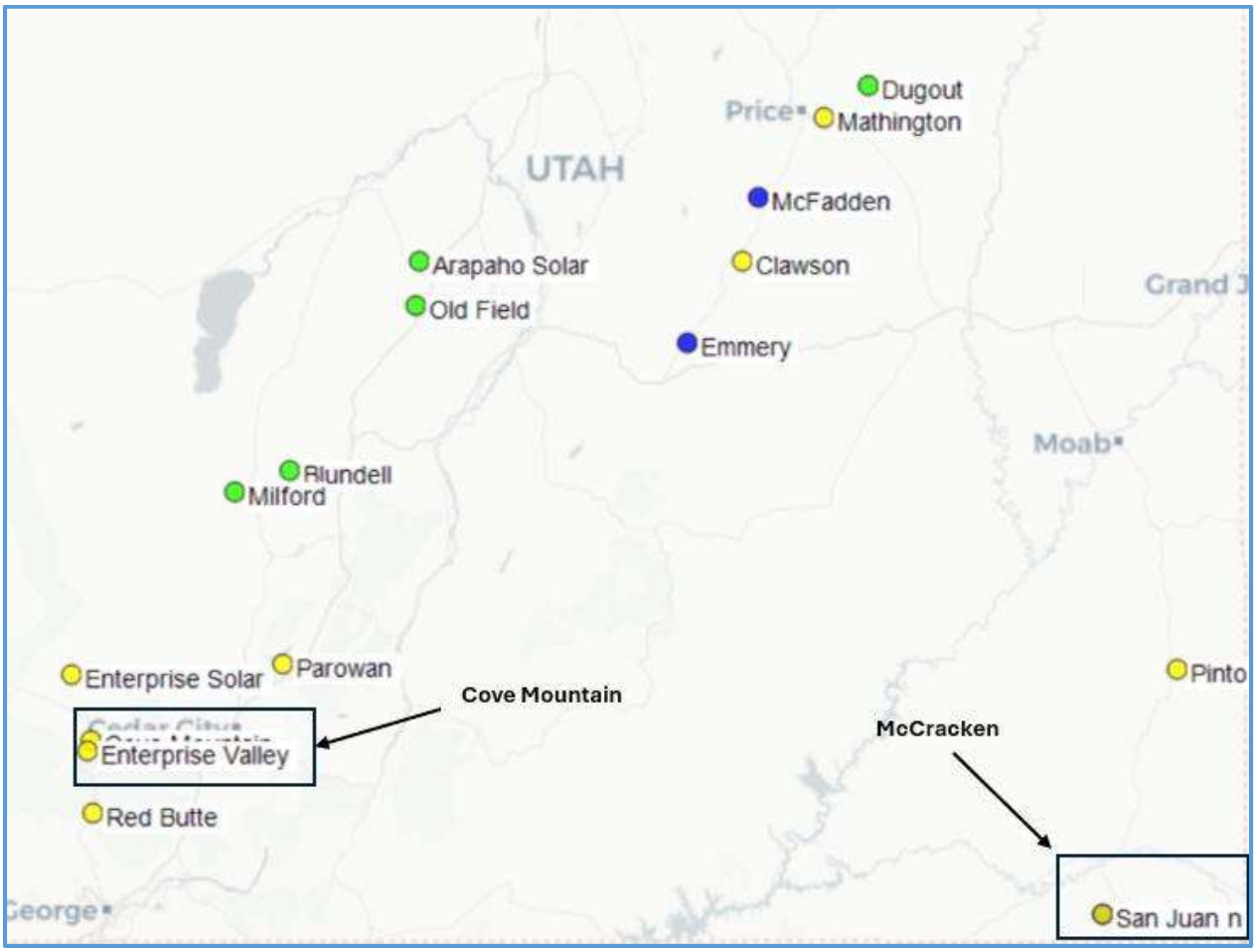


Figure 8: South Monitor Locations

Event Information

Table 3: Event Information

Substation	Meter Date	Duration(second)	Circuit	Cause Code	Equipment Impacted	Description	KV	Corrective Action
Cove Mountain, Enterprise Solar, Enterprise Valley	1/7/24 23:29	0.1	Red Butte - Three Peaks	Animals	Insulator	Patrolled bird contamination found on Structure 536 but no flash marks.	345	Patrolled
McCracken	2/4/24 11:45	0.142	Abajo CB64	Fault	Unknown	Conditions that emulate a fault on the C phase caused the voltage on the C phase to sag.	69	None
Wheelon	2/2/24 5:50	0.025	Oneida - Treasureton -Wheelon #1	Fault	Breaker	Failed trip and reclose attempts determined the breaker had failed and needed repairs.	138	Relay Equipment
Craner Flat, Homestead Knoll	2/22/24 4:35	0.084	Homestead Knoll - Rowley	Interfere	Customer Equipment	Customer Equipment faulted.	138	Customer Intervention
Oquirrh, Remington	2/25/24 8:37	0.042	Populus - Terminal	Animals	Insulator	Flashed insulators found on structure 5/43, bird contamination	345	Equipment Repaired
Old Field, Arapahoe Solar	2/27/24 5:43	0.058	Black Rock - Osceola	Equipment	Structure	Structure 580 burned	230	Equipment Repaired
Oquirrh, Onion	2/28/24 17:41	0.058	Terminal - Syracuse	Fault	Insulator	Structure 9/42 Flashed insulators. High bird traffic.	345	Equipment Repaired
Oquirrh	3/6/24 8:29	0.058	Ben Lomond - Terminal #2	Animals	Insulator	Patrolled and found flashed insulators on structure 9/42. Bird contamination	345	Equipment Repaired
San Juan, McCracken	3/6/24 12:14	0.576	Abajo - Westwater	Fault	None	Trip and reclose, patrolled no found cause.	69	Patrolled

Remington	3/12/24 8:36	0.058	Ben Lomond - Terminal	Fault	Insulator	Flashed insulators on structure. High bird traffic area	345	Equipment Repaired
Oquirrh	3/12/24 8:36	0.063	Ben Lomond - Terminal #2	Fault	Insulator	Flashed insulator on structure 4/44.	345	Equipment Repaired
Oquirrh	3/12/24 16:36	0.05	Ben Lomond - Terminal #1	Fault	Insulator	Flashed insulators on structure 5/43.	345	Equipment Repaired
Pinto, San Juan	3/15/24 9:50	1.983	Hatch - Pinto	Switching	Breaker	Operation during planned clearance outage.	69	Patrolled
Angel	3/25/24 1:54	0.07	Terminal - Syracuse	Fault	Insulator	Tripped and reclose with flashed over insulator at structure 4/30.	345	Equipment Repaired
McCracken	4/5/24 13:13	0.092	Abajo CB64	Fault	Unknown	Event captured conditions that show current spike or fault on C phase of other connected utility.	69	None
Arapahoe Solar, Old Field	4/9/24 6:37	0.075	Black Rock - Pavant	Animals	None	Trip and reclose, arial inspection performed no cause for fault. Noted that bird's nest in the area.	230	Patrolled
Arapahoe Solar	4/9/24 13:23	0.517	Pavant - North Meadows	Animals	Insulator	Bird mortality in switch on steel pole.	46	Equipment Change
Craner Flat	4/11/24 14:30	1.133	Craner Flat CB142	Customer Equipment	Customer Equipment	Customer on circuit was doing commissioning testing during the time of sag.	138	None
Ben Lomond	4/15/24 2:19	0.083	Ben Lomond CB 107	Fault	Unknown	Current spike indicates possible fault on customer or secondary system.	138	None
San Juan	4/15/24 10:48	34.52	San Juan - Resolute	Customer Equipment	Unknown	Current spike indicates possible fault on other connected	138	None

						utility system. No system events found.		
San Juan, McCracken	4/25/24 13:13	0.725	Abajo - Westwater	Weather	None	Trip and reclose. Patrolled lines and found no cause. High winds in area at time of trip.	69	Patrolled
McFadden	4/26/24 11:43	0.783	McFadden - Orangeville	Customer Equipment	Insulator	Customer insulator faulted.	69	Customer Intervention
Arapahoe Solar, Old Field	4/27/24 8:36	0.075	Pavant - Sigurd	Fault	Unknown	Patrolled and found no issues.	230	Patrolled
San Juan	5/5/24 21:39	1.017	Abajo - Mexican Hat	Fault	None	Trip and reclose. Line patrolled no found cause.	69	Patrolled
Angel	5/6/24 2:09	0.067	Terminal - Syracuse	Animals	Insulator	Flashed insulators on structure 3/30. Blue heron nest above phase.	345	Equipment Repaired
Cove Mountain	5/6/24 10:42	0.4	Cove Mountain	Customer Equipment	Unknown	Current spike from connected resource.	138	None
Angel	5/10/24 12:27	0.067	Terminal - Syracuse	Animals	Structure	Flashed insulator on structure 4/30, bird contamination and nest.	345	Project Planned
Ben Lomond, Riverdale	5/20/24 0:39	0.067	Ben Lomond CB 107	Fault	Unknown	PQ event did not correlate to event on system.	138	None
Angel	5/20/24 6:40	0.06	Ben Lomond-Terminal	Fault	Insulator	Flashed insulators on structure. High bird traffic area.	345	Equipment Repaired
Wheelon	5/25/24 10:23	0.025	Malad - Wheelon	Animals	None	High bird presence with multiple nests.	138	Patrolled
Angel	5/27/24 1:34	0.067	Terminal - Syracuse	Animals	Structure	Blue heron nests on structures 4/30 and 3/30.	345	Equipment Repaired
Oquirrh	5/31/24 12:20	0.142	Oquirrh-Wildflower	Interfere	None	Customer equipment interference	138	Patrolled

Milford	6/7/24 20:17	0.091	Cove Fort-Milford	Fault	None	Target is .3 miles out of Milford substation. Trip and reclose patrolled and found nothing.	46	Patrolled
Mathington	6/8/24 1:10	0.133	Mathington	Equipment	Breaker	Line patrol found burnt pole on structure 13 on Carbon-Emma Park 138 kV line.	138	Equipment Repaired
Oquirrh, Dynamo, Mathington	6/14/24 17:24	0.316	Spanish Fork 138 kV East Bus	Equipment	Capacitor Bank	Failed capacitor bank #2. Isolated and restored east bus.	138	Equipment Repaired
San Juan	6/20/24 14:13	0.05	Abajo-Westwater	Fault	None	Trip and reclose. Patrolled line no found cause.	69	Patrolled
McFadden	6/21/24 14:31	0.675	Blackhawk-Huntington City	Lightning	None	Trip and reclose. Lightning and wind in the area.	69	Patrolled
McFadden	6/21/24 14:41	0.659	McFadden - Orangeville	Lightning	None	Trip and reclose. Lightning and wind in the area. Patrolled found nothing.	69	Patrolled
San Juan	6/21/24 16:23	0.066	Abajo - San Juan Swrk	Lightning	None	Trip and reclosed. Lightning and wind in the area. Patrolled found nothing.	69	Patrolled
San Juan	6/21/24 16:31	0.058	Abajo-Westwater	Weather	Structure	Storm caused pole down near Havasu.	69	Equipment Repaired
San Juan	6/21/24 18:07	0.125	Abajo - San Juan Swrk	Lightning	None	Lightning and wind in the area. Patrolled found nothing.	69	Patrolled
Old Field	6/27/24 22:10	5.967	Ephraim-Jerusalem-Sanpitch	Weather	None	Tripped and reclosed. Patrolled and found no cause. Thunderstorms in area during trip.	46	Patrolled

Skunk Ridge, Clive	7/17/24 10:07	1.633	Skunk Ridge CB 41	Fault	Unknown	Current spike on B and C phase indicating a possible fault on customer equipment. No system event identified.	46	None
Riverdale	7/18/24 8:53	0.067	Ben Lomond - Honeyville	Fault	None	Trip and opened. Patrolled and found nothing.	138	Patrolled
McCracken	7/26/24 2:59	0.058	Abajo - Westwater	Fault	None	Trip and reclose on Abajo - Westwater 69 kV line. Patrolled and found no cause for fault.	69	Patrolled
McCracken	7/28/24 0:50	0.05	Abajo - Westwater	Fault	None	Trip and reclose on CB60, patrolled and found no cause for fault.	69	Patrolled
Oquirrh	7/30/24 9:46	0.05	Ben Lomond - Terminal #1	Fault	Insulator	Flashed insulator between insulator and arm on structure 6/40.	345	Equipment Repaired
Oquirrh	7/31/24 20:46	0.067	Ben Lomond - Terminal #1	Fault	Insulator	Line tripped, patrolled and found flashed insulator 2/43.	345	Equipment Repaired
San Juan	8/4/24 7:28	2.342	San Juan - Resolute	Fault	Unknown	Large current spike on all phases. Indicating fault on other interconnected utility.	138	None
Oquirrh, Wights Fort Metering	8/5/24 15:26	0.108	90th South	Weather	Transfrmr	Faulted switch during wind burst event. Sectionalizer failed.	138	Equipment Repaired
McCracken	8/7/24 17:23	0.075	Abajo CB64	Weather	None	Fault conditions seen on C phase, weather reported was thunderstorms in the area.	69	None
San Juan	8/10/24 4:25	1.092	San Juan - Resolute	Fault	Unknown	Large current spike on B and C phase indicating fault on other	138	None

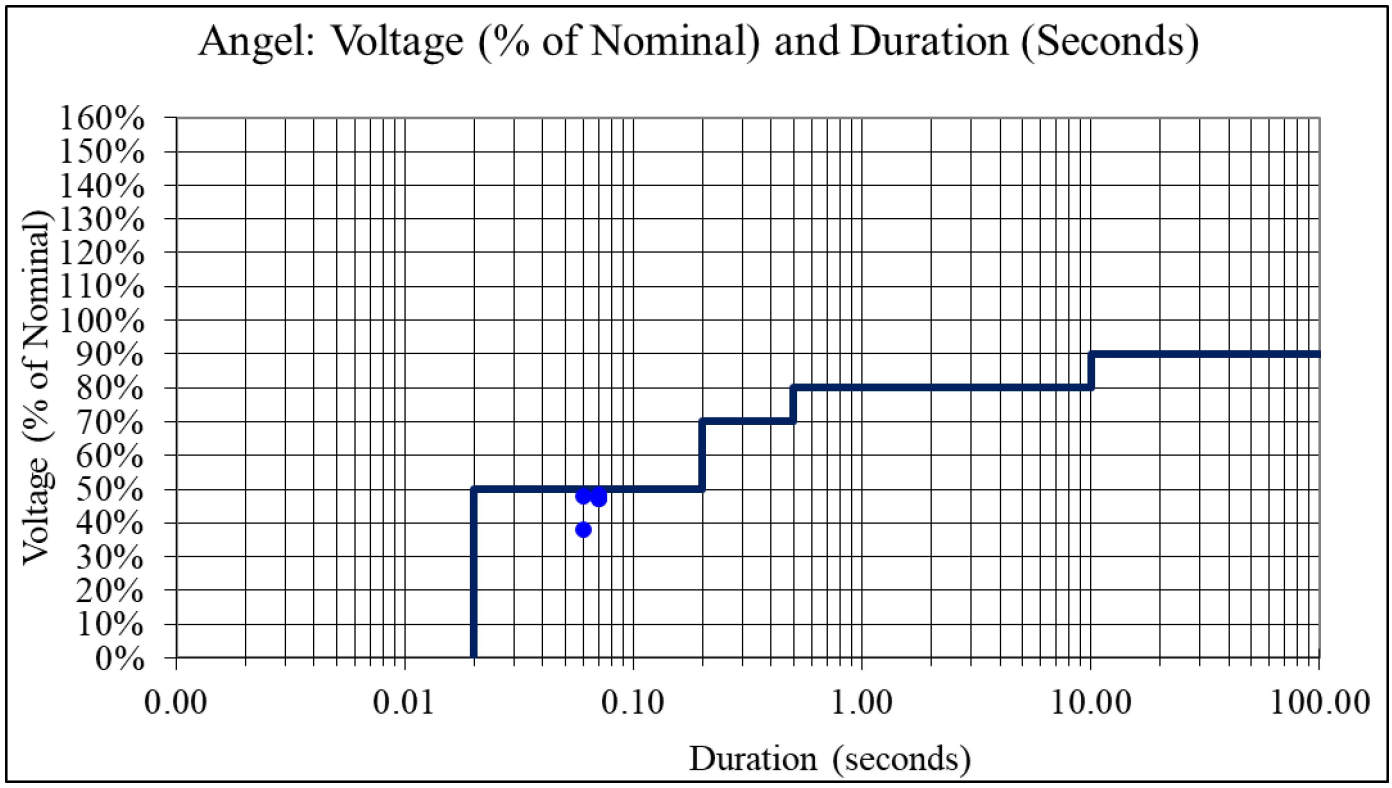
						connected utility.		
San Juan, McCracken	8/10/24 20:16	33.42	Blanding - Pinto - Westwater	Fault	None	Trip and reclosed. Patrolled and found no cause.	138	Patrolled
San Juan, McCracken	8/11/24 0:46	12.86	San Juan - McCracken	Weather	None	Indicating fault on other connected utility.. Storms reported in area during event.	138	None
Oquirrh	8/11/24 20:17	0.058	Ben Lomond - Terminal #1	Fault	None	Patrolled and found no cause.	345	Patrolled
Riverdale	8/11/24 22:11	0.067	Riverdale CB133	Fault	None	Spike in current indicating fault on connected customer equipment.	138	None
Milford	8/12/24 0:57	1.416	Milford	Fault	Unknown	Voltage disturbance that did not any system events.	46	None
Kennecott, Magna	8/12/24 15:09	0.075	Kennecott CB 127 - Magna CB101	Weather	Unknown	Large current spike on B and C phase indicating a possible fault on customer equipment. Weather in area had thunderstorms.	46	None
Arapahoe Solar, Old Field	8/13/24 7:03	0.067	Pavant-Sigurd	Fault	None	Patrolled and found no cause for fault.	230	Patrolled
McFadden	8/13/24 15:30	0.858	Huntington City-McFadden	Weather	None	Trip and reclose. Storm in the area	69	Patrolled
Dugout	8/13/24 16:11	0.209	Coal Creek - Columbia	Weather	None	Trip and reclose. Patrolled found no cause, storm in area.	46	Patrolled
Dynamo	8/14/24 2:55	0.09	Dynamo-Tri City #2	Fault	None	Dynamo-Tri City #2 138kV Line Tripped and automatically reclosed. Patrolled found no cause.	138	Patrolled
Parowan	8/14/24 7:08	0.9	Coleman Transfrmr	Fault	Transfrmr	XFMR #4 faulted.	138	Equipment Repaired

