



# **NSPW AG SERVICES**

**MREC Conference  
Interesting Stray Voltage Discoveries**

**February 12-13, 2025**

# Agenda

- Ag Team Introductions
- PSCW's Conservative "Level of Concern"
- Interesting Discoveries
- Q&A

# NSPW AG TEAM

# NSPW Ag Team Members

- Adam Boese – Agricultural Accounts Management Team Lead, Abbotsford
- Dustin Davis – Engineering Technician, Abbotsford
- Jeff Nilssen – Engineering Technician, Sparta



# PSCW's Conservative "Level of Concern"

- The PSCW's conservative "level of concern," which is considered a preventive level well below where a cow's behavior or milk production maybe harmed, for combined on-farm and off-farm sources is 1.0 volts RMS steady state at a cow contact point. Thus, the off-farm (utility) contribution must be at, or below, 0.5 volts RMS steady state and same for the customer.

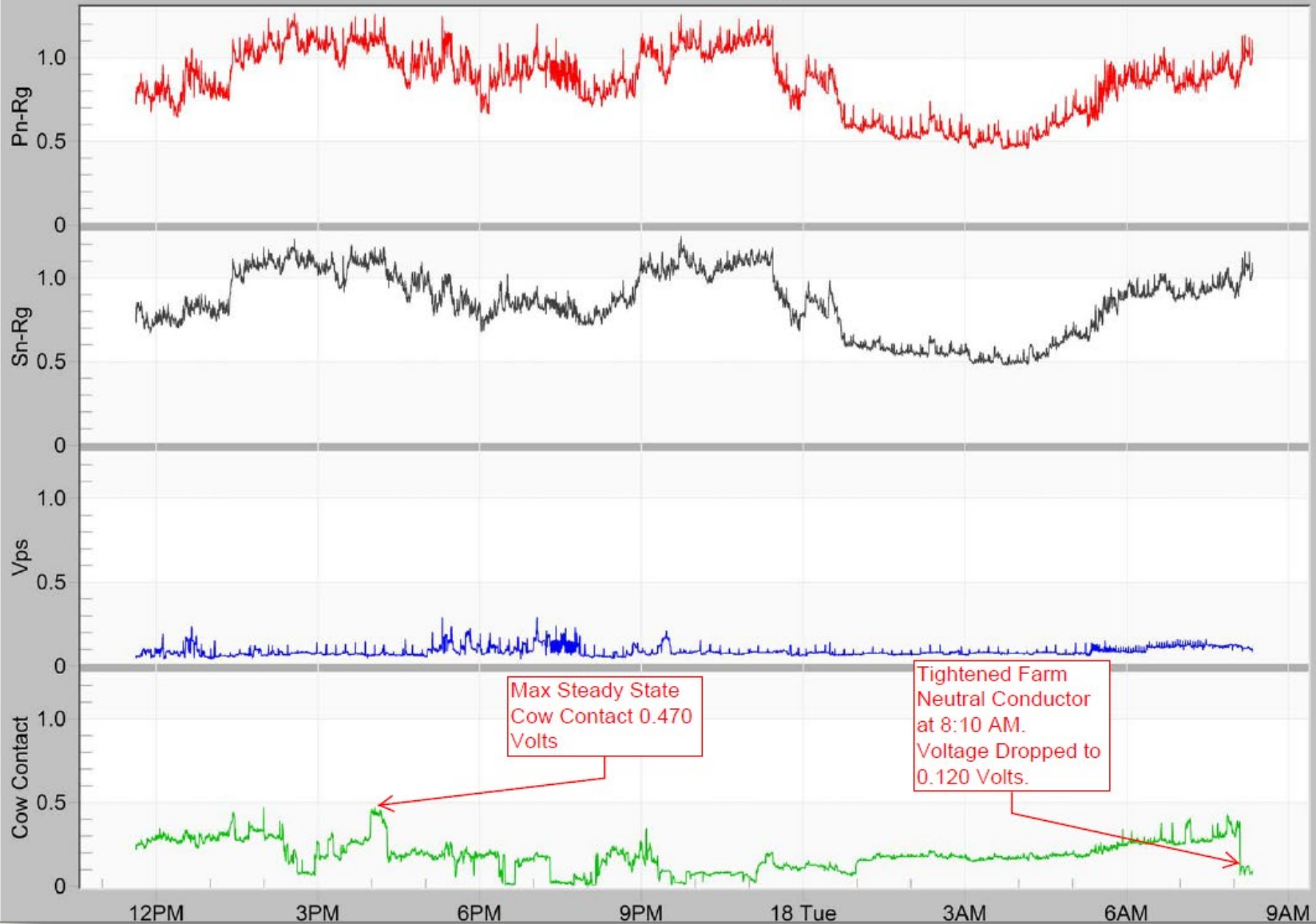
# Neutral Isolator



# SVM-10

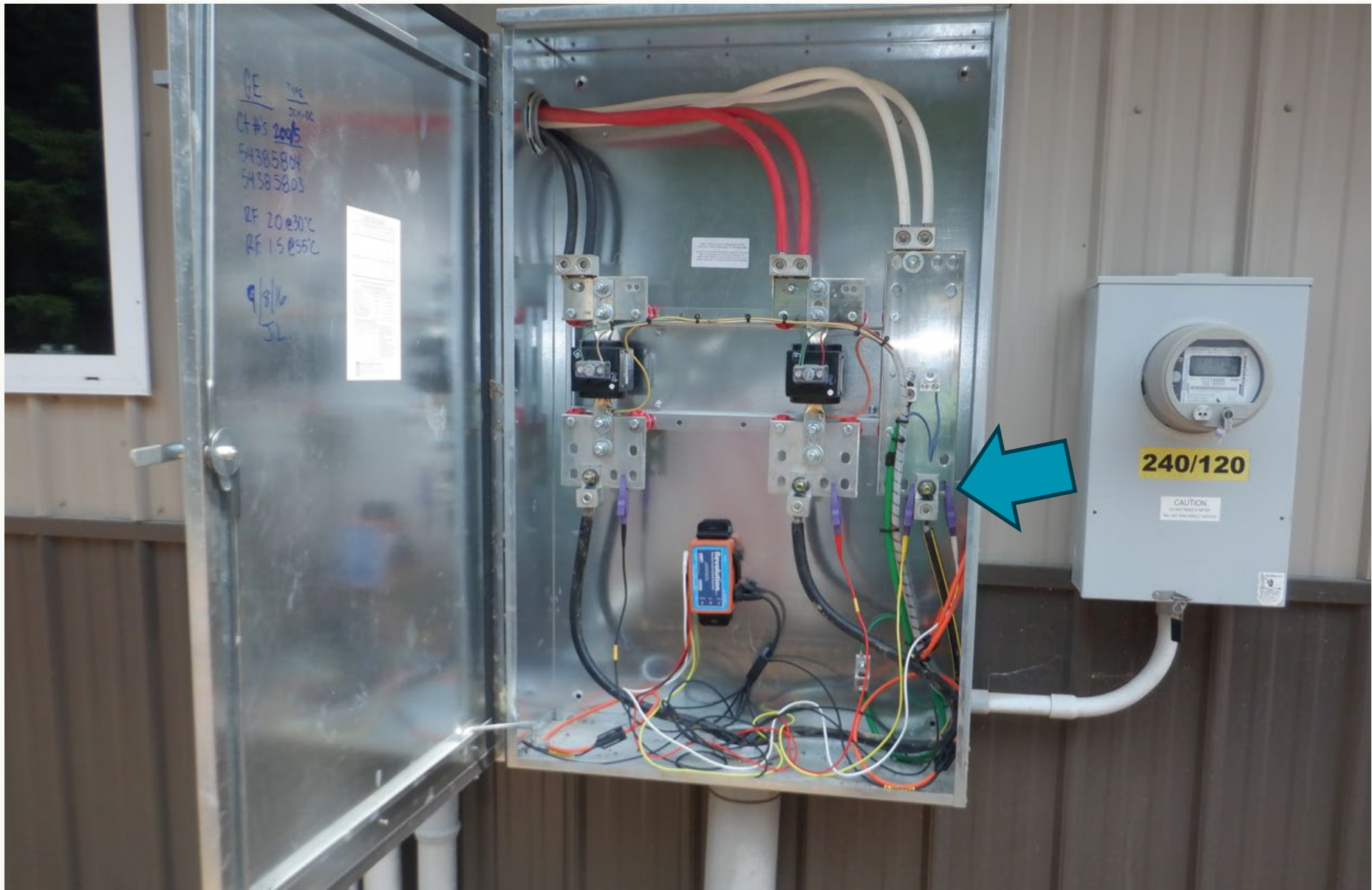


# 24 Hour Recording



Max Steady State  
Cow Contact 0.470  
Volts

Tightened Farm  
Neutral Conductor  
at 8:10 AM.  
Voltage Dropped to  
0.120 Volts.



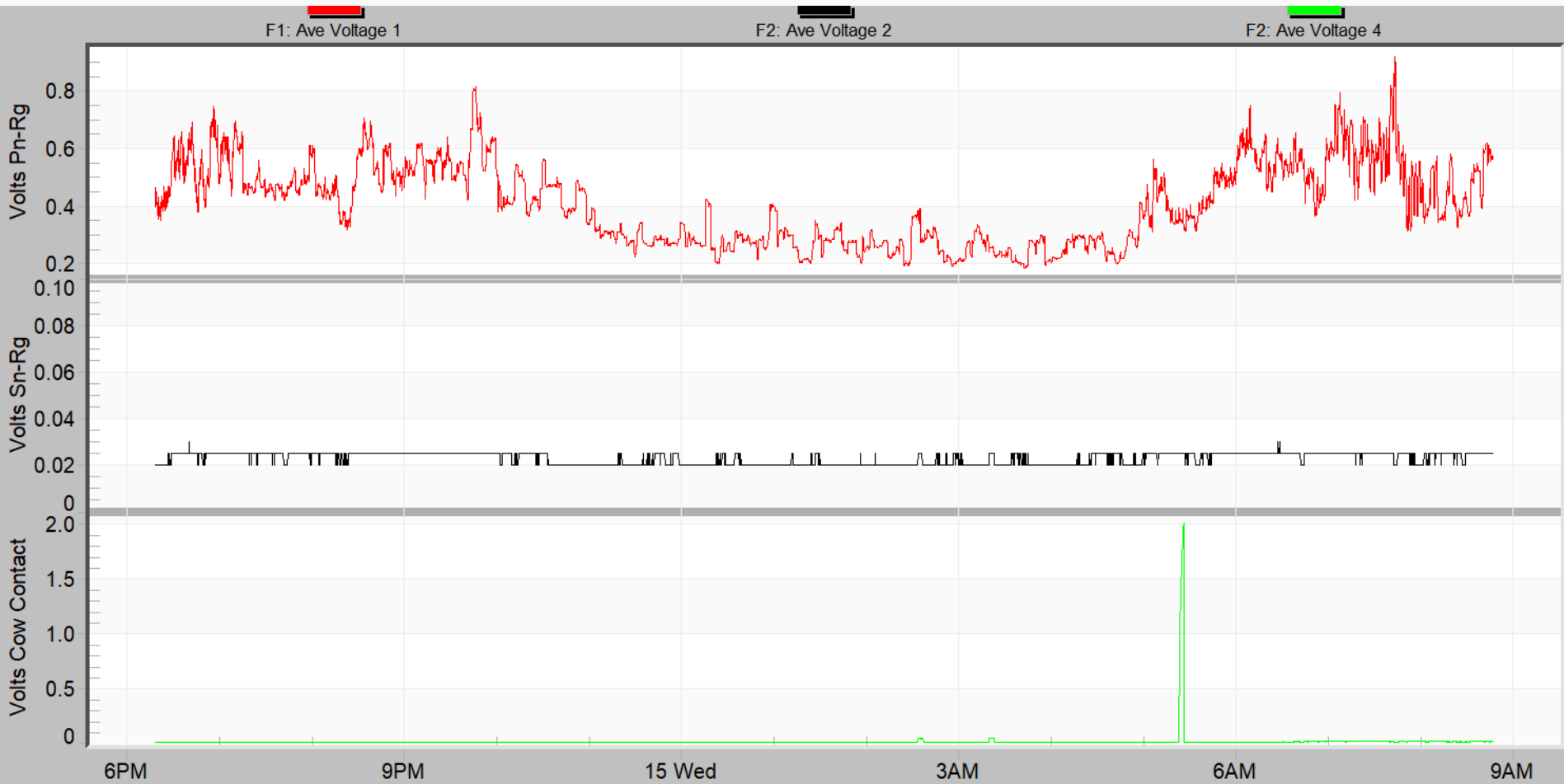


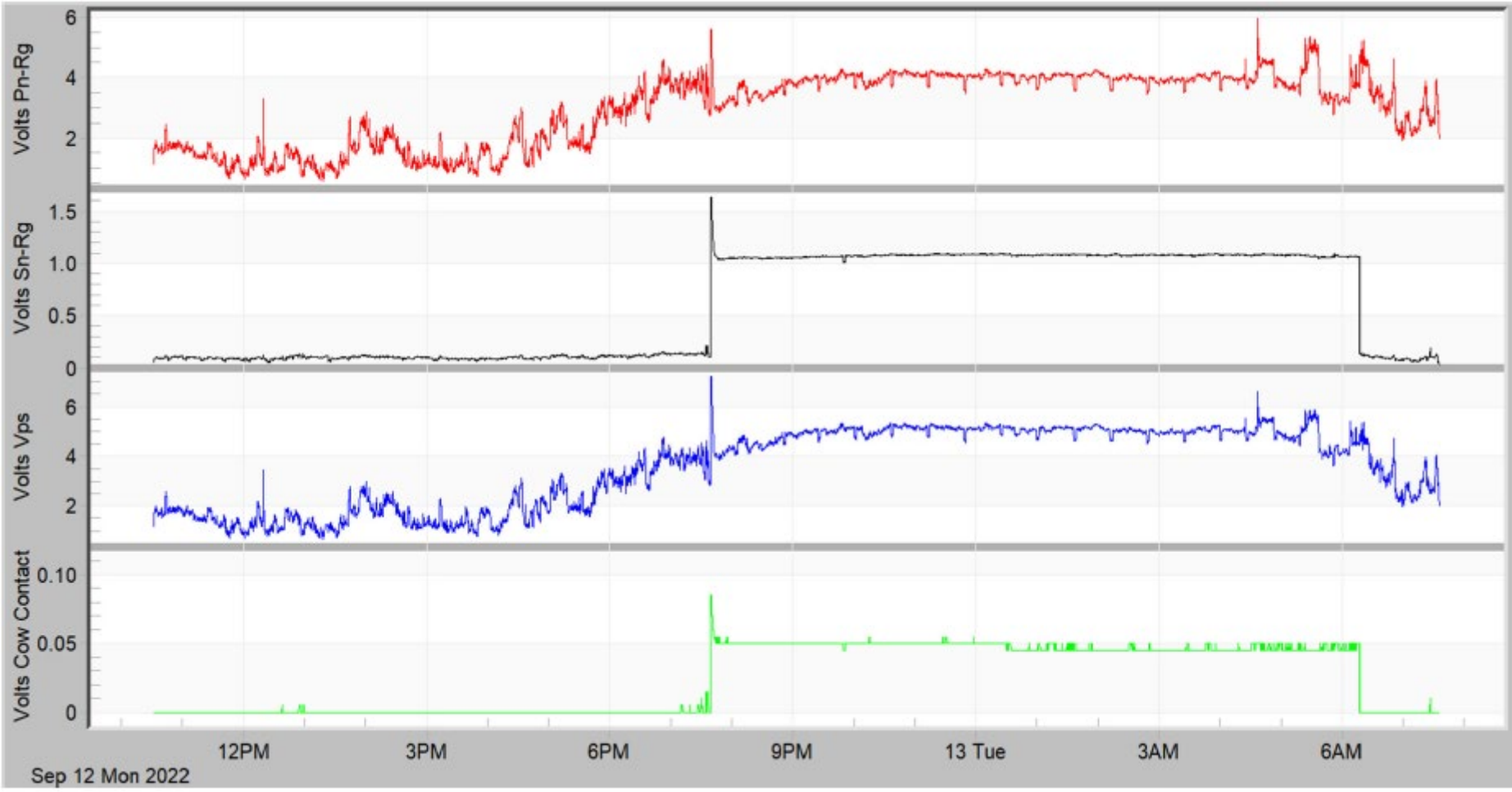