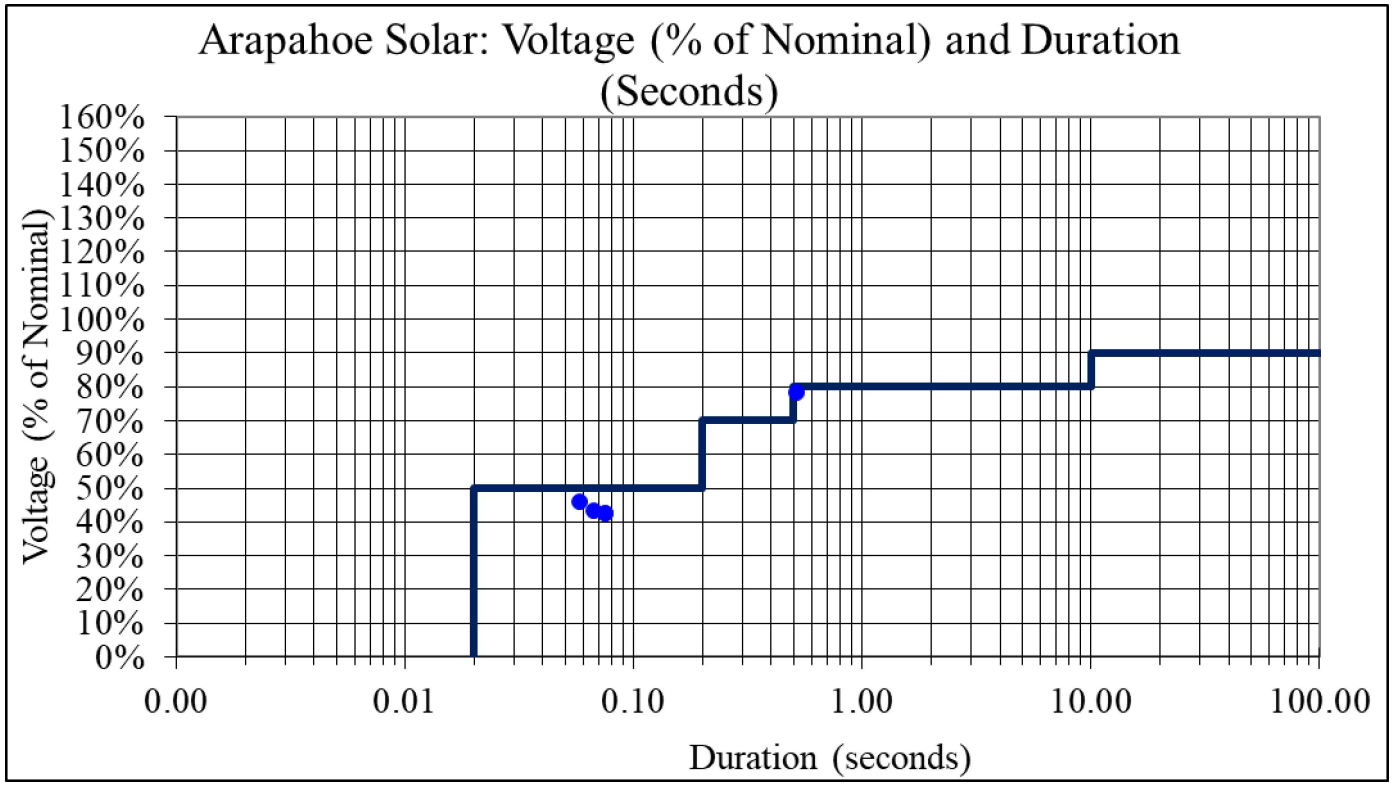
Skunk Ridge, Clive	8/17/24 12:10	0.233	Skunk Ridge	Weather	Unknown	No system event identified. Thunderstorms reported in area at time of event.	46	None
Cove Mountain, Enterprise Solar, Enterprise Valley	8/17/24 18:05	0.108	Purgatory-St George	Fault	None	Line tripped and auto reclosed. Purgatory Patrolled and found nothing.	138	Patrolled
McCracken	8/20/24 19:29	0.067	Abajo - Westwater	Weather	None	Trip and reclose heavy thunderstorms in area at time of event. Patrolled and found no cause suspected weather.	69	Patrolled
Horseshoe	8/22/24 6:15	0.109	Horseshoe - Homestead Knoll	Fault	Insulator	Patrol found flashed insulator on west phase - structure 496.	138	Equipment Repaired
Mountain View, Oquirrh, Horseshoe, Onion, Remington, Wights Fort Metering, Beck Street, Topaz	9/5/24 8:51	0.058	Terminal	Fault	Switch	During Switching breaker failed to open one pole causing a pole disagreement alarm.	345	Equipment Repaired
Kennecott, Magna	9/6/24 0:45	0.092	Goggin - Terminal	Fault	Insulator	Flashed insulator on at pole 1/006.	138	Equipment Repaired
Blundell, Milford	9/9/24 15:41	1.165	Cameron - Milford	Fault	None	Patrolled and found no cause.	46	Patrolled
San Juan, McCracken	9/15/24 4:57	0.259	Abajo-Mexican Hat	Fault	None	Trip and Reclose	69	Patrolled
Wasatch Springs	9/21/24 10:36	0.05	Chevron-Wasatch Springs	Customer Equipment	Customer Equipment	Customer equipment faulted.	46	Equipment Change
North Salt Lake, Wasatch Springs, Woods Cross	9/23/24 6:39	1	Ben Lomond-Parrish	Animals	Capacitor Bank	Bird mortality caused fault in cap bank.	46	Equipment Repaired

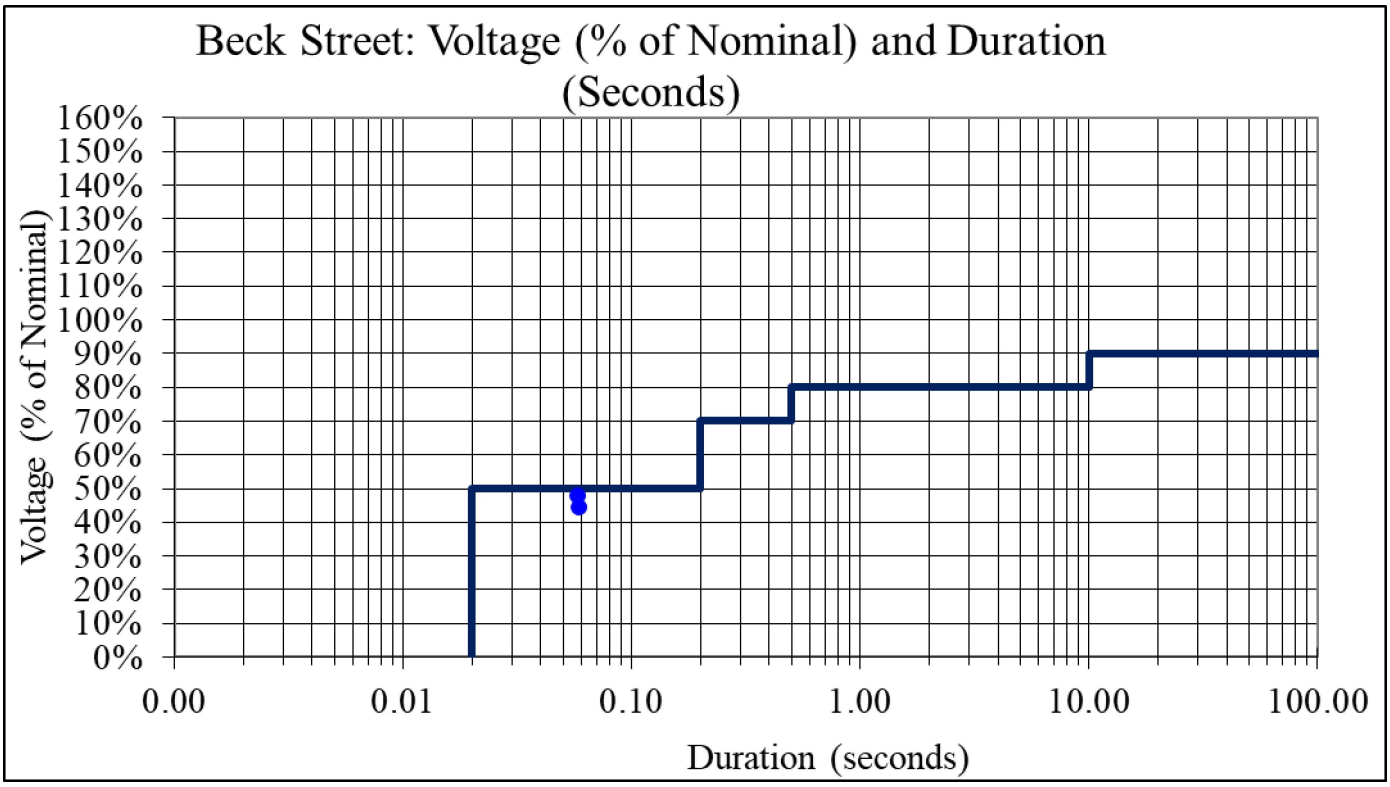
Oquirrh	10/15/24 18:08	0.058	Terminal - 90th South	Fault	None	345 kV line tripped. Patrolled and found no cause for fault.	345	Patrolled
Beck Street	10/17/24 6:25	0.058	Beck Street - Onion - Parrish - Sky Park	Fault	Switch	Faulted switch in Falcon Ridge substation.	138	Equipment Repaired
Oquirrh, Topaz	10/17/24 8:04	0.083	Grinding-Prosperity	Fault	Insulator	Flashed insulator across CB 7A5 at Prosperity Substation.	138	Equipment Repaired
Milford	10/18/24 10:45	0.092	Cove fort - Milford	Fault	None	Locked open, patrolled and found no cause.	46	Patrolled
Ben Lomond	11/4/24 3:14	1.317	Ben Lomond	Fault	Unknown	Current spike indicates a possible fault on customer equipment. No system event identified.	138	None
Enterprise Solar	11/4/24 6:29	0.375	Cove Mountain Solar, Enterprise Valley	Fault	None	Current spike indicates a possible fault on customer equipment.	138	Patrolled
San Juan, McCracken	11/8/24 6:41	0.267	Abajo - Mexican Hat	Fault	None	Trip and reclose, was patrolled found no cause for fault.	69	Patrolled
San Juan, McCracken	11/12/24 11:22	0.418	Abajo - Westwater	Fault	Jumper	CB 60 tripped and locked out. Patrolled and found broken jumper on pole 168.	69	Equipment Repaired
Mathington , Dugout	12/4/24 13:27	0.242	Dugout - Mathington	Fault	Unknown	Current spike indicates a possible fault on customer equipment.	46	None
McFadden	12/4/24 14:57	0.675	McFadden - Orangeville	Customer Equipment	Customer Equipment	Trip and reclose, patrolled and found to have been caused by a customer side issue.	69	Customer Intervention
Oquirrh	12/14/24 13:52	0.3	Oquirrh CB 143	Fault	Unknown	Current spike indicates a possible fault	138	None

						on customer equipment.		
Wasatch Springs	12/22/24 11:08	0.058	Chevron - Wasatch Springs	Customer Equipment	Insulator	Customer had an insulator flash and made appropriate repairs.	46	Equipment Repaired