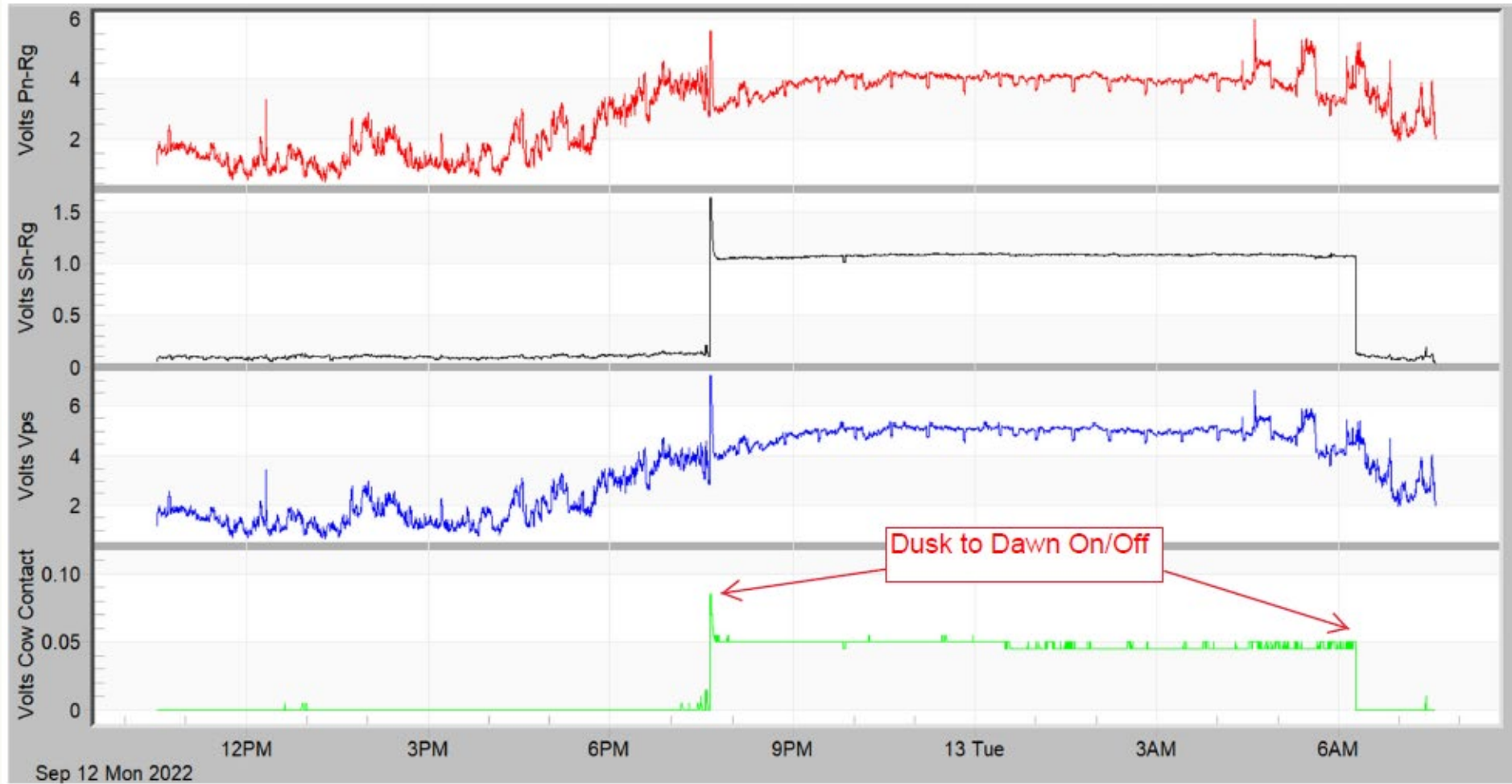


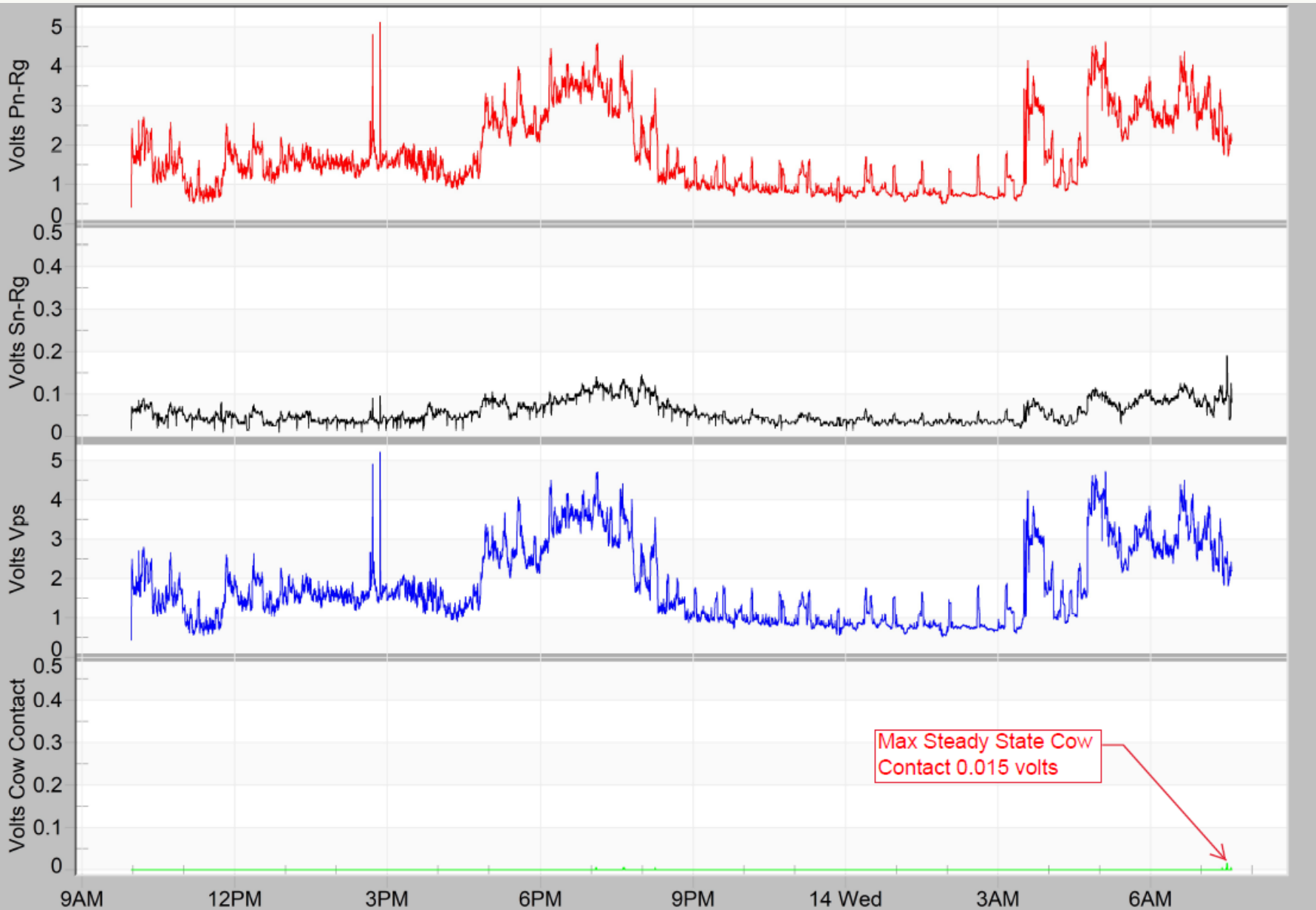






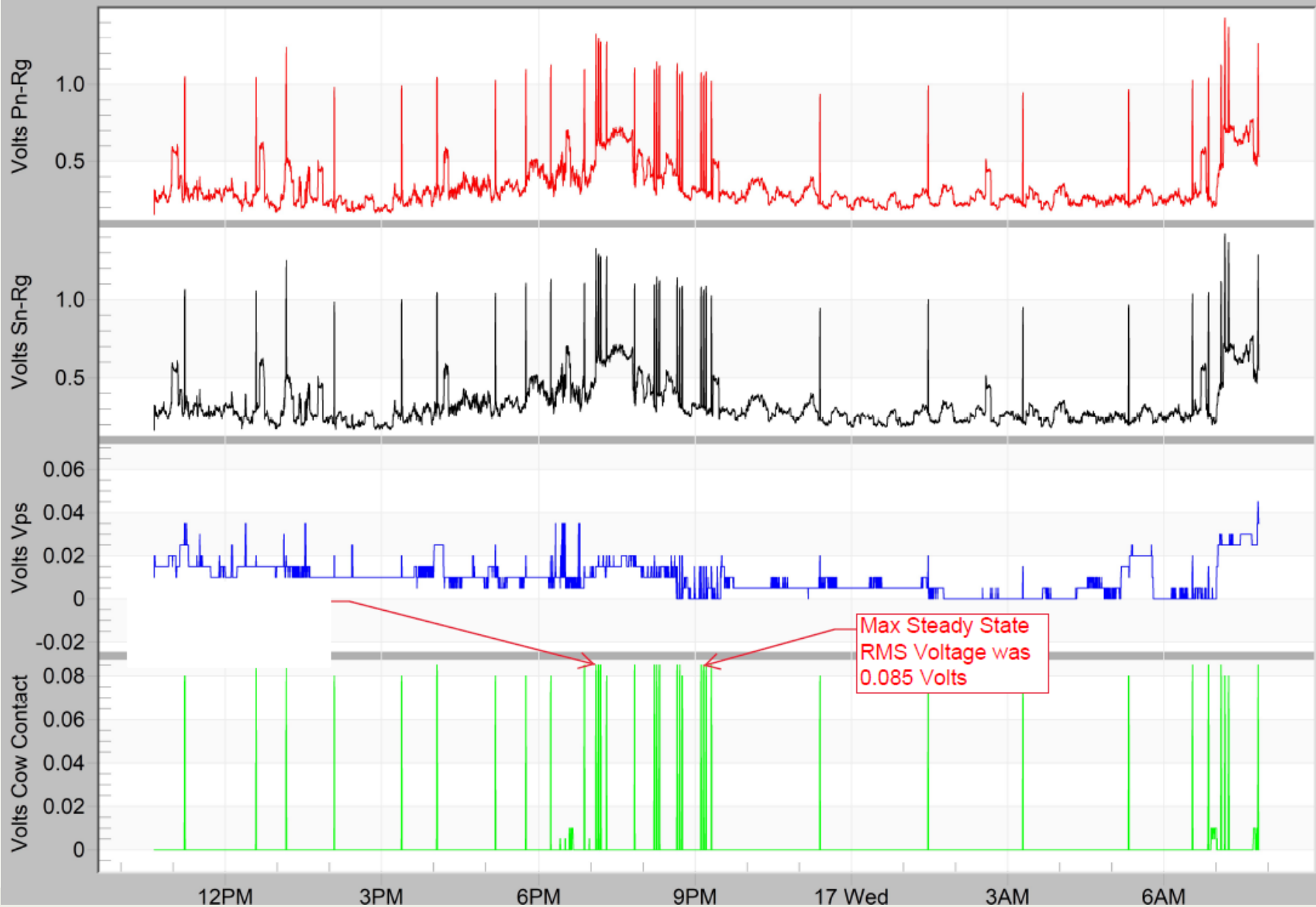


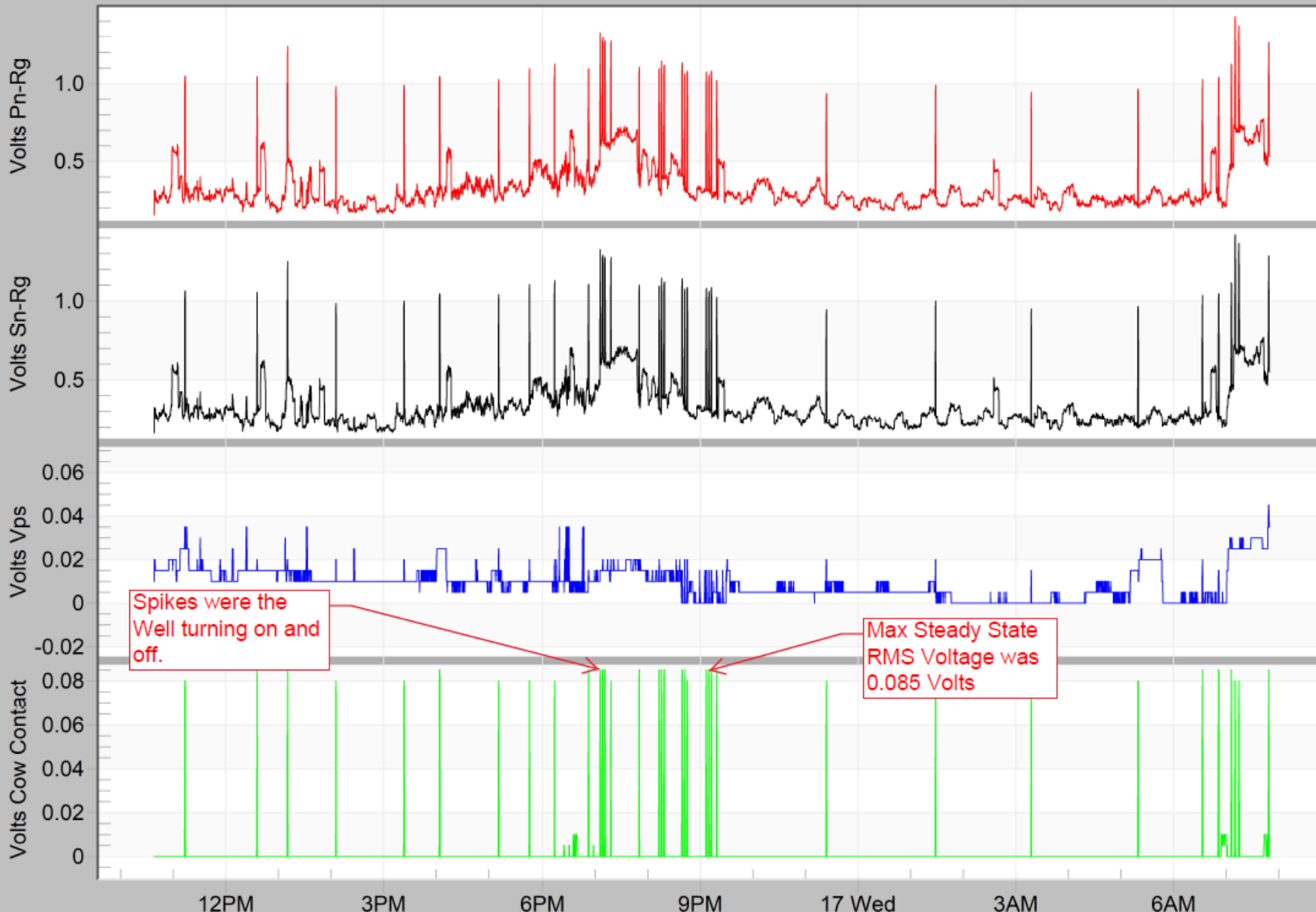


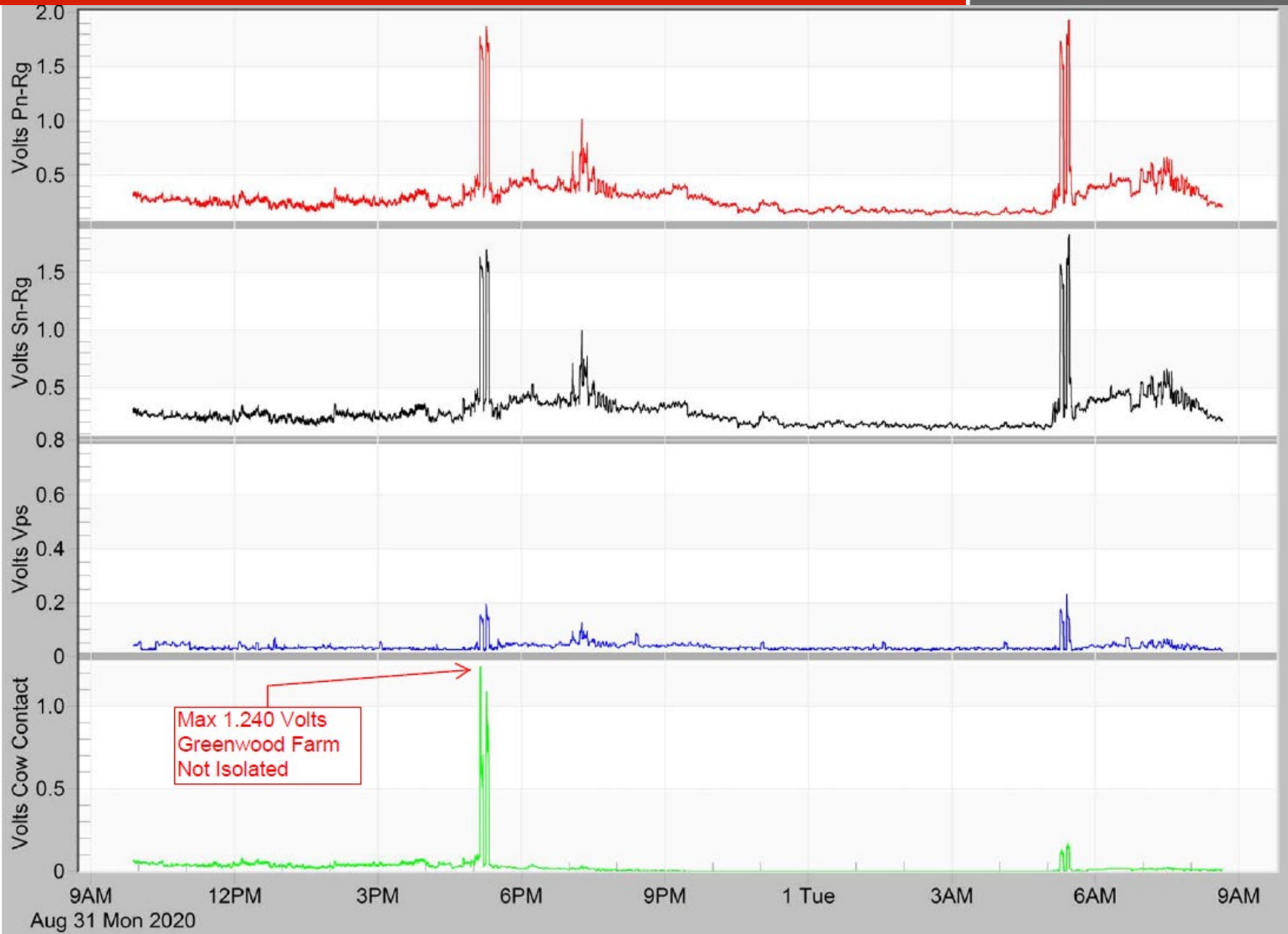