SEMI-F47 Plots






Beck Street: Voltage (% of Nominal) and Duration (Seconds)
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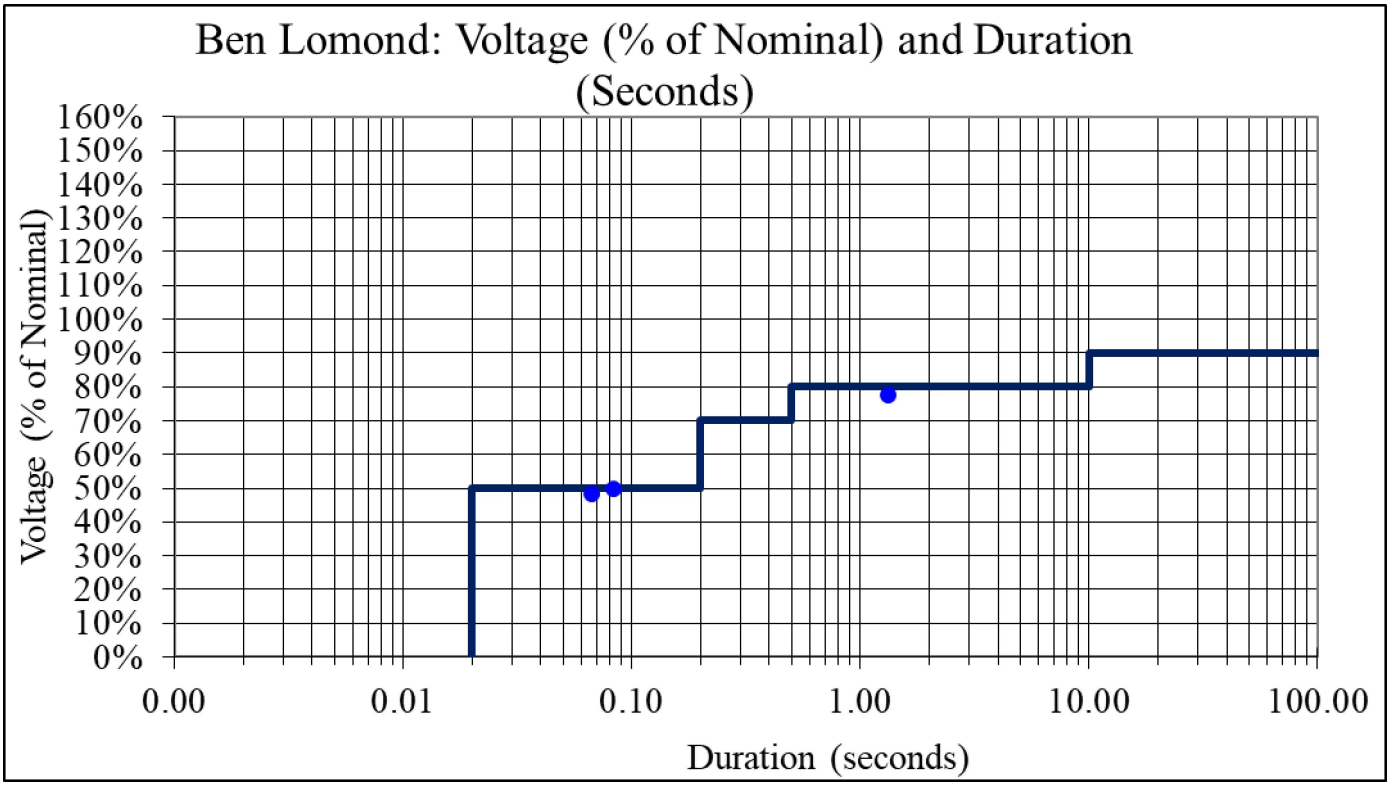
Ben Lomond: Voltage (% of Nominal) and Duration (Seconds)
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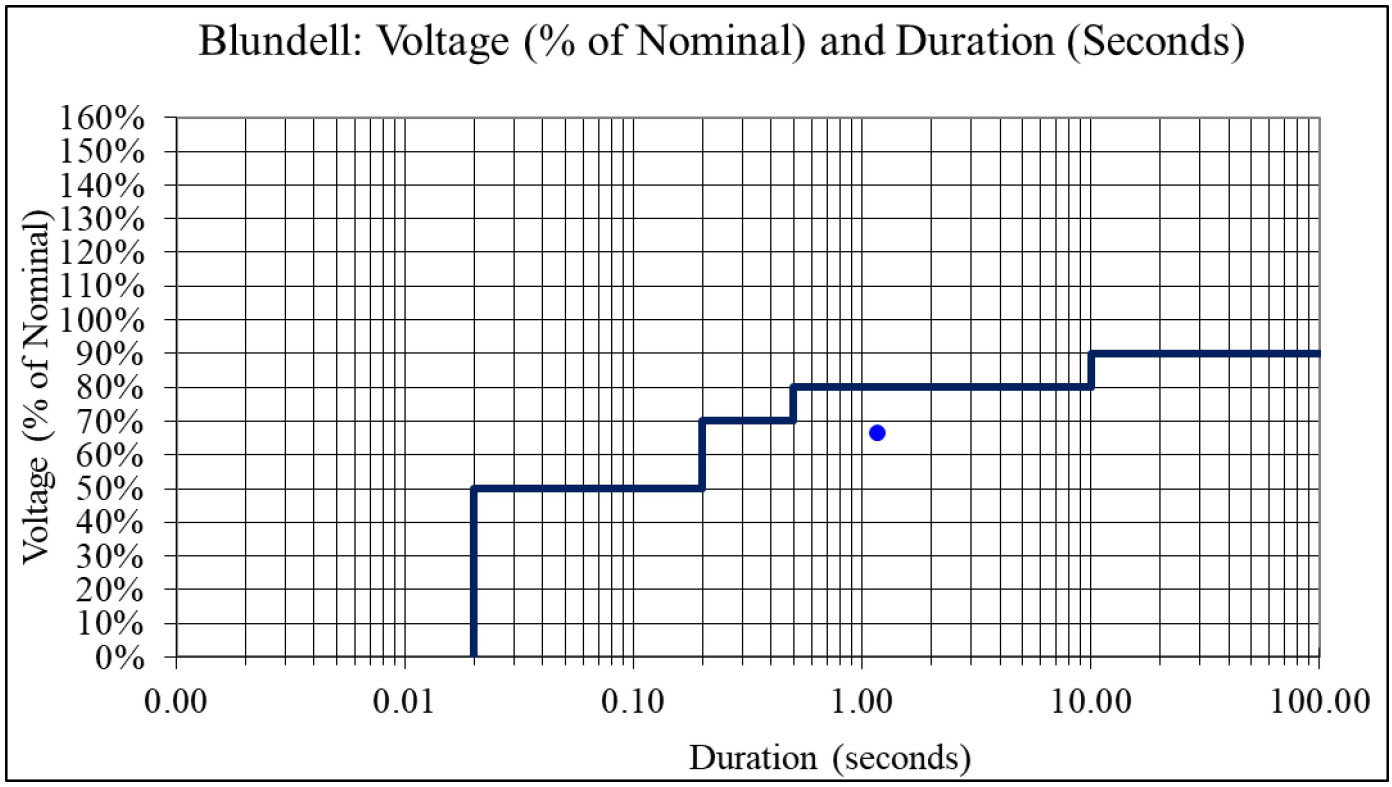
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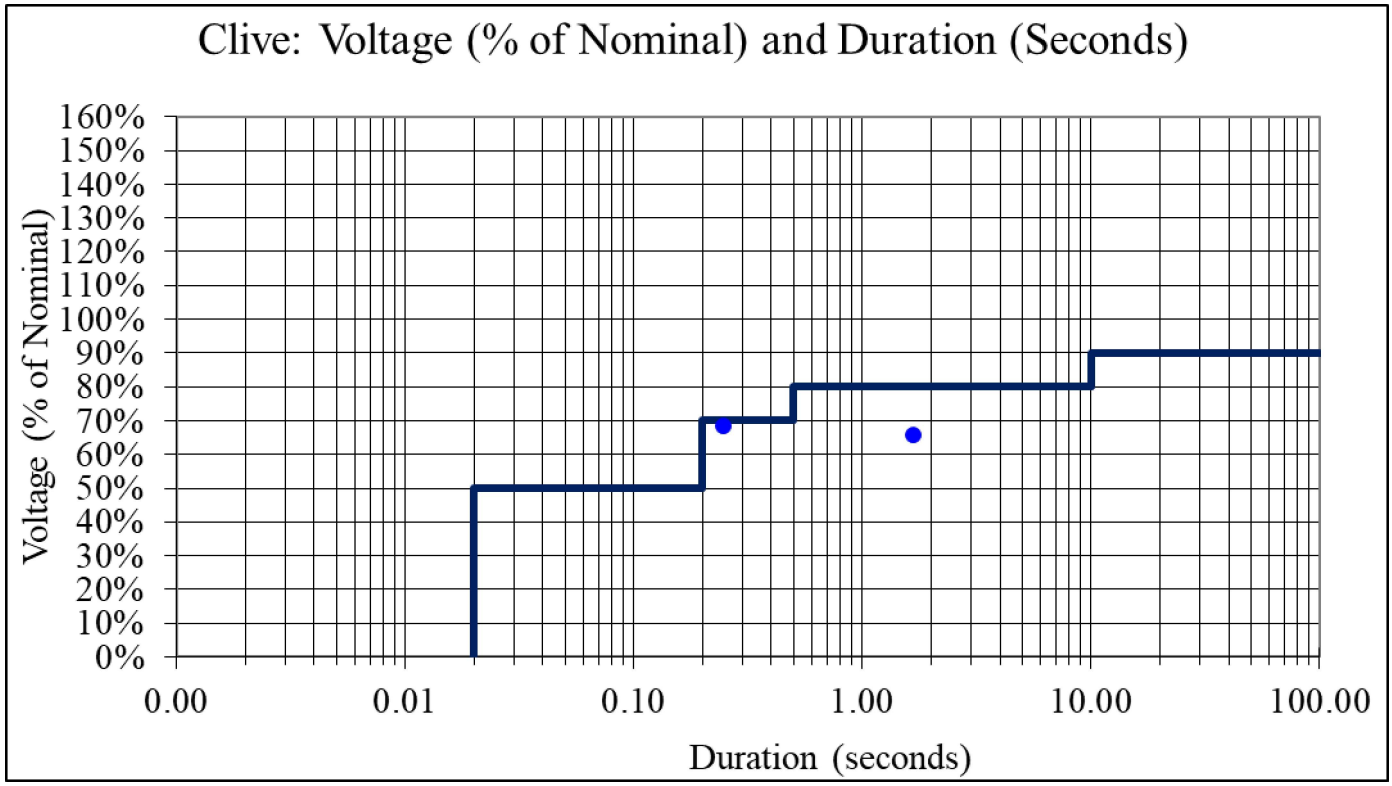
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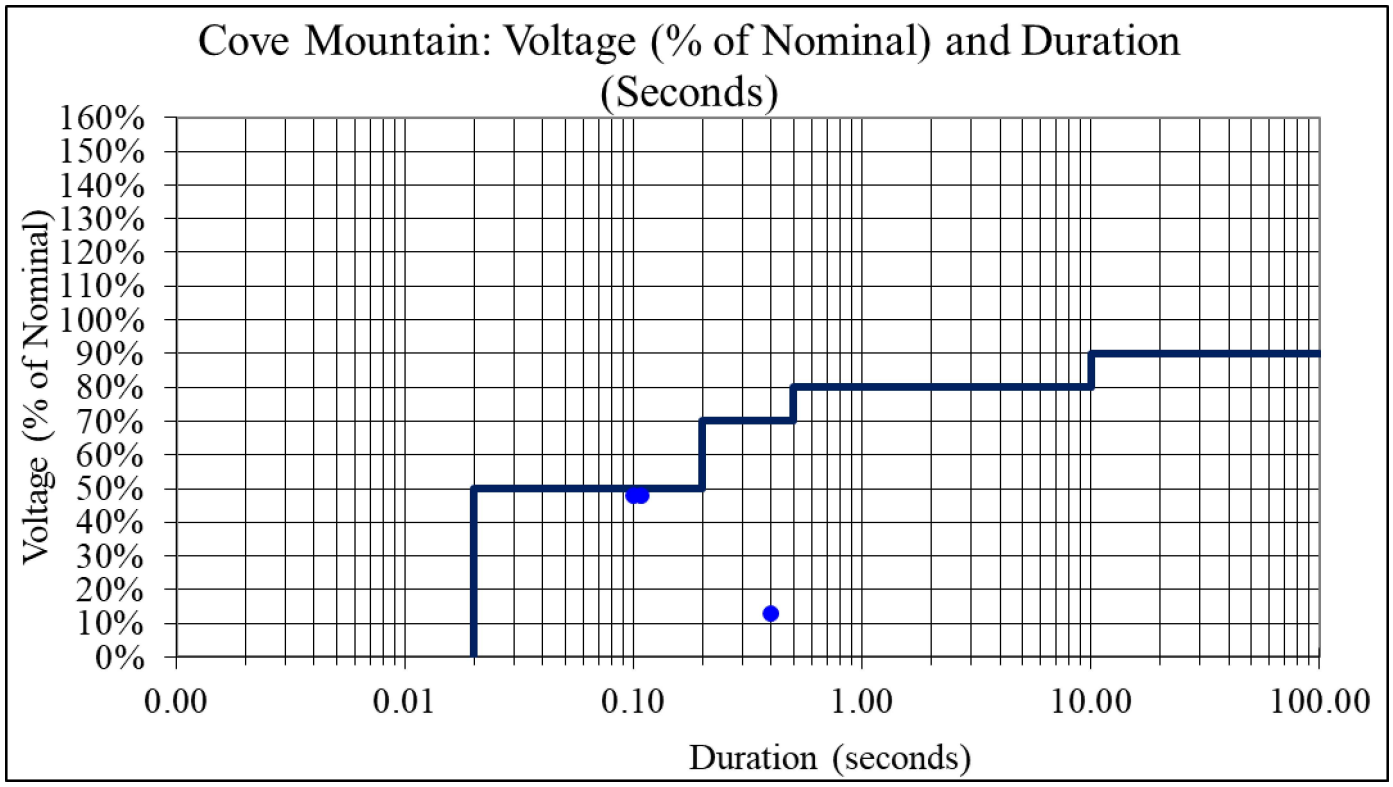
Cove Mountain: Voltage (% of Nominal) and Duration (Seconds)
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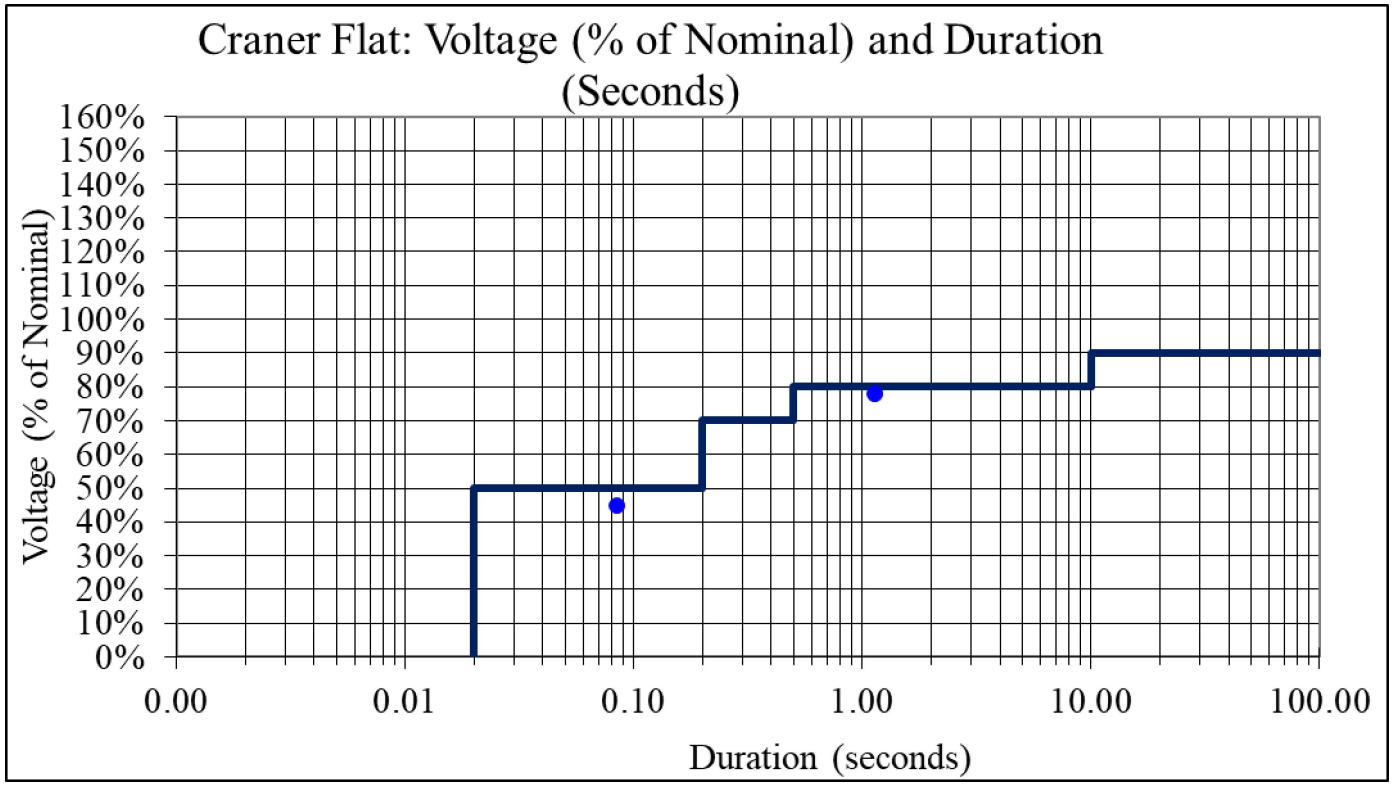
Craner Flat: Voltage (% of Nominal) and Duration (Seconds)
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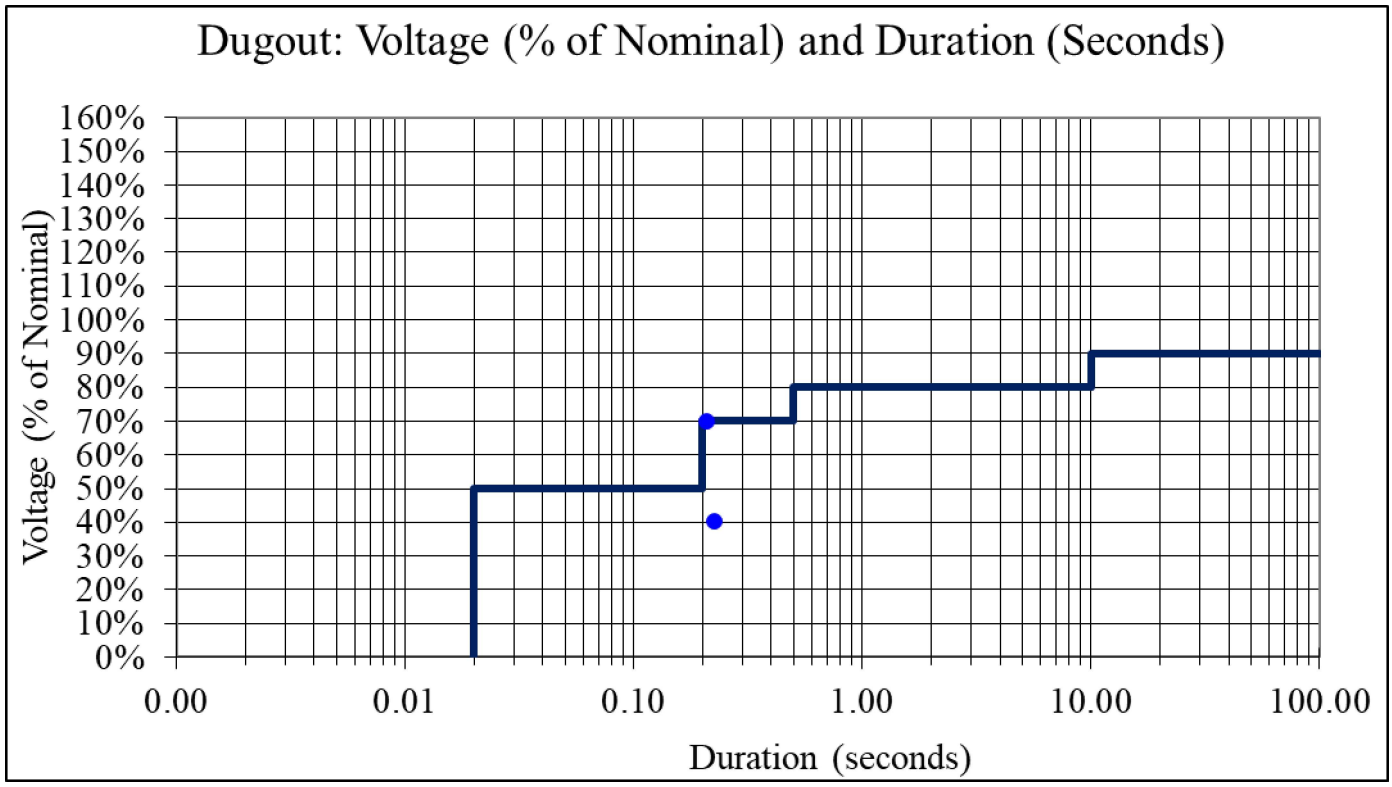
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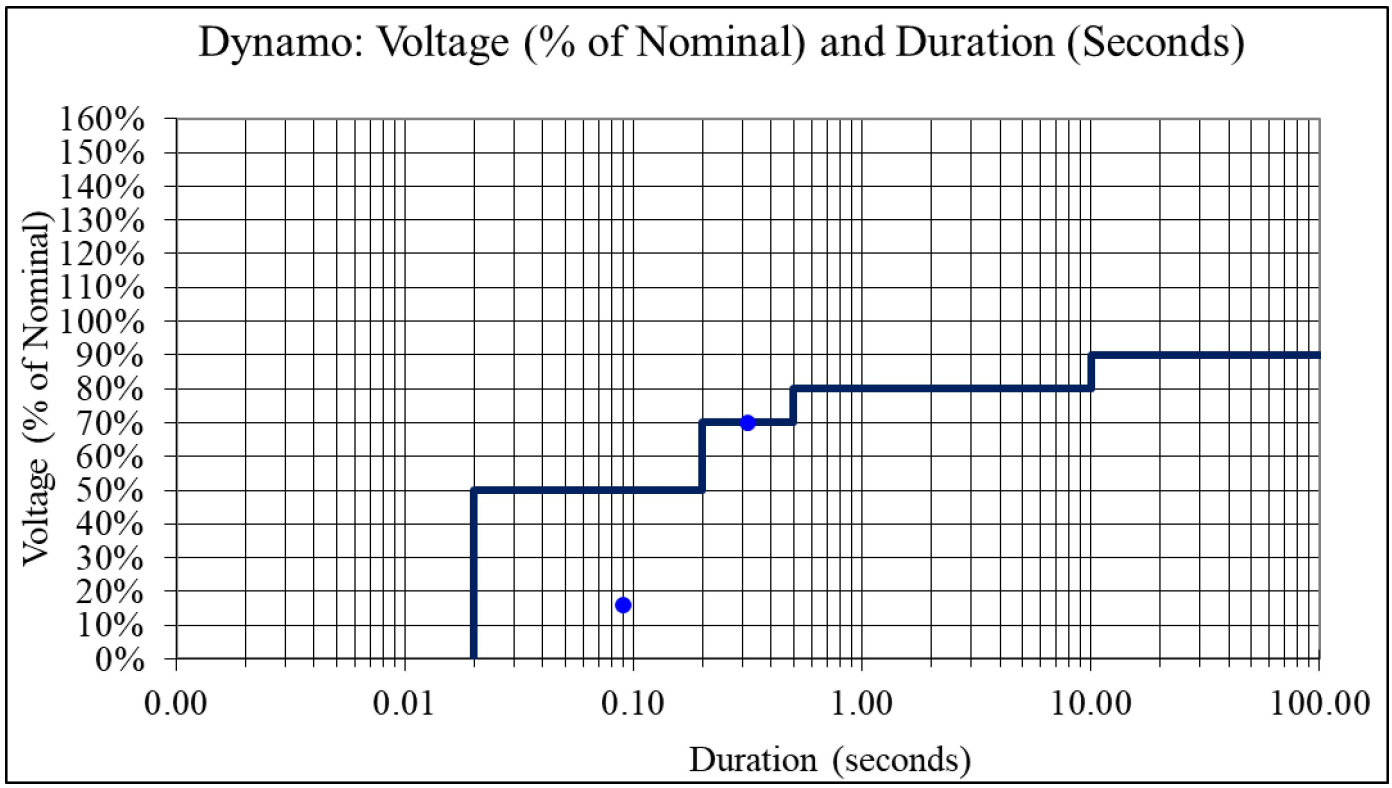
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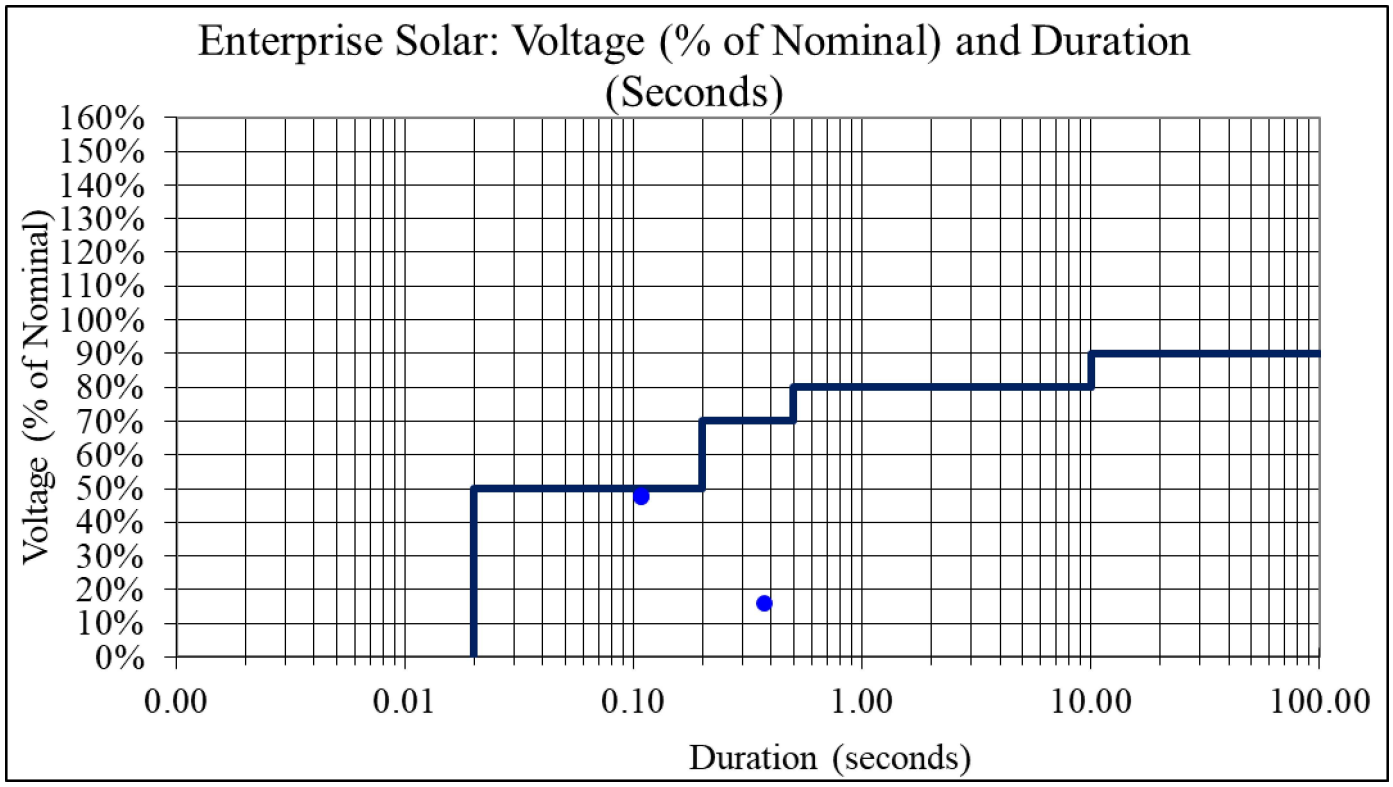
Enterprise Solar: Voltage (% of Nominal) and Duration (Seconds)
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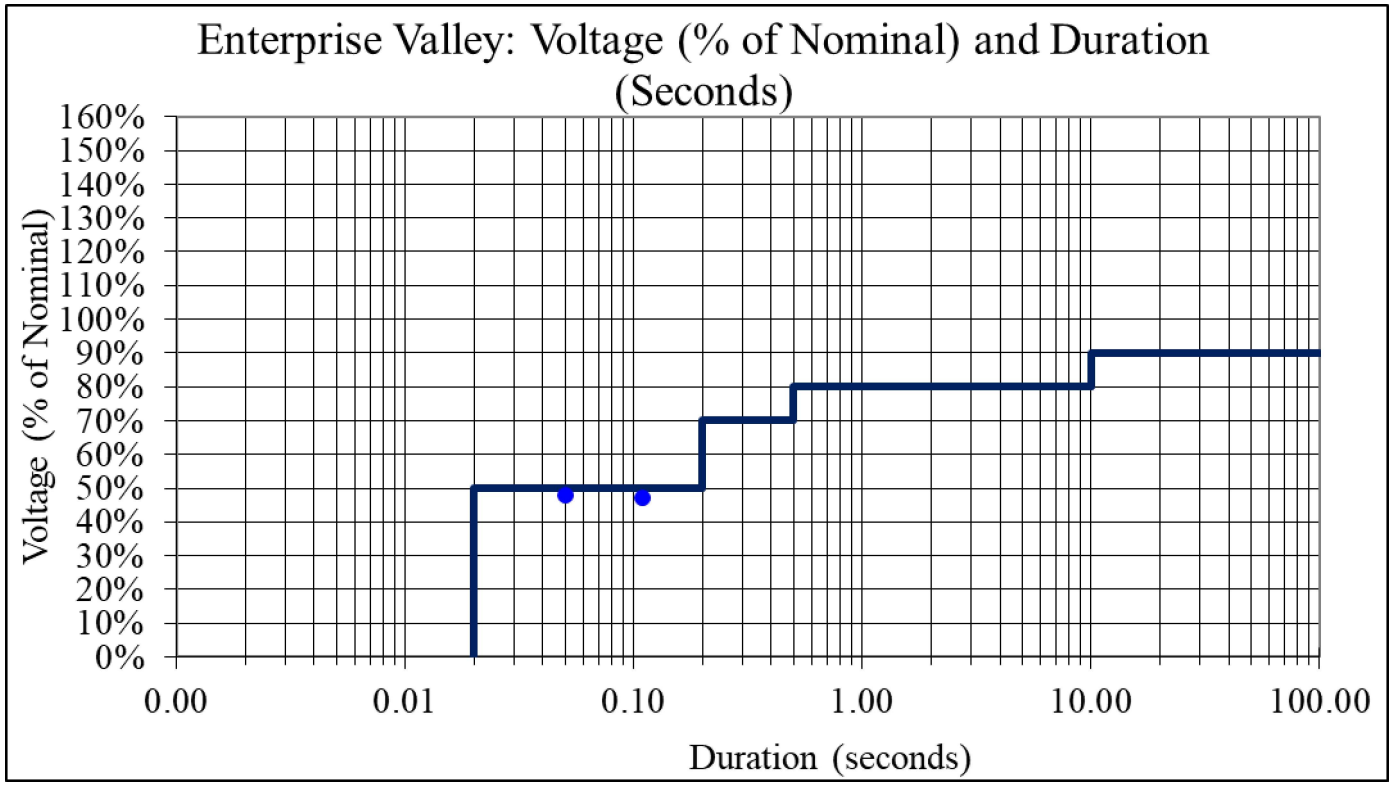
Enterprise Valley: Voltage (% of Nominal) and Duration (Seconds)
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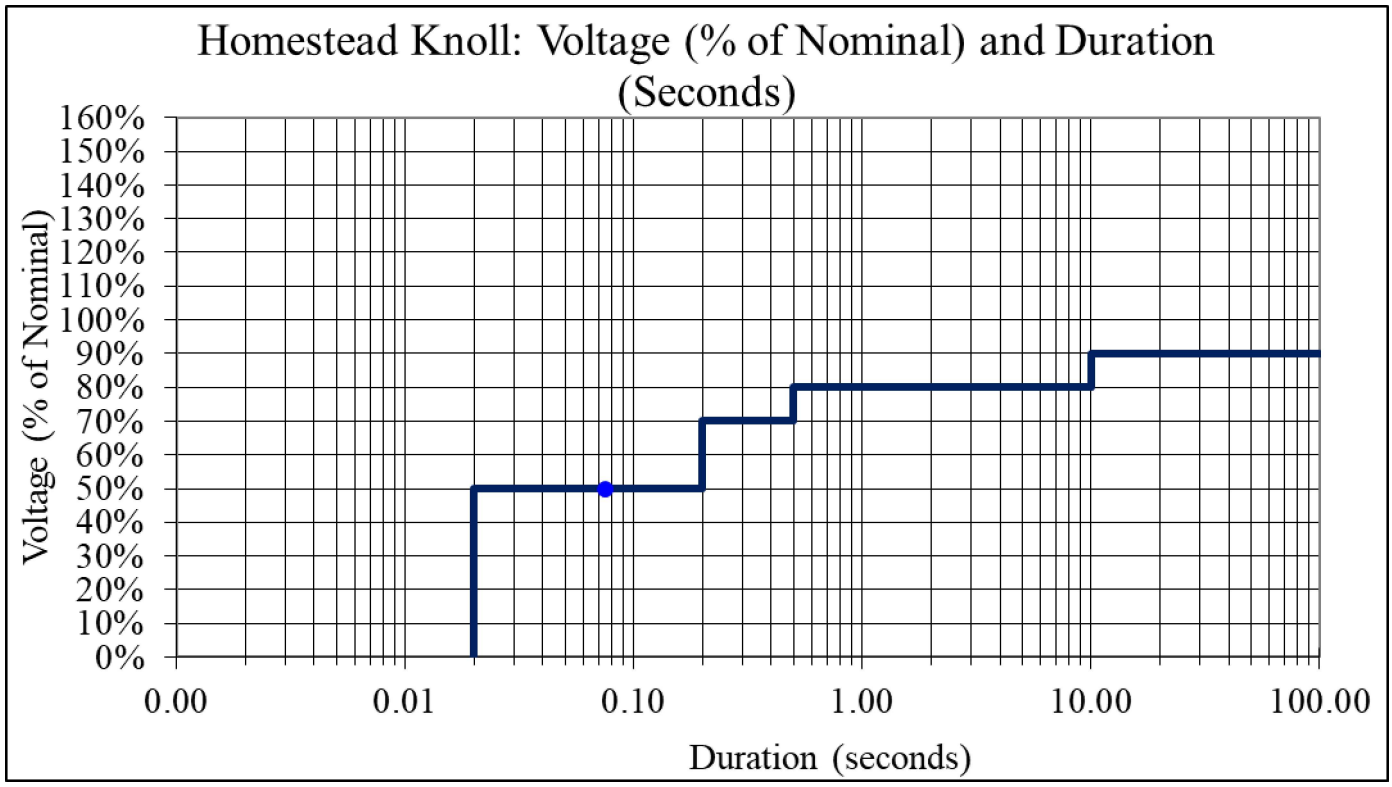