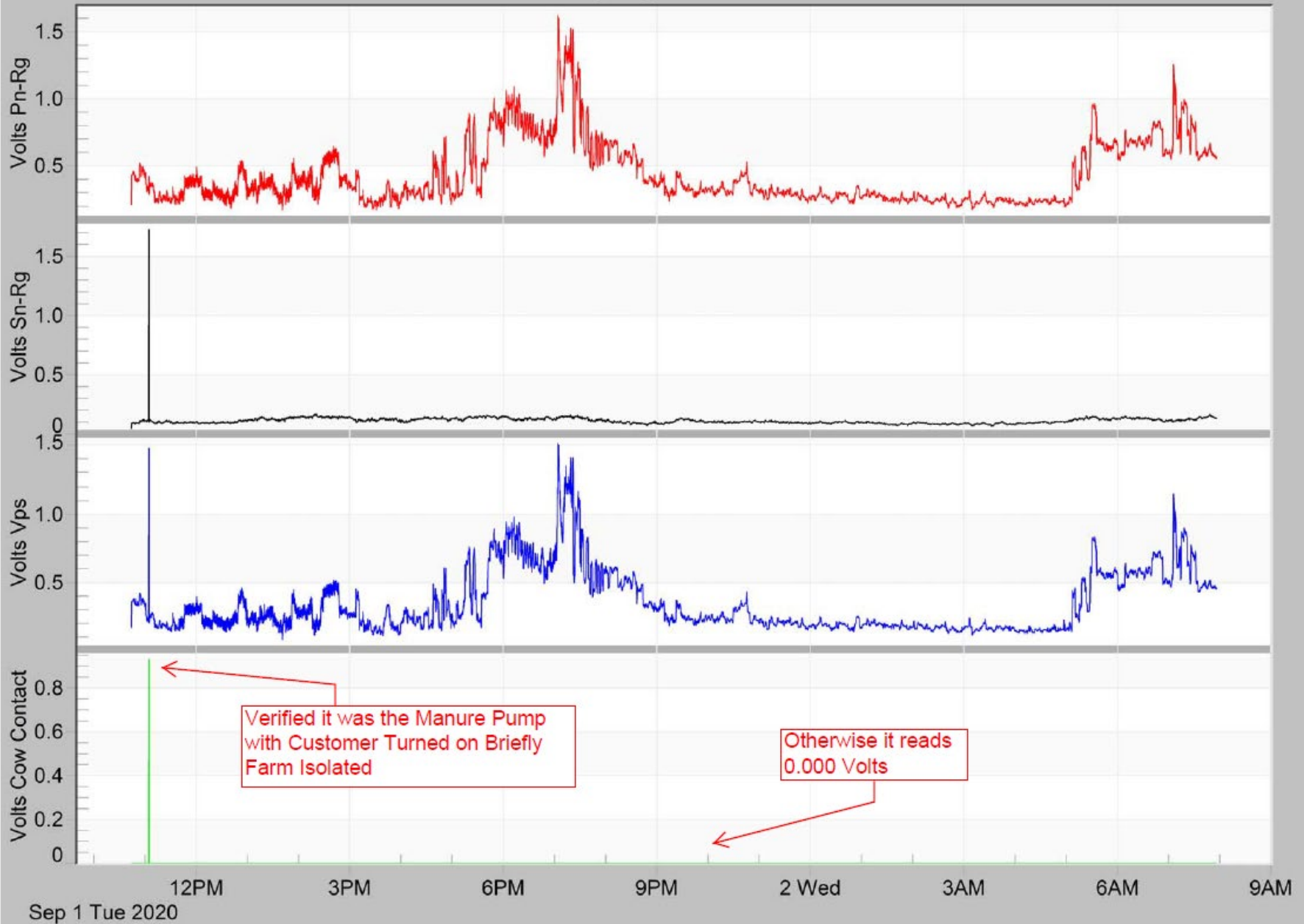
Max Steady State Cow Contact 0.015 volts