Homestead Knoll: Voltage (% of Nominal) and Duration (Seconds)
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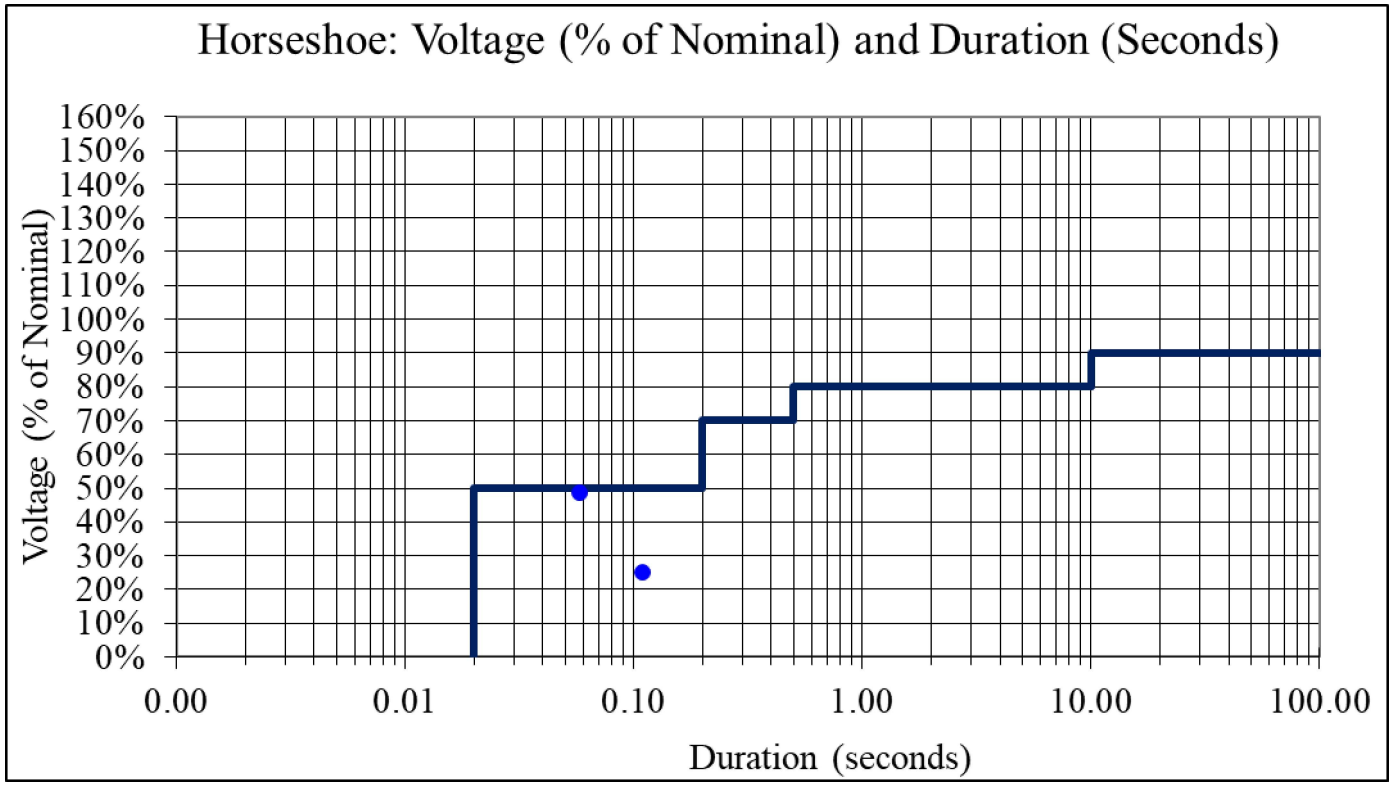
Horseshoe: Voltage (% of Nominal) and Duration (Seconds)
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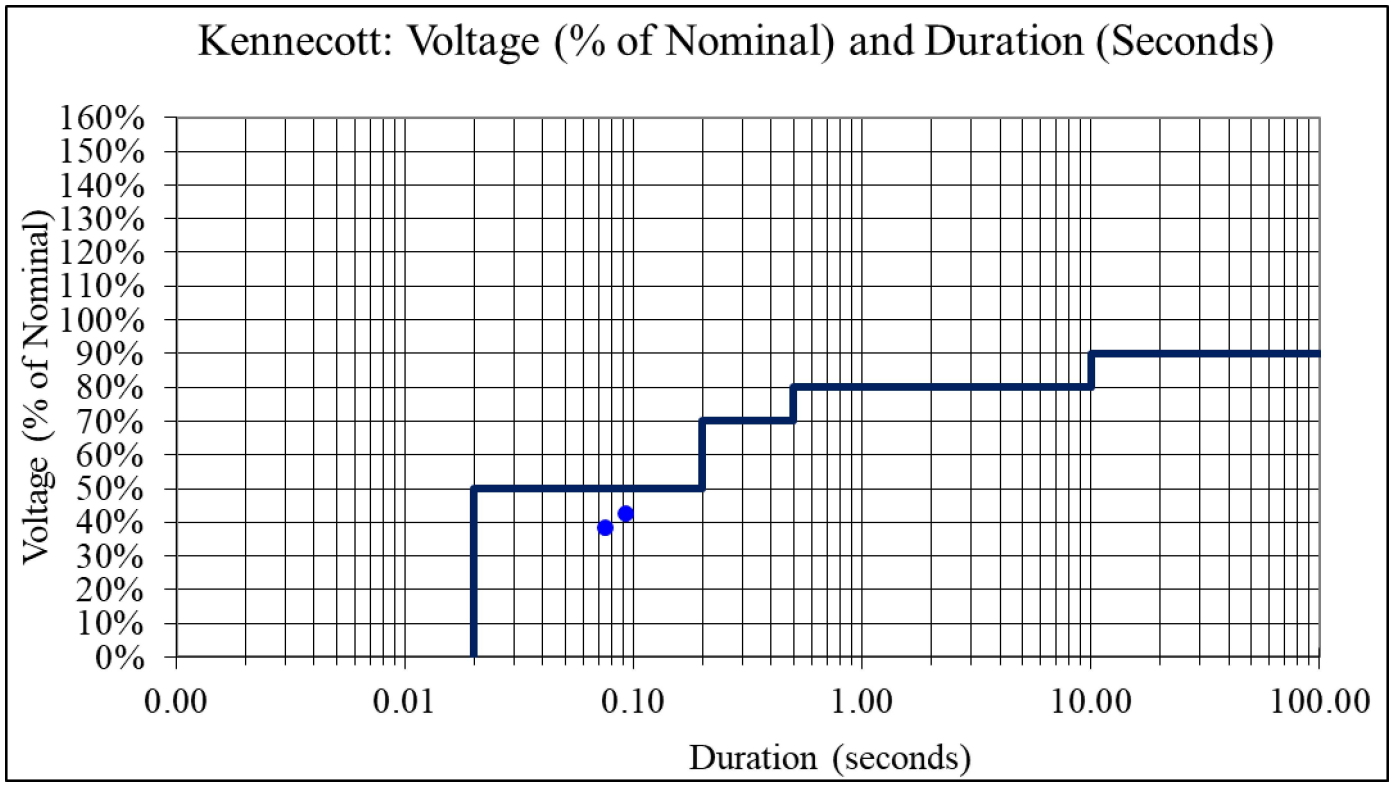
Kennecott: Voltage (% of Nominal) and Duration (Seconds)
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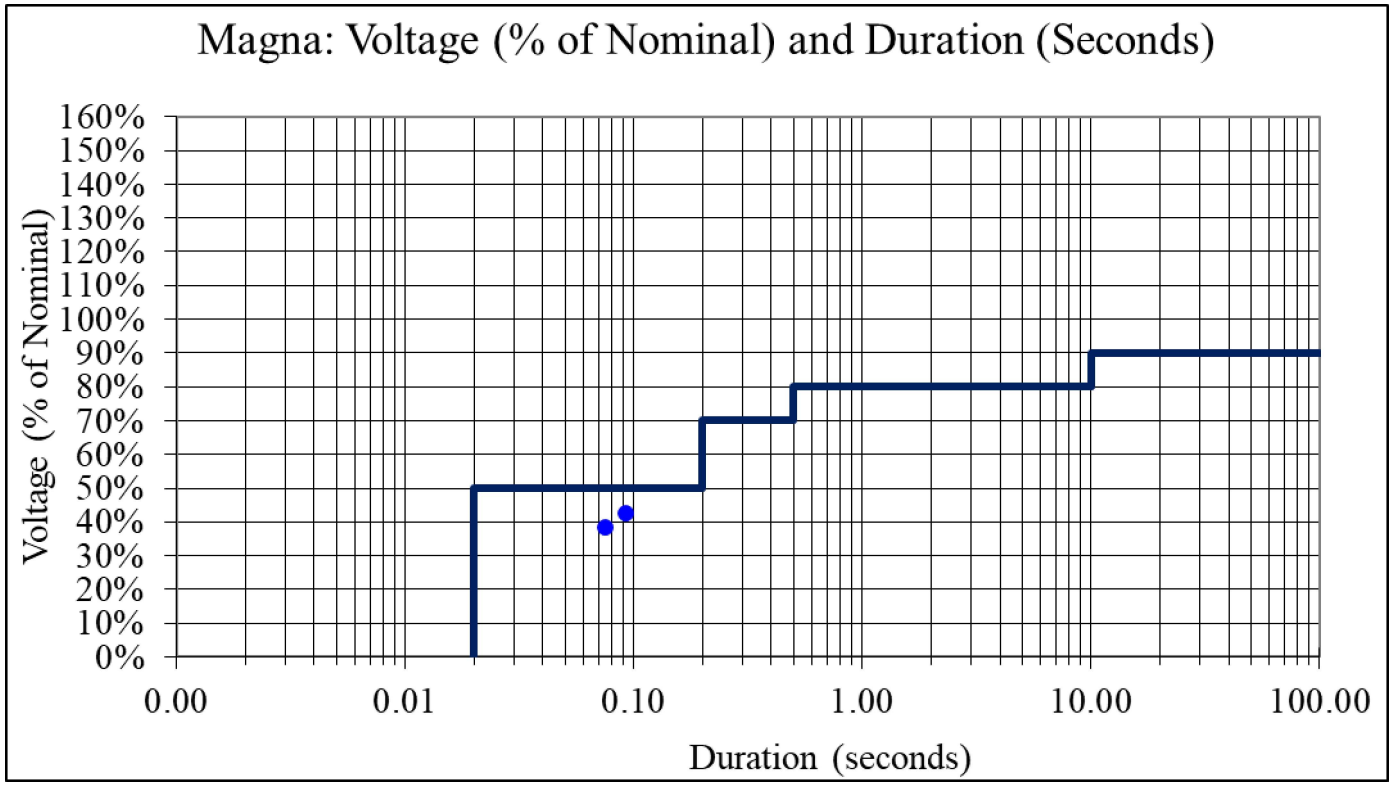
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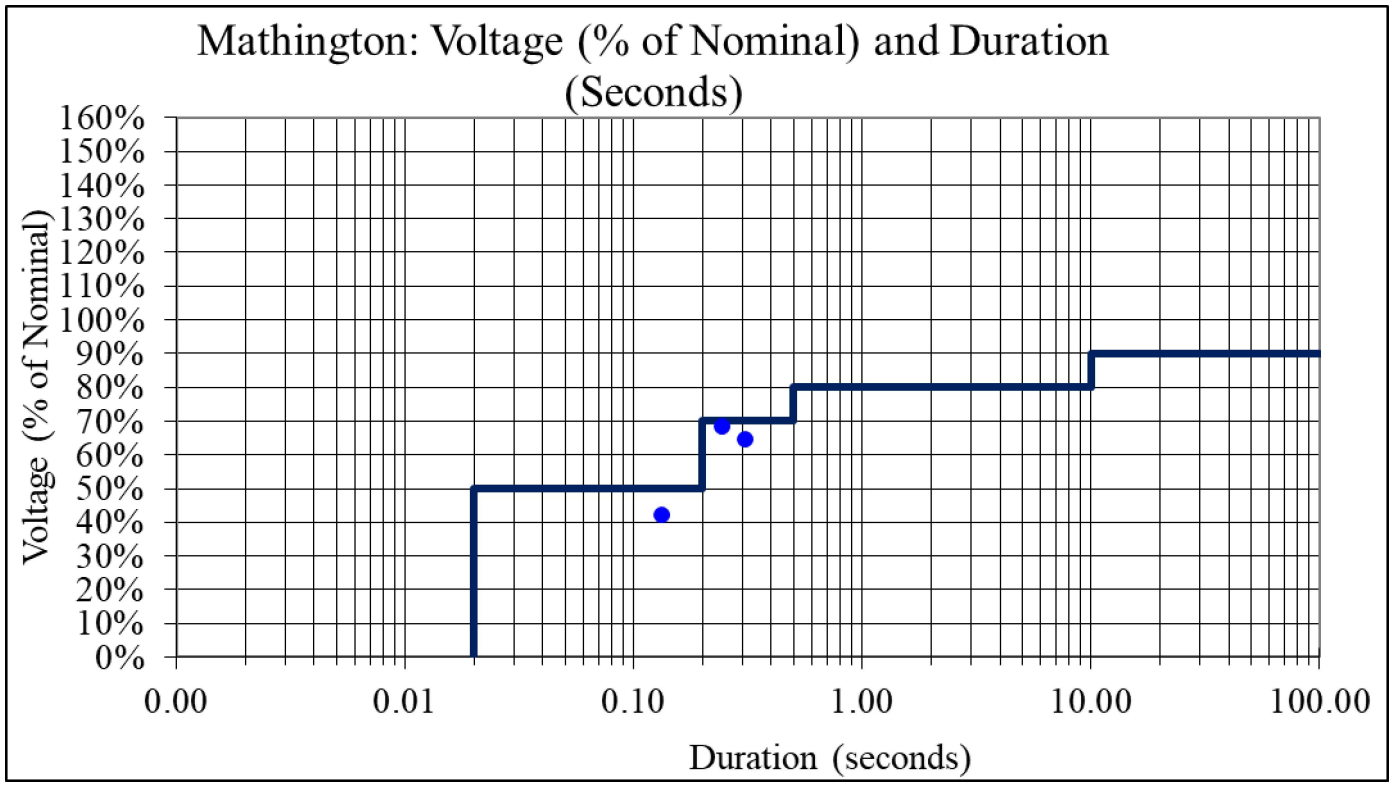
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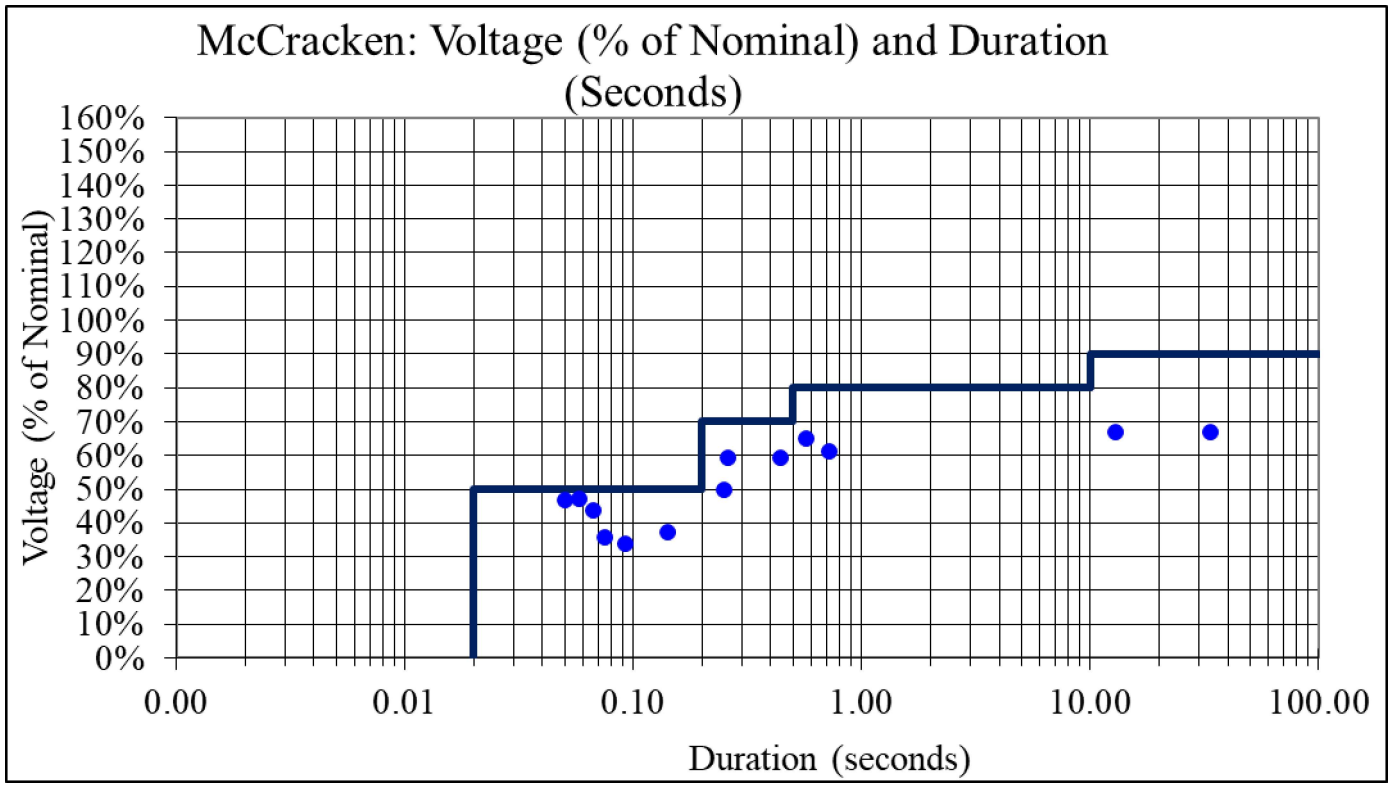
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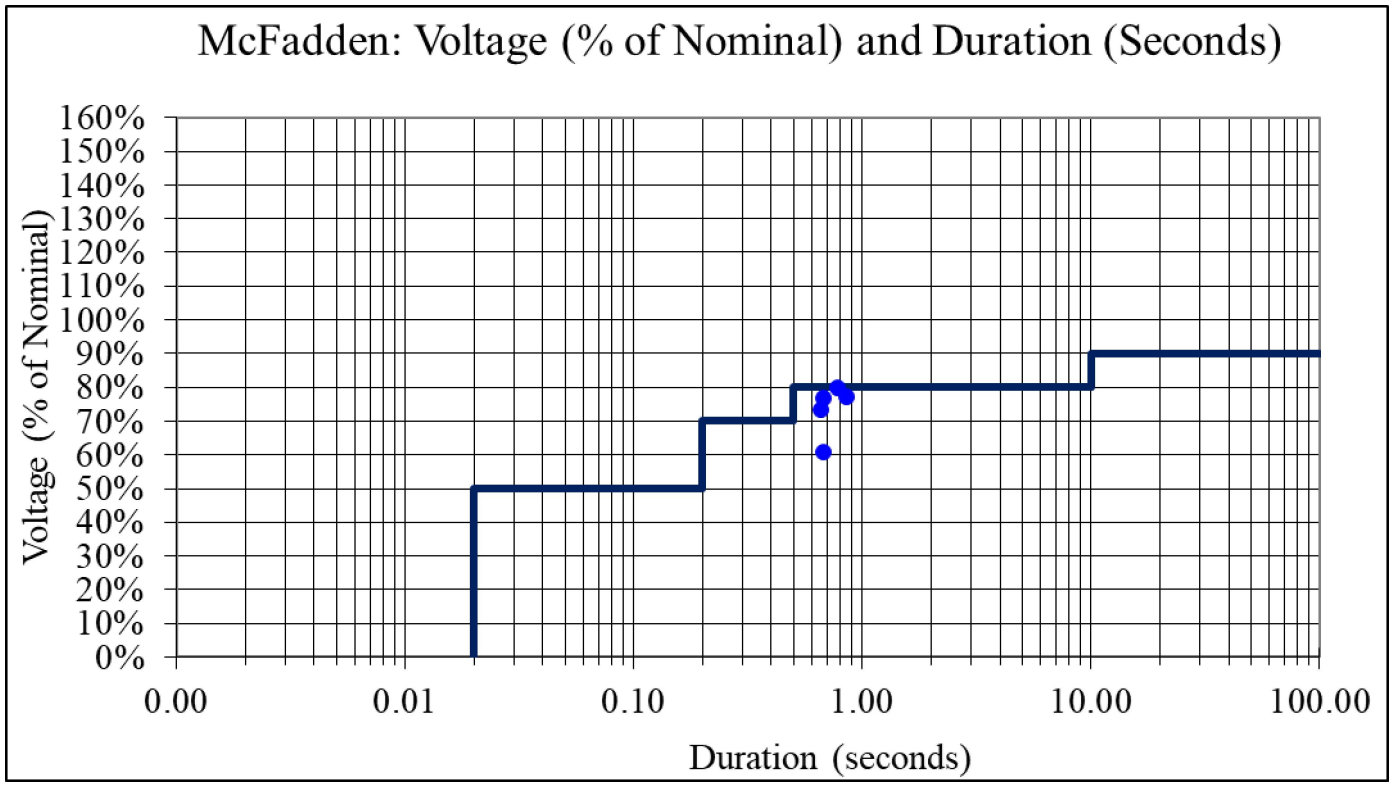
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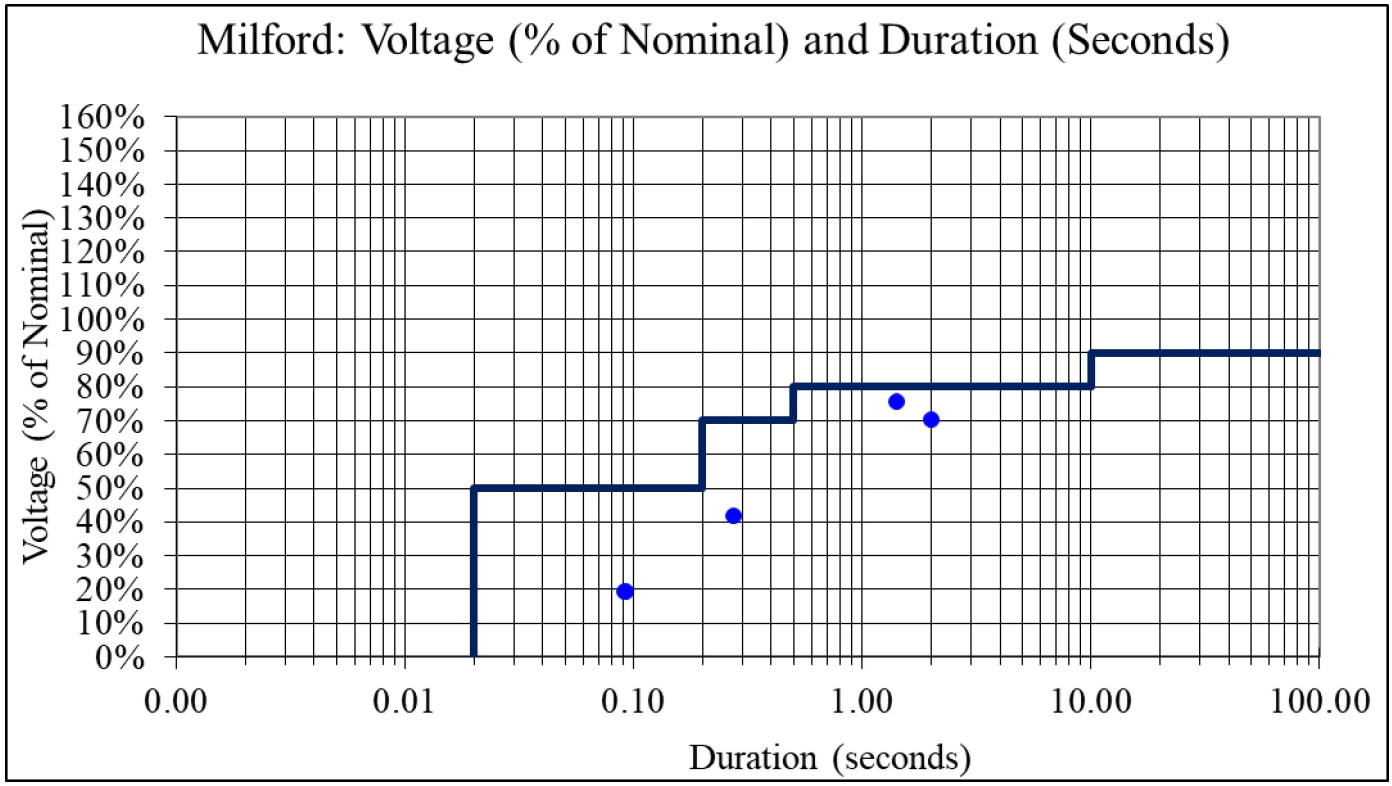
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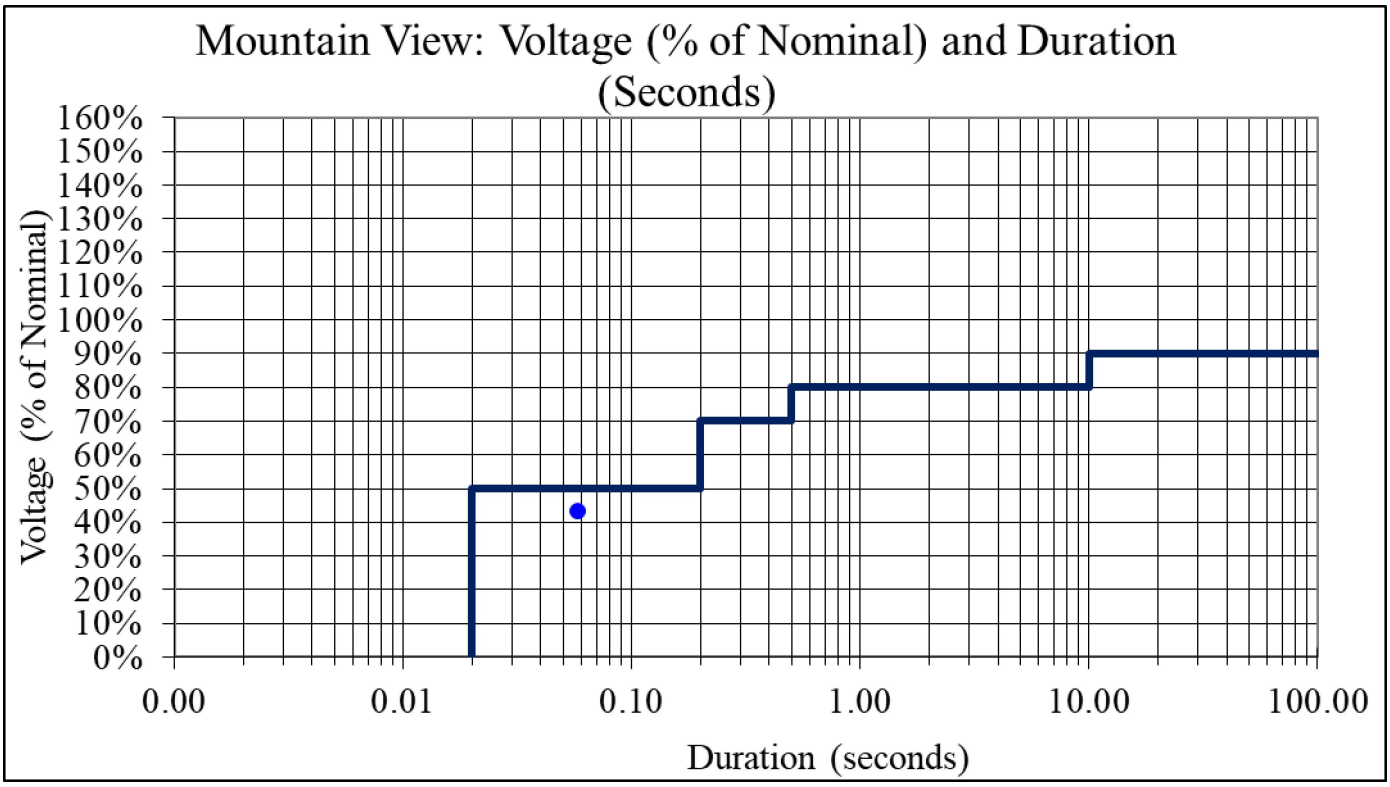
Mountain View: Voltage (% of Nominal) and Duration (Seconds)
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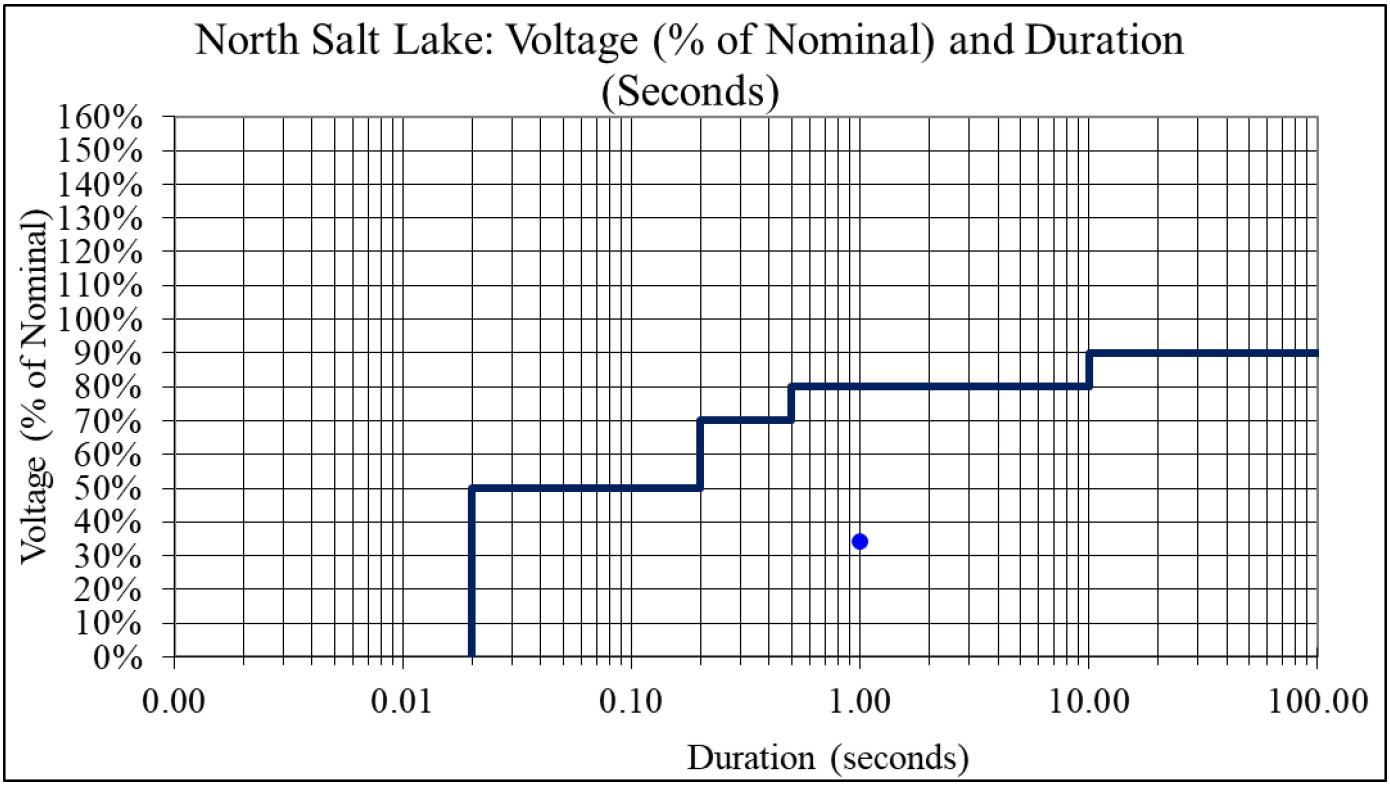
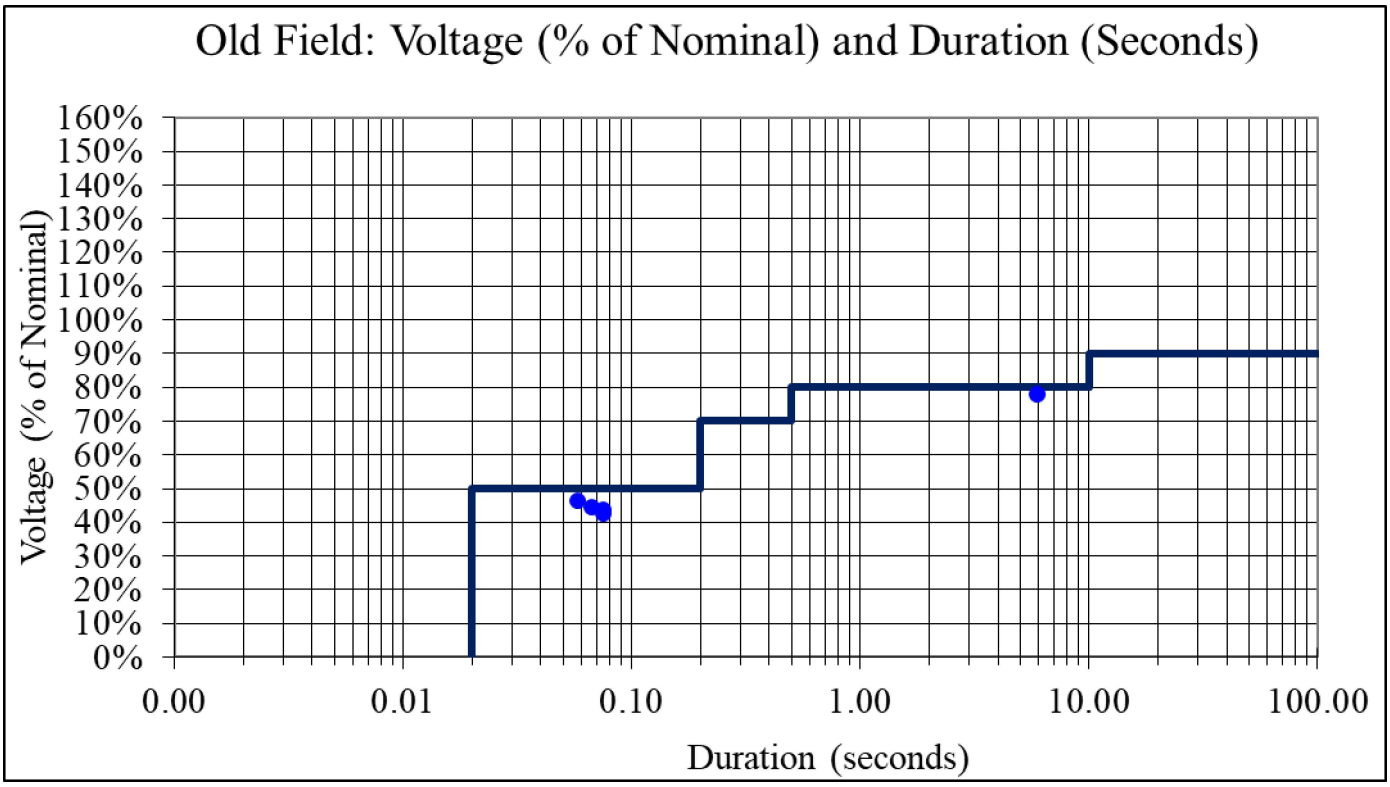
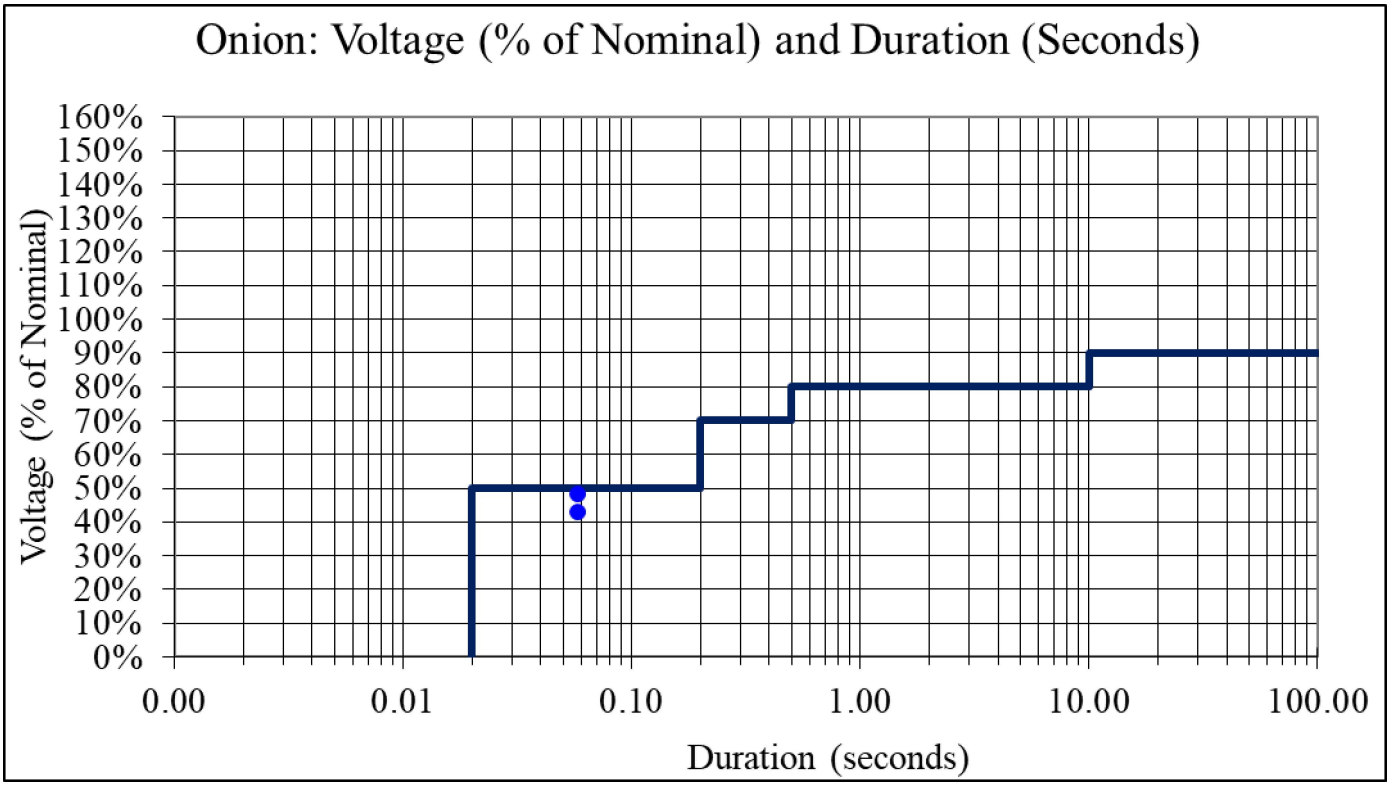
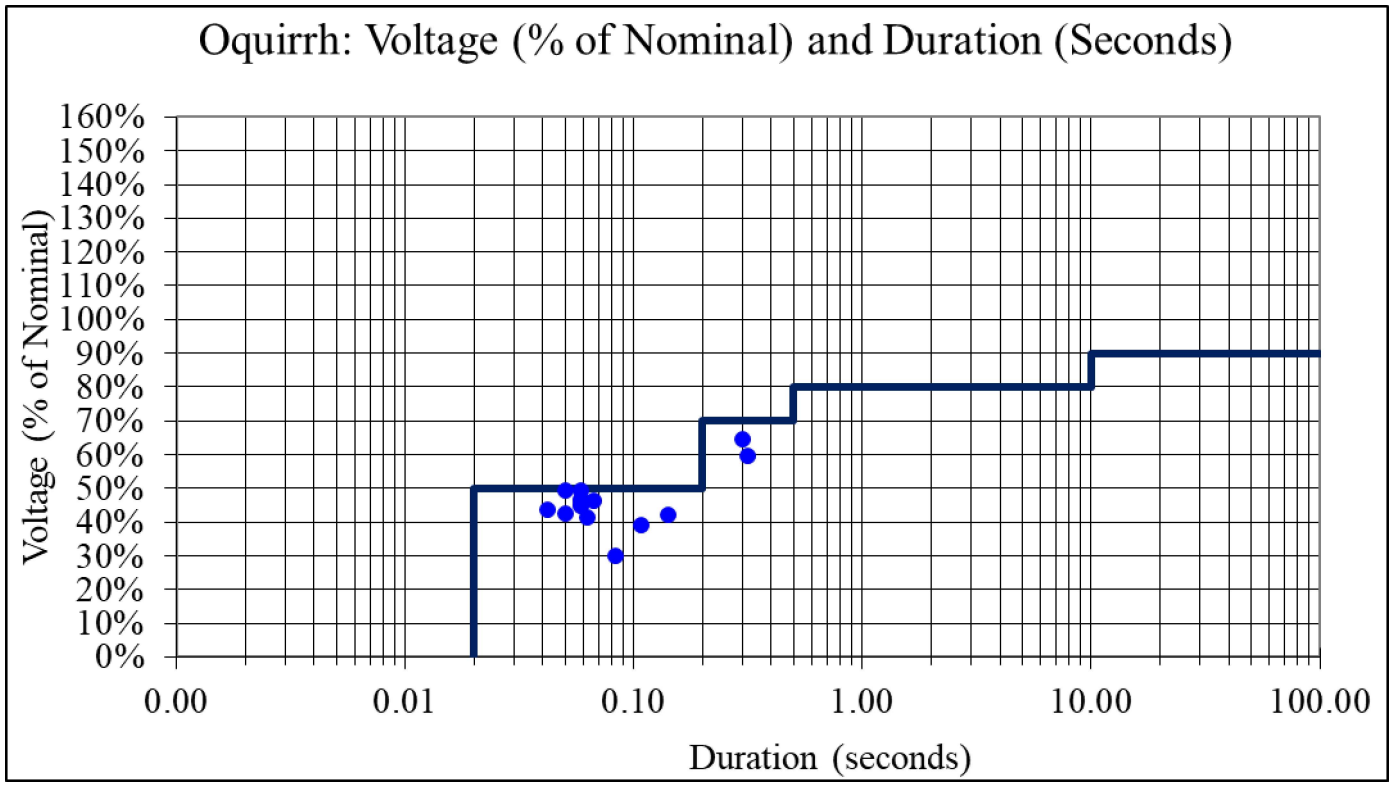
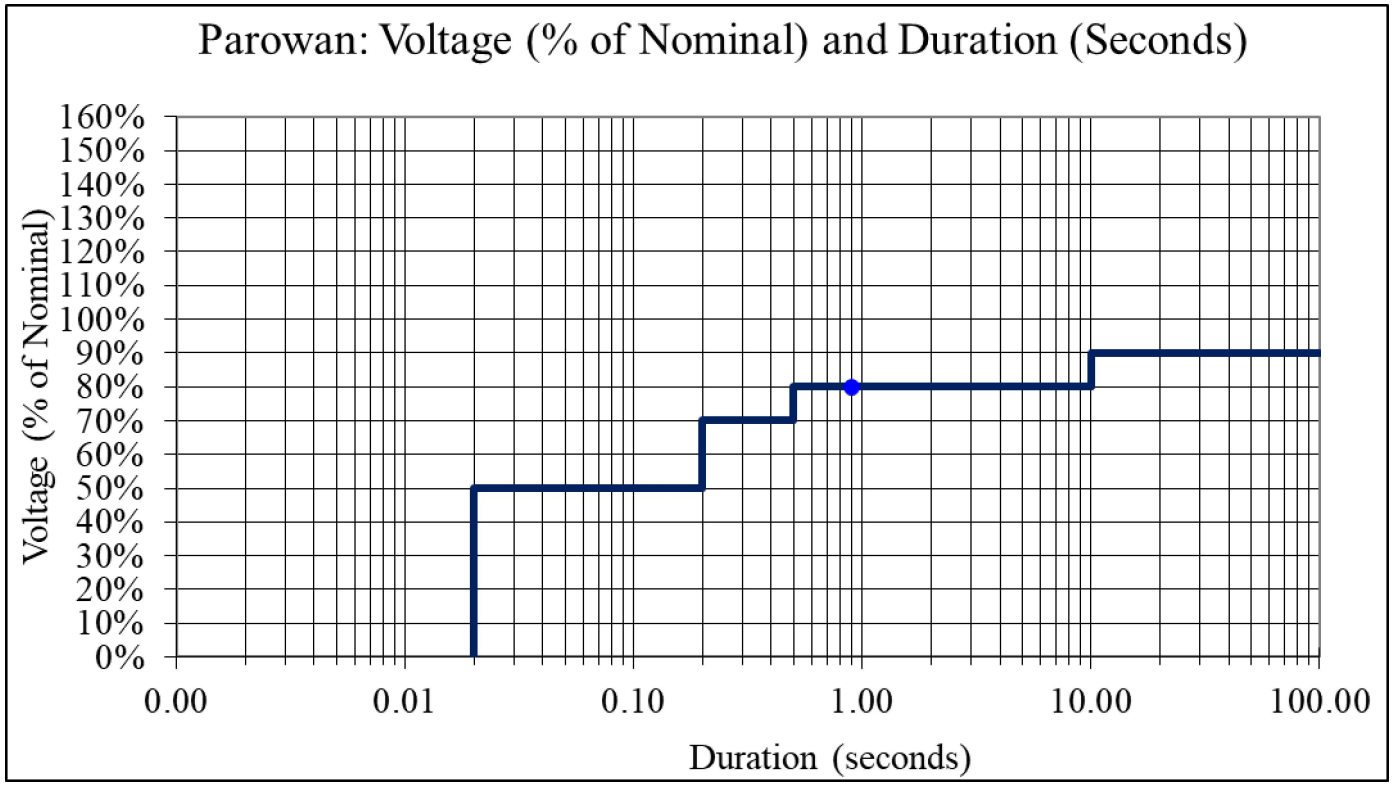
100.00
Duration (seconds)