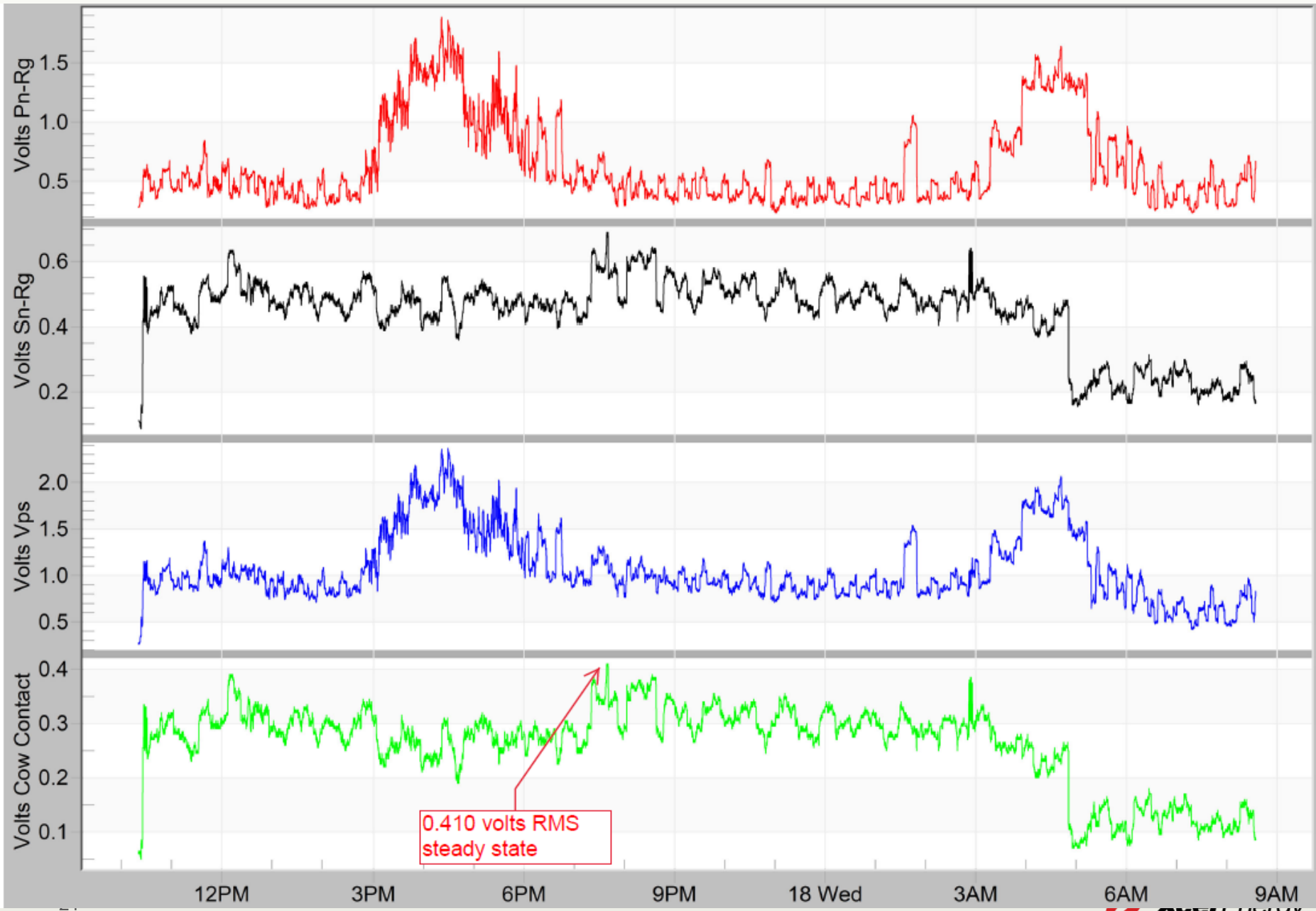






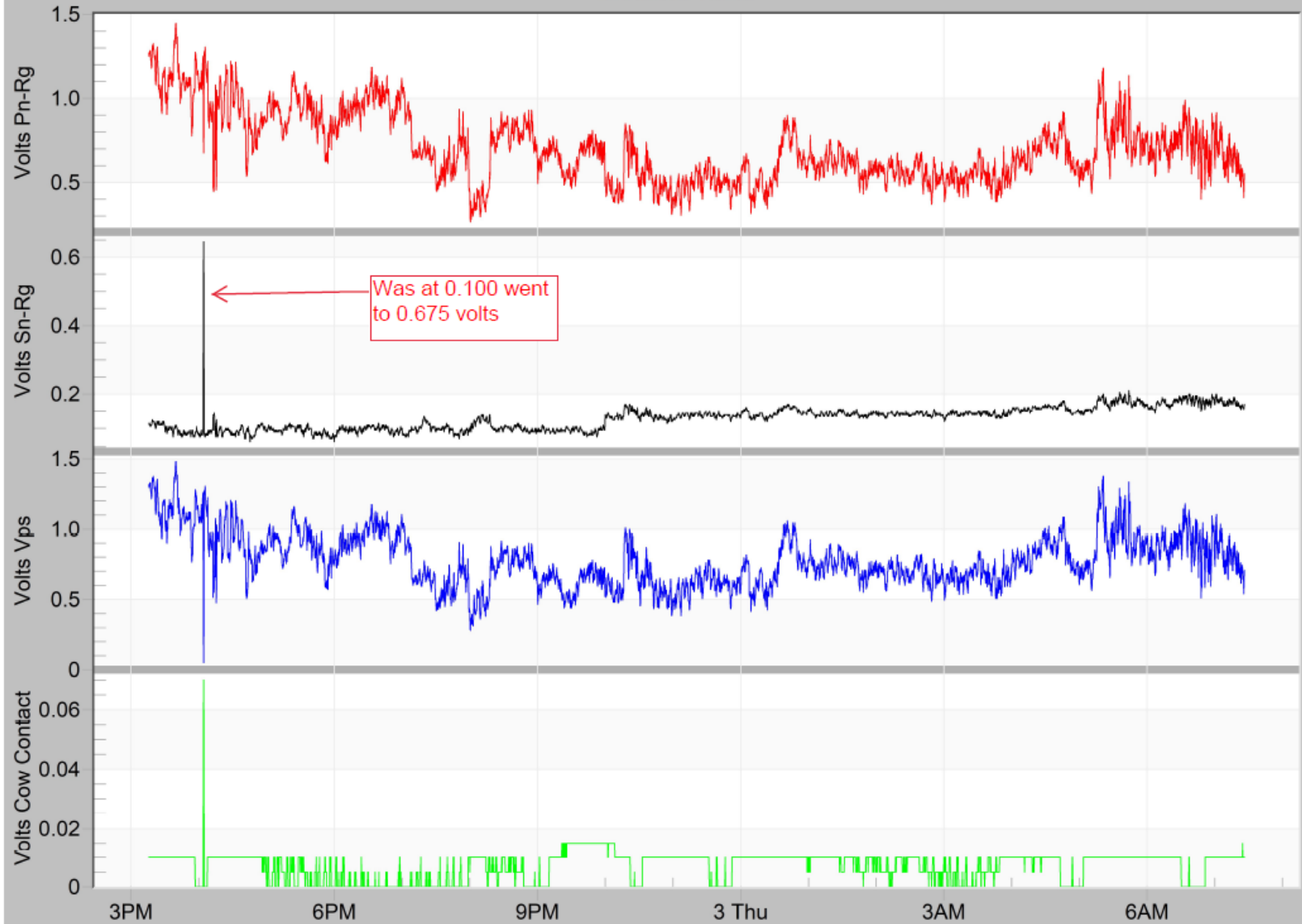






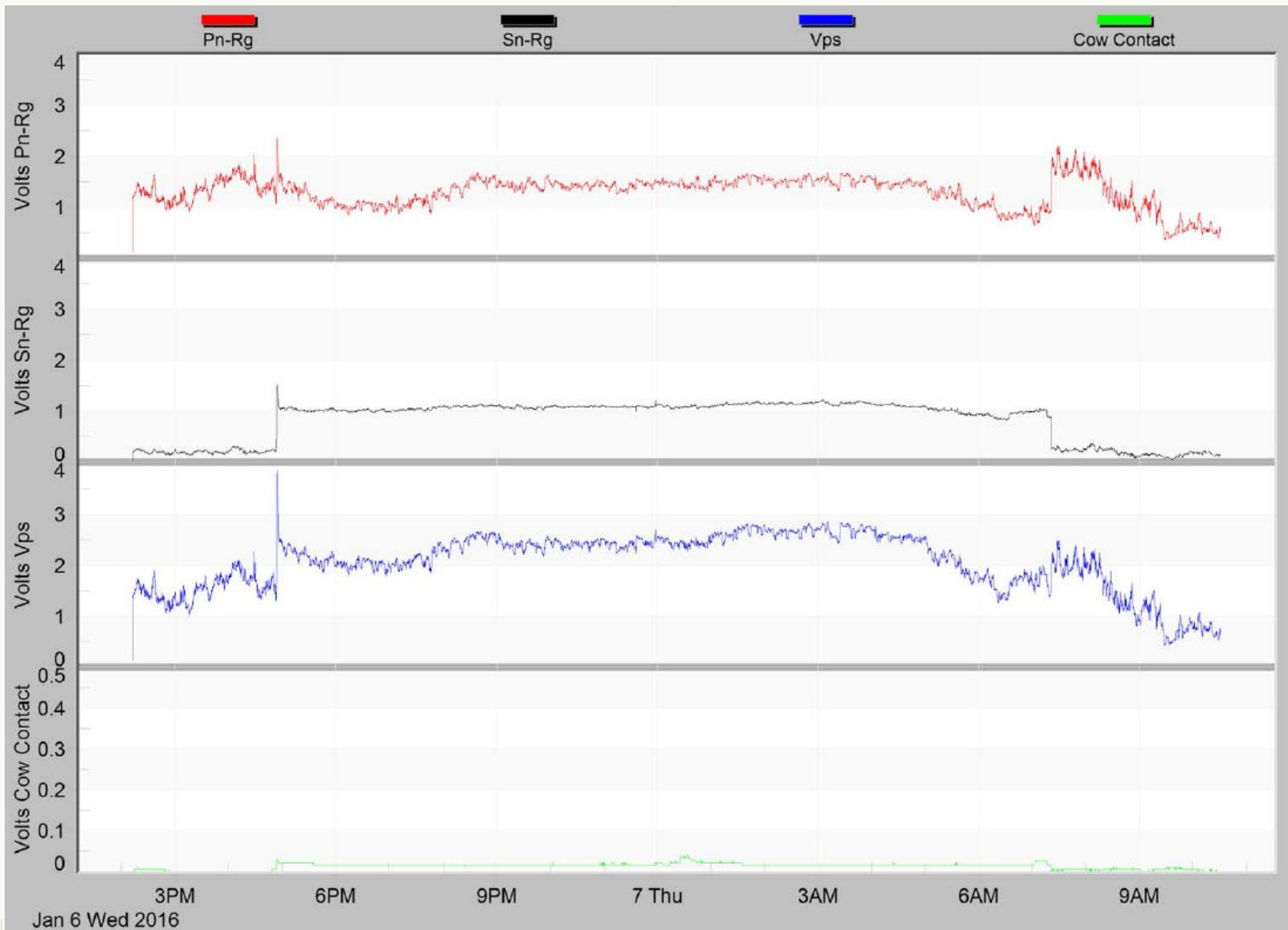
0.410 volts RMS  
steady state

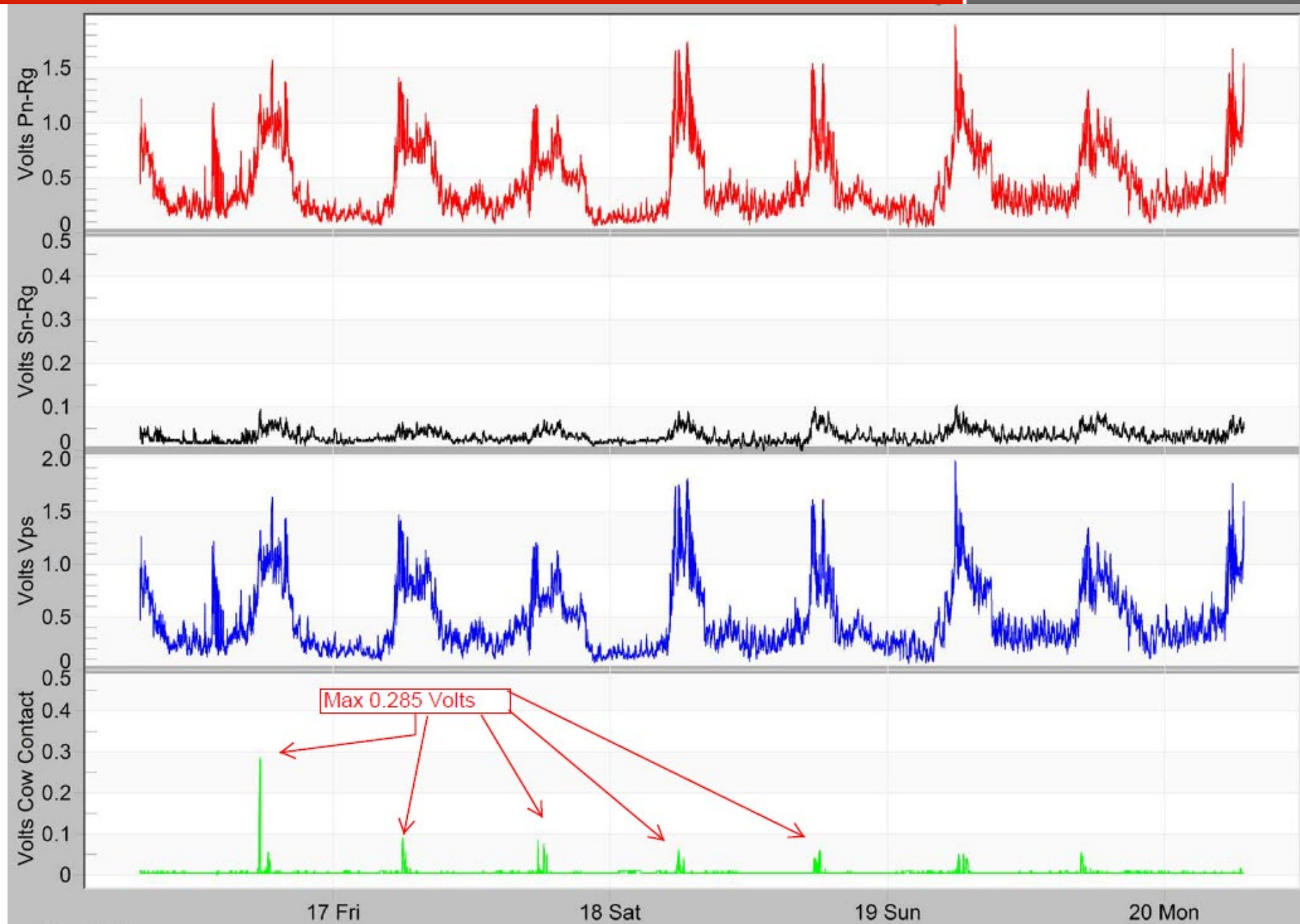
# Isolated Farm



Mar 2 Wed 2022

SV Check-d





May 2019

17 Fri

18 Sat

19 Sun

20 Mon

Colby, WI







- Stanchion barn; 50-70 cows
- Waterer – existing before retrofit



# Waterer before EPP Installed

Cow Contact (CC) Source Resistance (Set-up)		1.142	.995
WTR	@ CC to Barn Panel Ground Bus	.165	N/A
RH	@ CC to Barn Panel Ground Bus	.936	N/A
WTR	@ CC to Reference Rod	.258	N/A
RH	@ CC to Reference Rod	1.525	N/A