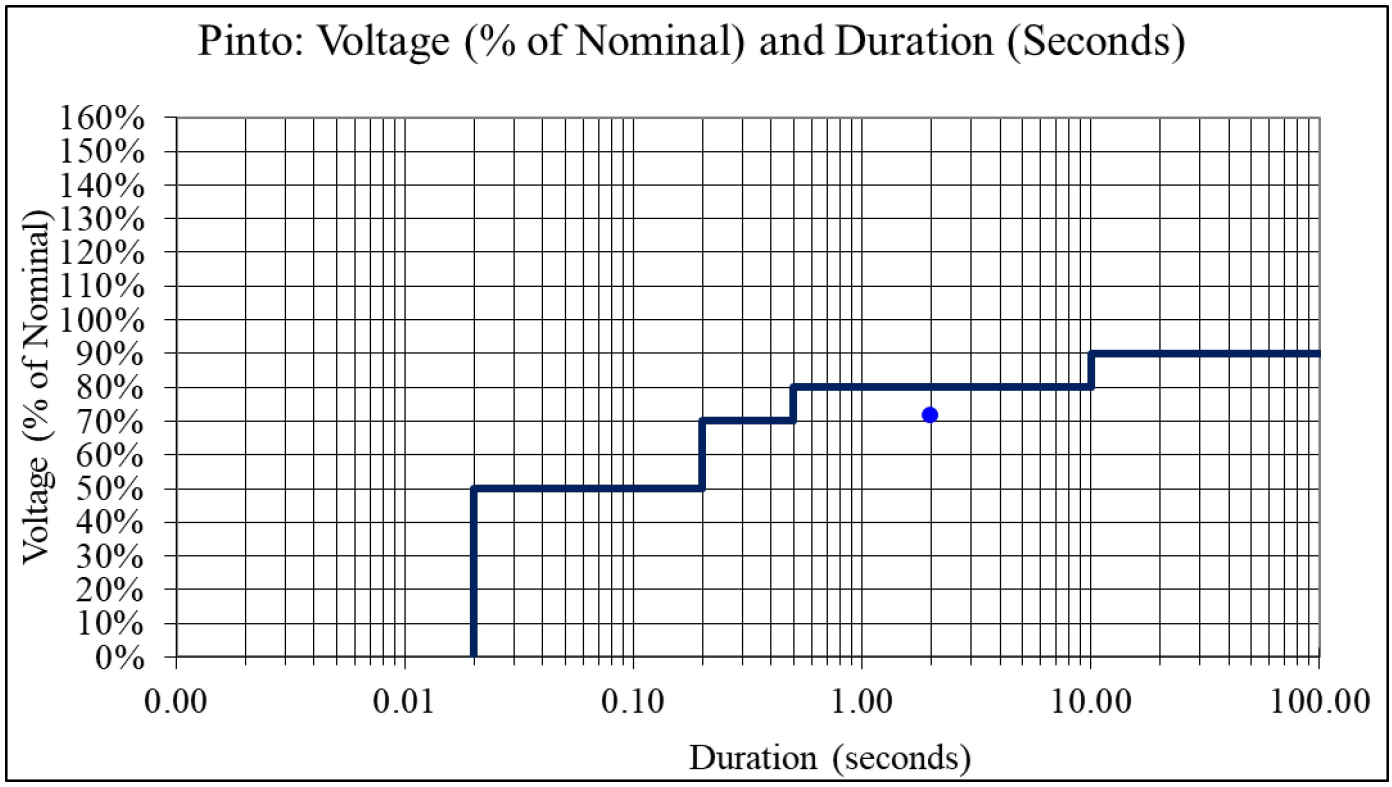

North Salt Lake: Voltage (% of Nominal) and Duration (Seconds)
Voltage (% of Nominal)
160%
150%
140%
130%
120%
110%
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0.00
0.01
0.10
1.00
10.00
100.00
Duration (seconds)

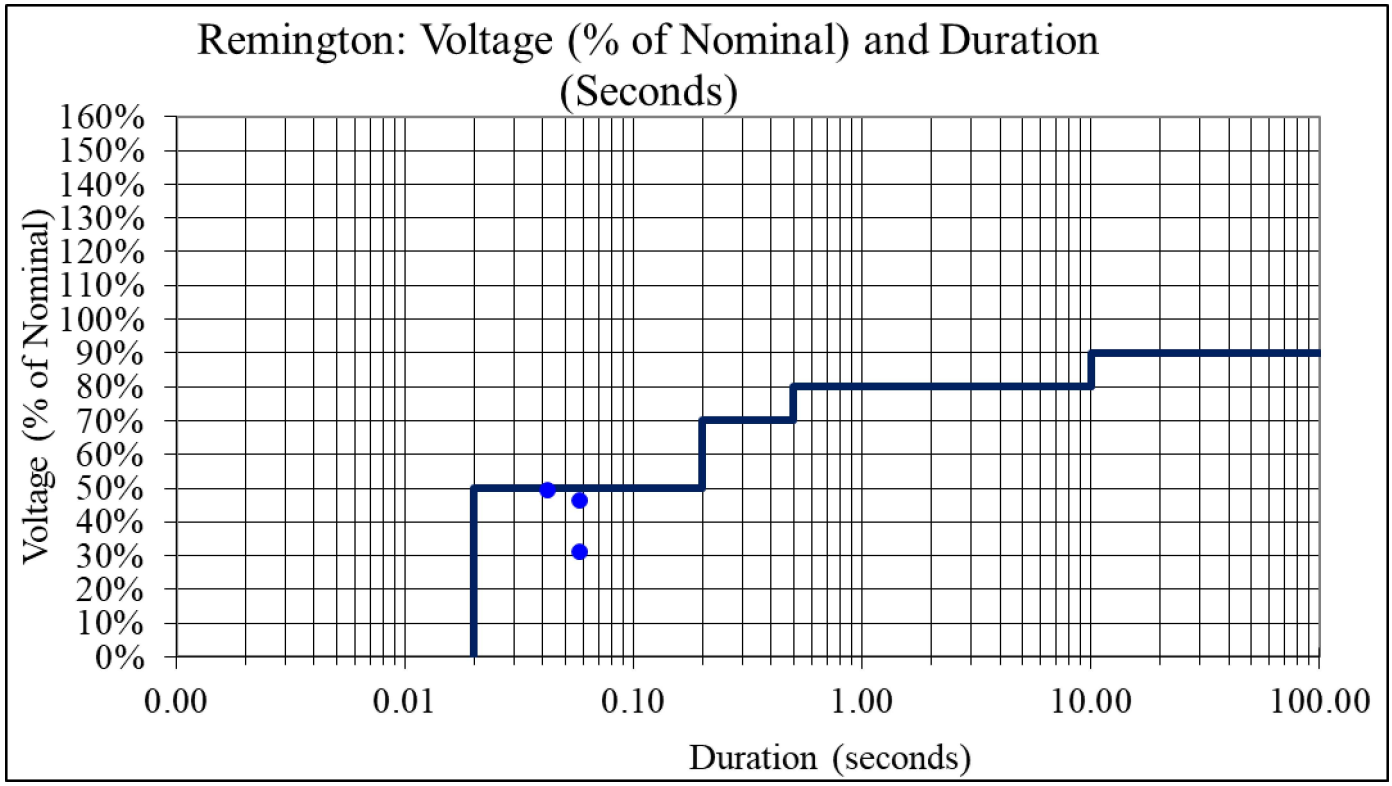

Old Field: Voltage (% of Nominal) and Duration (Seconds)
Voltage (% of Nominal)
160%
150%
140%
130%
120%
110%
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0.00
0.01
0.10
1.00
10.00
100.00
Duration (seconds)

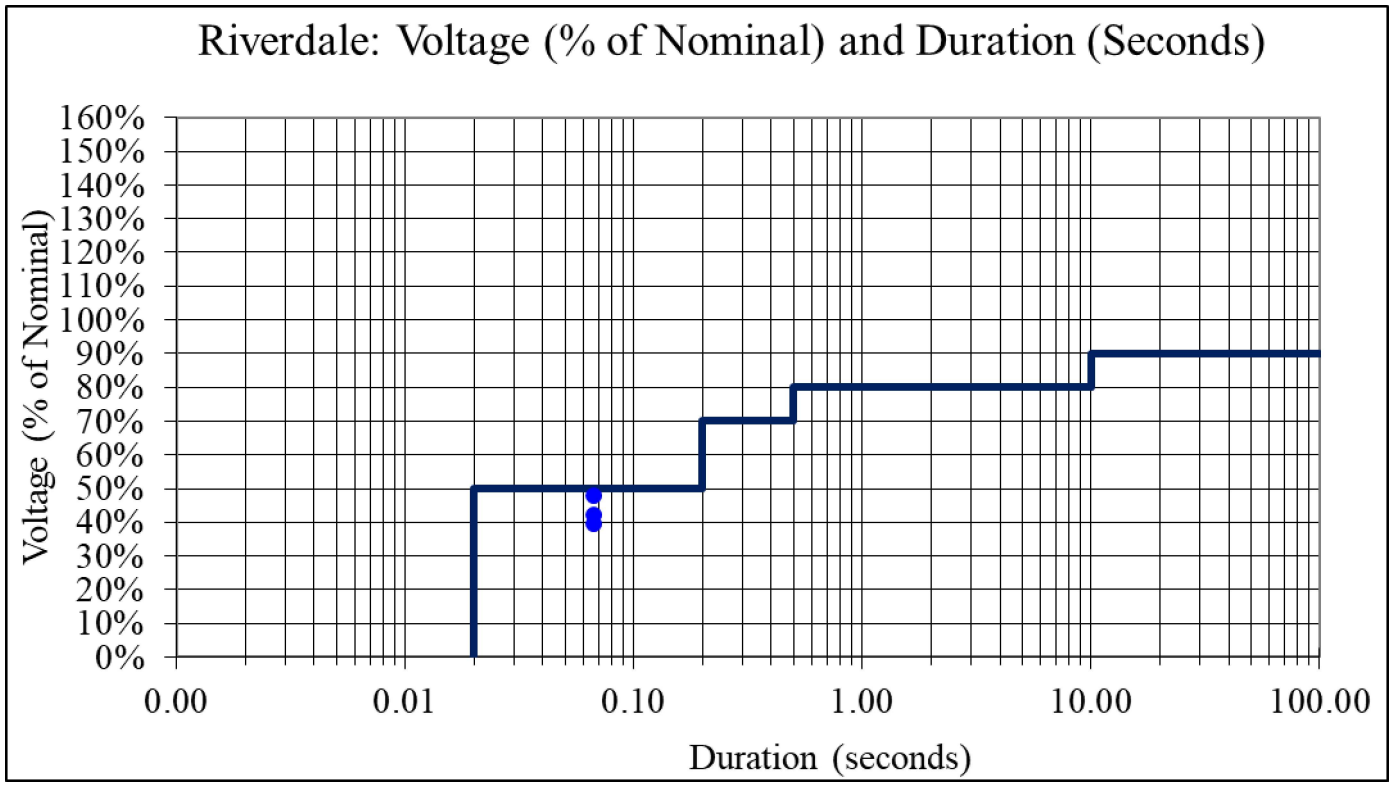

Onion: Voltage (% of Nominal) and Duration (Seconds)
Voltage (% of Nominal)
160%
150%
140%
130%
120%
110%
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0.00
0.01
0.10
1.00
10.00
100.00
Duration (seconds)

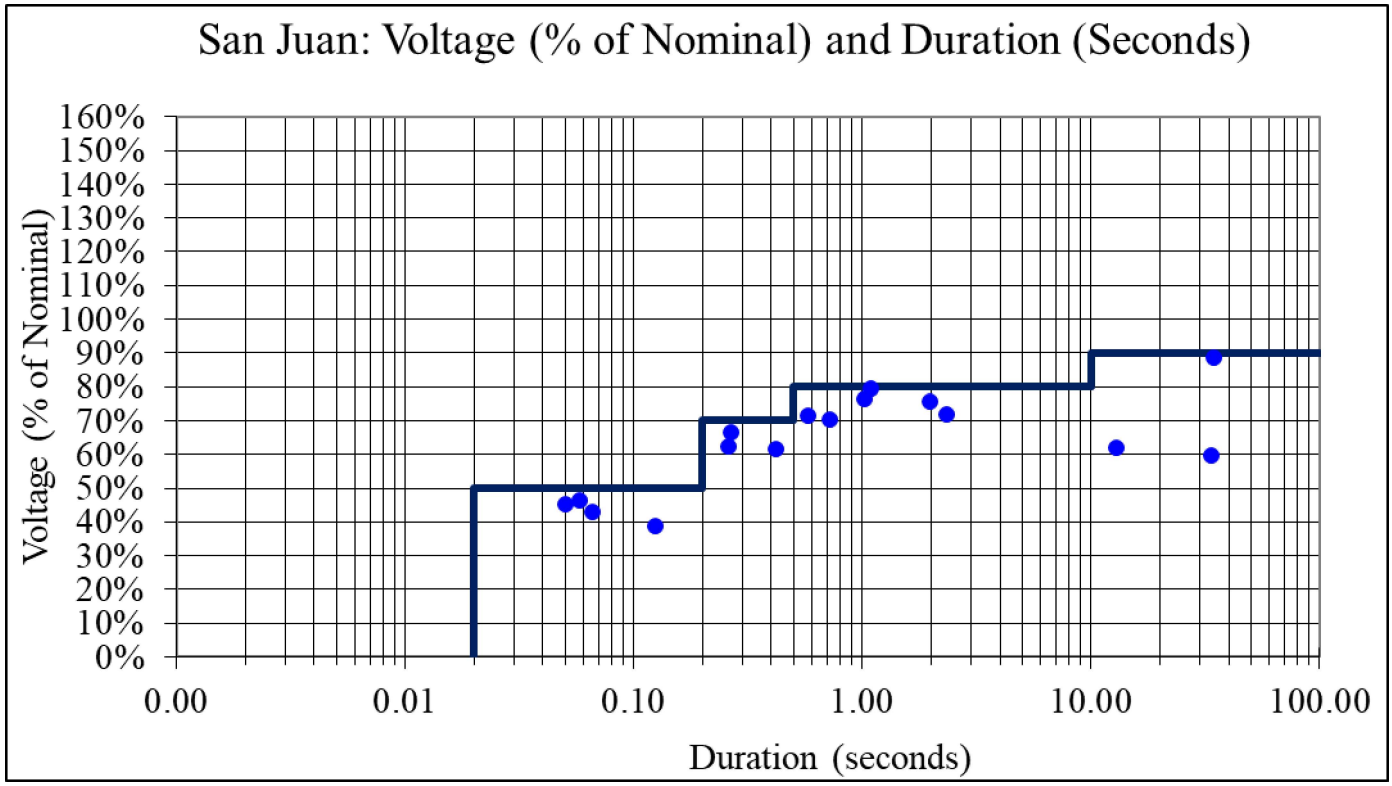

Oquirrh: Voltage (% of Nominal) and Duration (Seconds)
Voltage (% of Nominal)
160%
150%
140%
130%
120%
110%
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0.00
0.01
0.10
1.00
10.00
100.00
Duration (seconds)

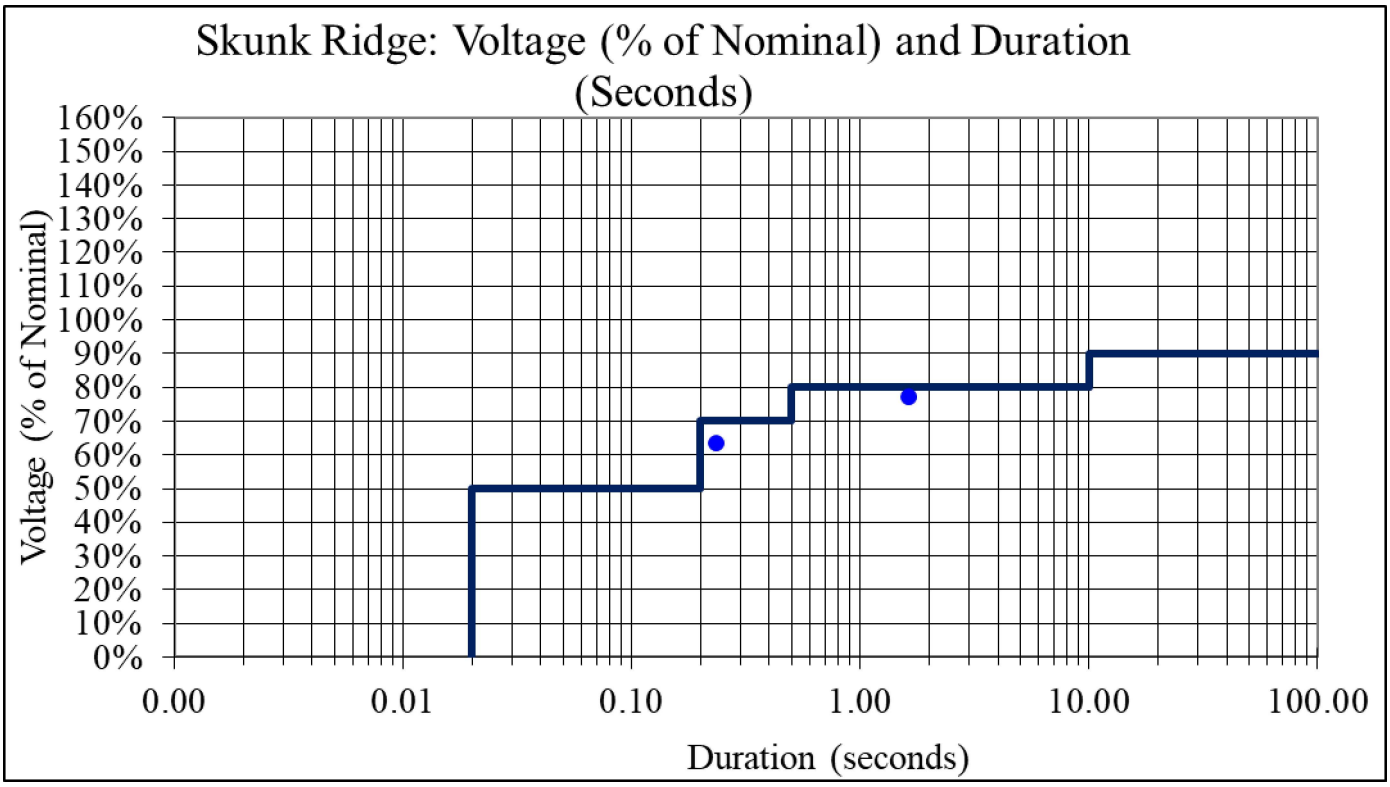

Parowan: Voltage (% of Nominal) and Duration (Seconds)
Voltage (% of Nominal)
160%
150%
140%
130%
120%
110%
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0.00
0.01
0.10
1.00
10.00
100.00
Duration (seconds)

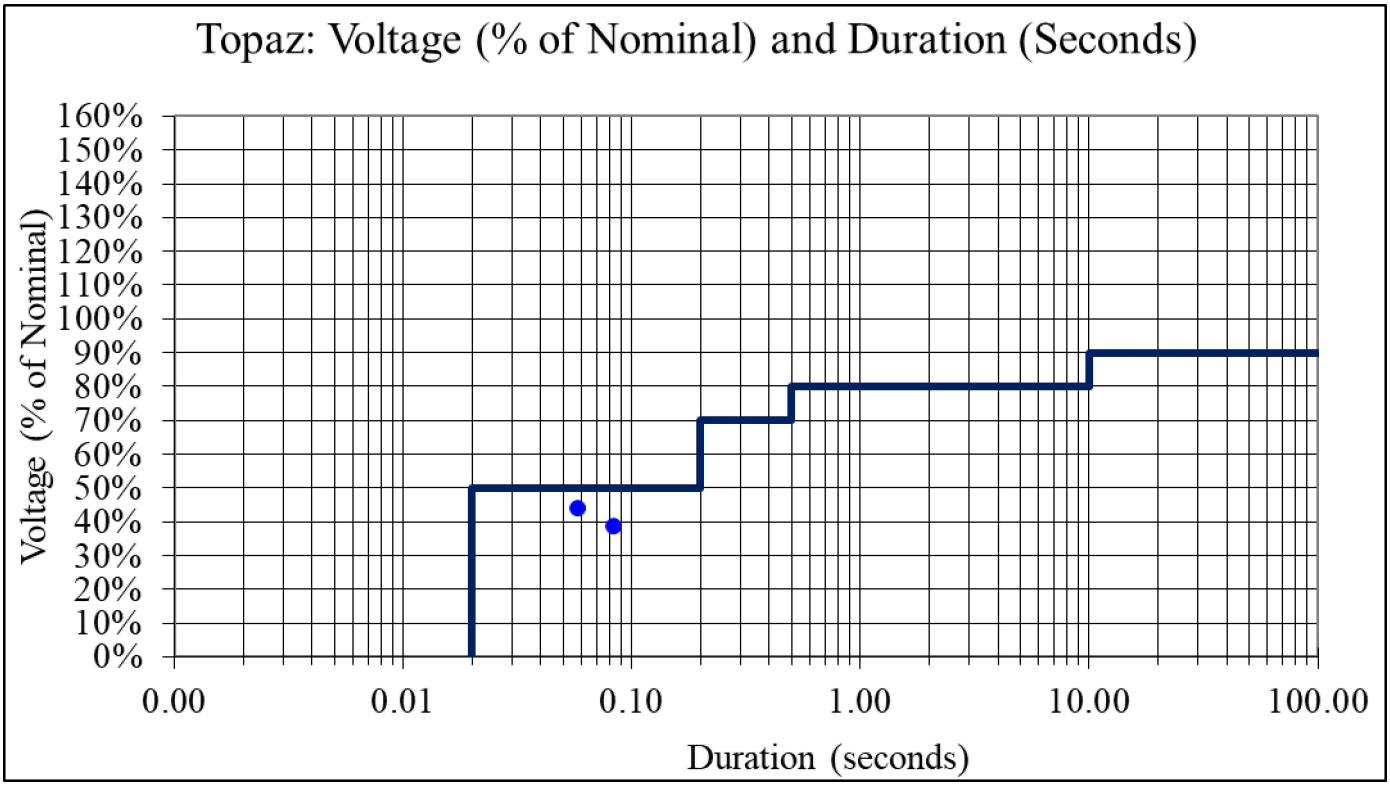

Pinto: Voltage (% of Nominal) and Duration (Seconds)
Voltage (% of Nominal)
160%
150%
140%
130%
120%
110%
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0.00
0.01
0.10
1.00
10.00
100.00
Duration (seconds)

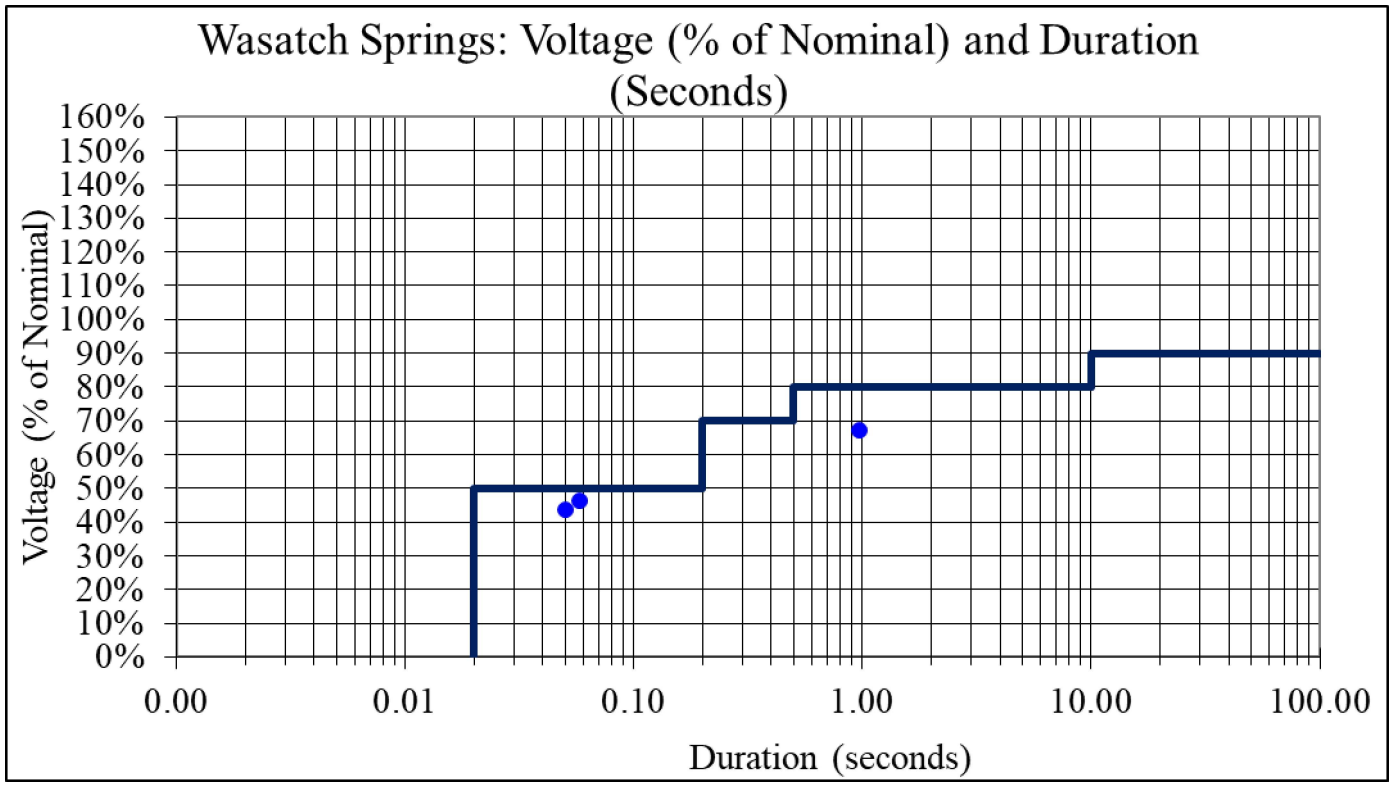

Remington: Voltage (% of Nominal) and Duration (Seconds)
Voltage (% of Nominal)
160%
150%
140%
130%
120%
110%
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0.00
0.01
0.10
1.00
10.00
100.00
Duration (seconds)

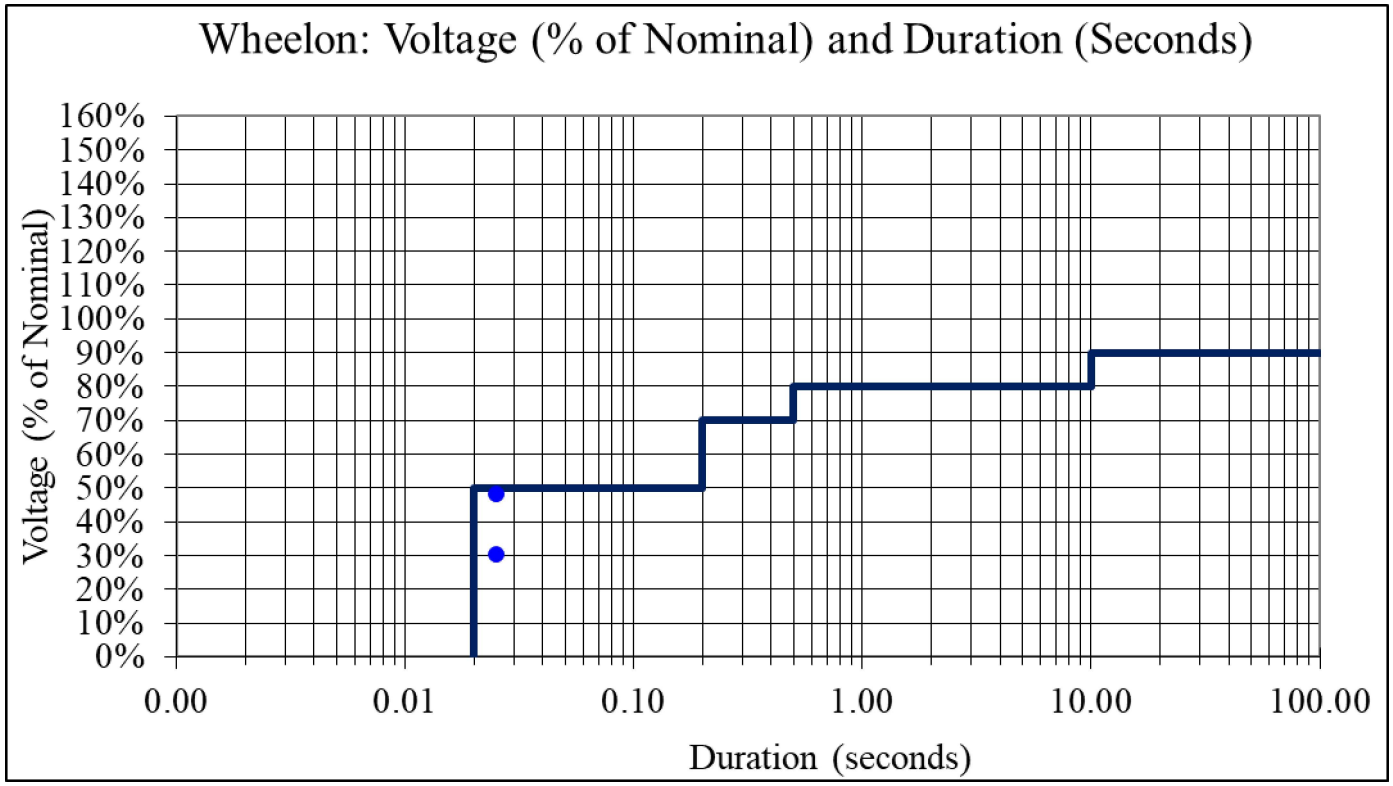

Riverdale: Voltage (% of Nominal) and Duration (Seconds)
Voltage (% of Nominal)
160%
150%
140%
130%
120%
110%
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0.00
0.01
0.10
1.00
10.00
100.00
Duration (seconds)

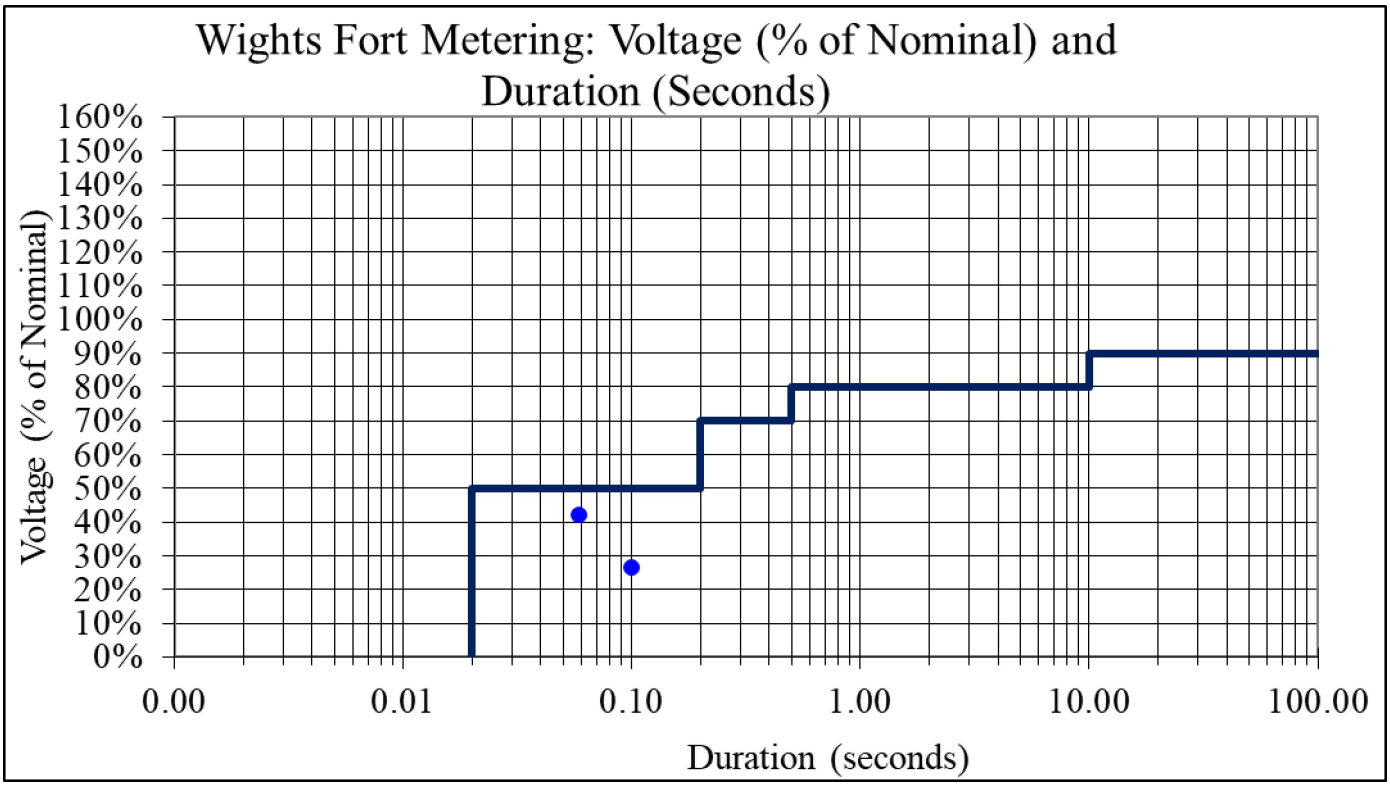

San Juan: Voltage (% of Nominal) and Duration (Seconds)
Voltage (% of Nominal)
160%
150%
140%
130%
120%
110%
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0.00
0.01
0.10
1.00
10.00
100.00
Duration (seconds)


Skunk Ridge: Voltage (% of Nominal) and Duration (Seconds)
Voltage (% of Nominal)
160%
150%
140%
130%
120%
110%
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0.00
0.01
0.10
1.00
10.00
100.00
Duration (seconds)


Topaz: Voltage (% of Nominal) and Duration (Seconds)
Voltage (% of Nominal)
160%
150%
140%
130%
120%
110%
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0.00
0.01
0.10
1.00
10.00
100.00
Duration (seconds)


Wasatch Springs: Voltage (% of Nominal) and Duration (Seconds)
Voltage (% of Nominal)
160%
150%
140%
130%
120%
110%
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0.00
0.01
0.10
1.00
10.00
100.00
Duration (seconds)


Wheelon: Voltage (% of Nominal) and Duration (Seconds)
Voltage (% of Nominal)
160%
150%
140%
130%
120%
110%
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0.00
0.01
0.10
1.00
10.00
100.00
Duration (seconds)


Wights Fort Metering: Voltage (% of Nominal) and Duration (Seconds)
Voltage (% of Nominal)
160%
150%
140%
130%
120%
110%
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0.00
0.01
0.10
1.00
10.00
100.00
Duration (seconds)