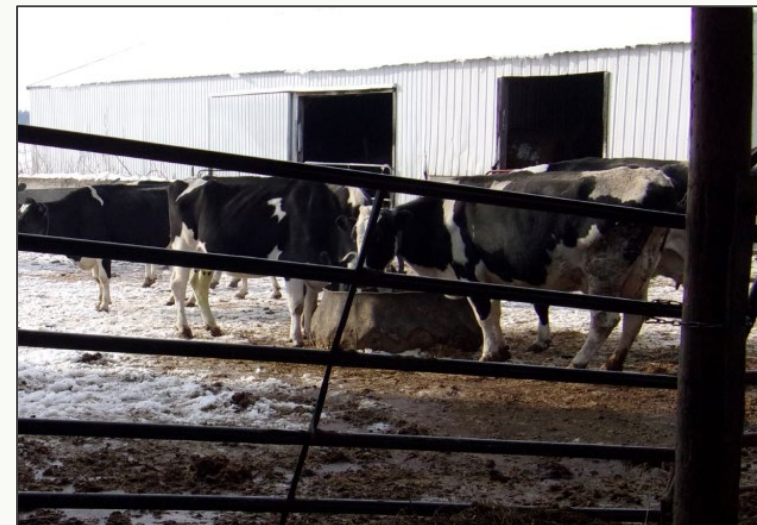




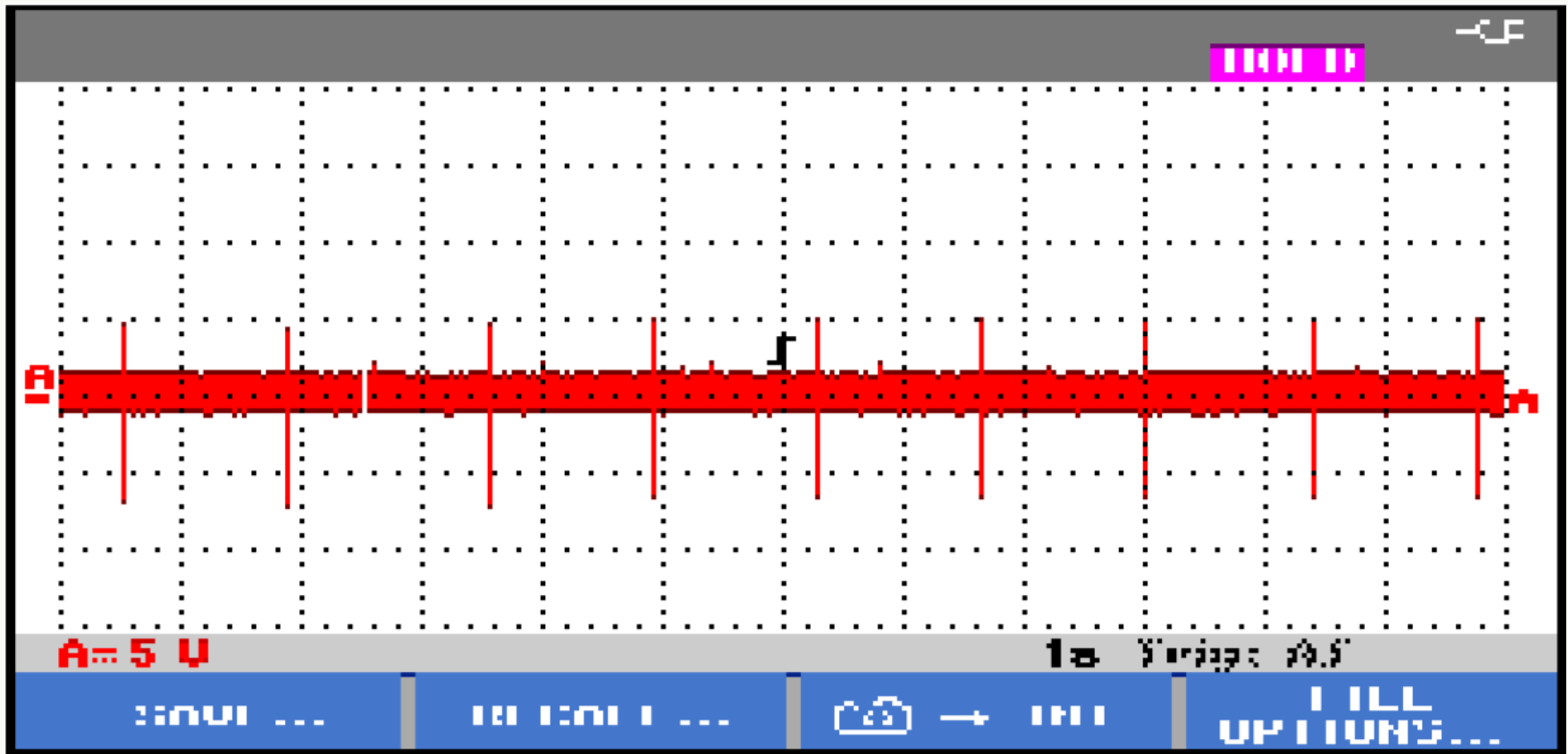
- Spot check – new waterer installed on new EPP

Voltmeter *Fluke 29*

VOLTMETER READINGS				PS = parlor steel	WL = water line	FH = front hoof area	
				SS = stanchion steel	WTR = waterer	RH = rear hoof area	
TIME	LOCATION	VOLT-METER LEAD FROM	VOLT-METER LEAD TO	VOLT-METER READING WO/ SHUNT	VOLT-METER READING W/SHUNT	EQUIPMENT ON	COMMENTS
	<i>West outdoor water</i>	<i>RH</i>	<i>WTR</i>	<i>.006</i>	<i>.004</i>		



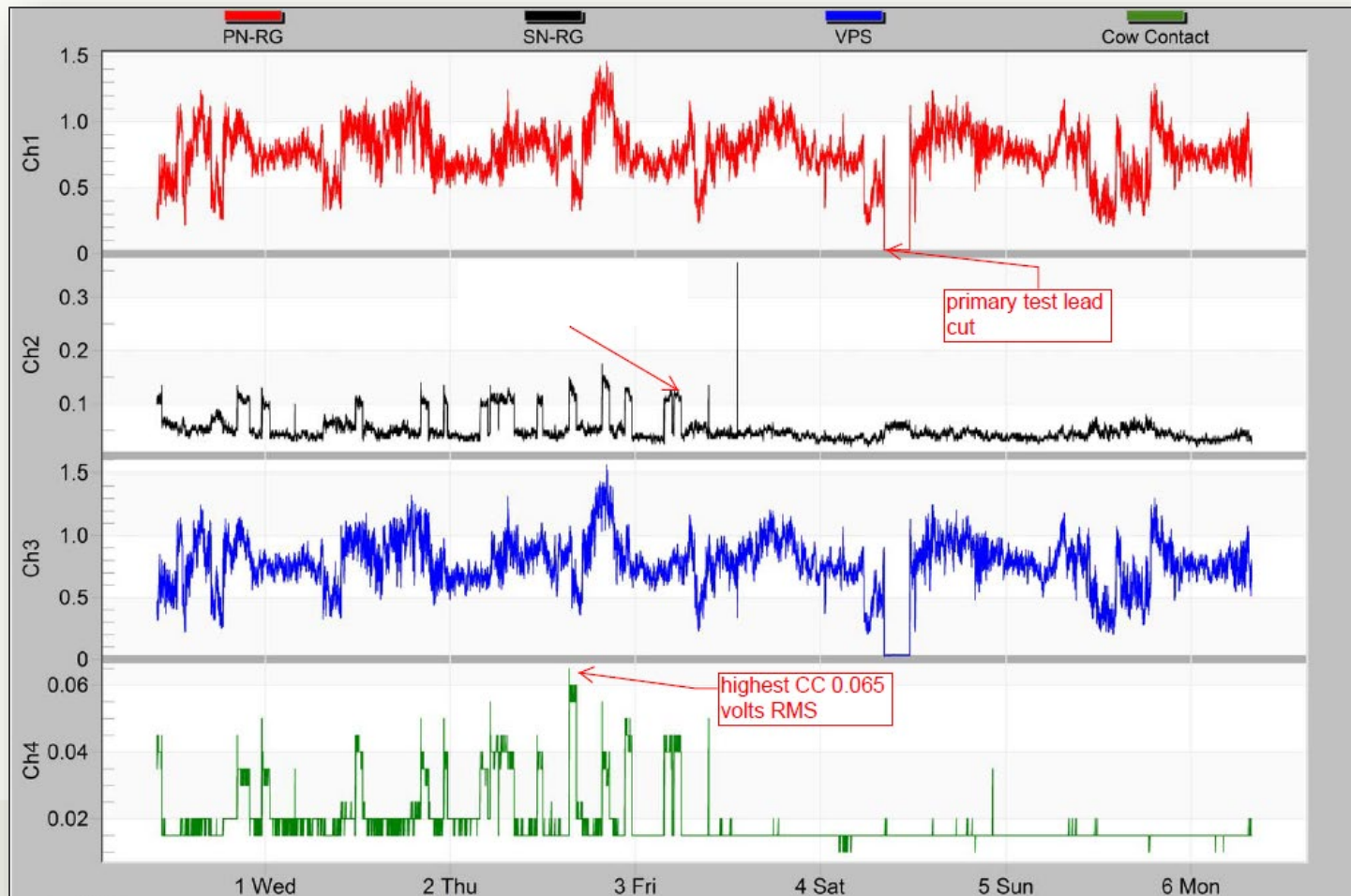
- Fencer – from farm across the road not properly installed





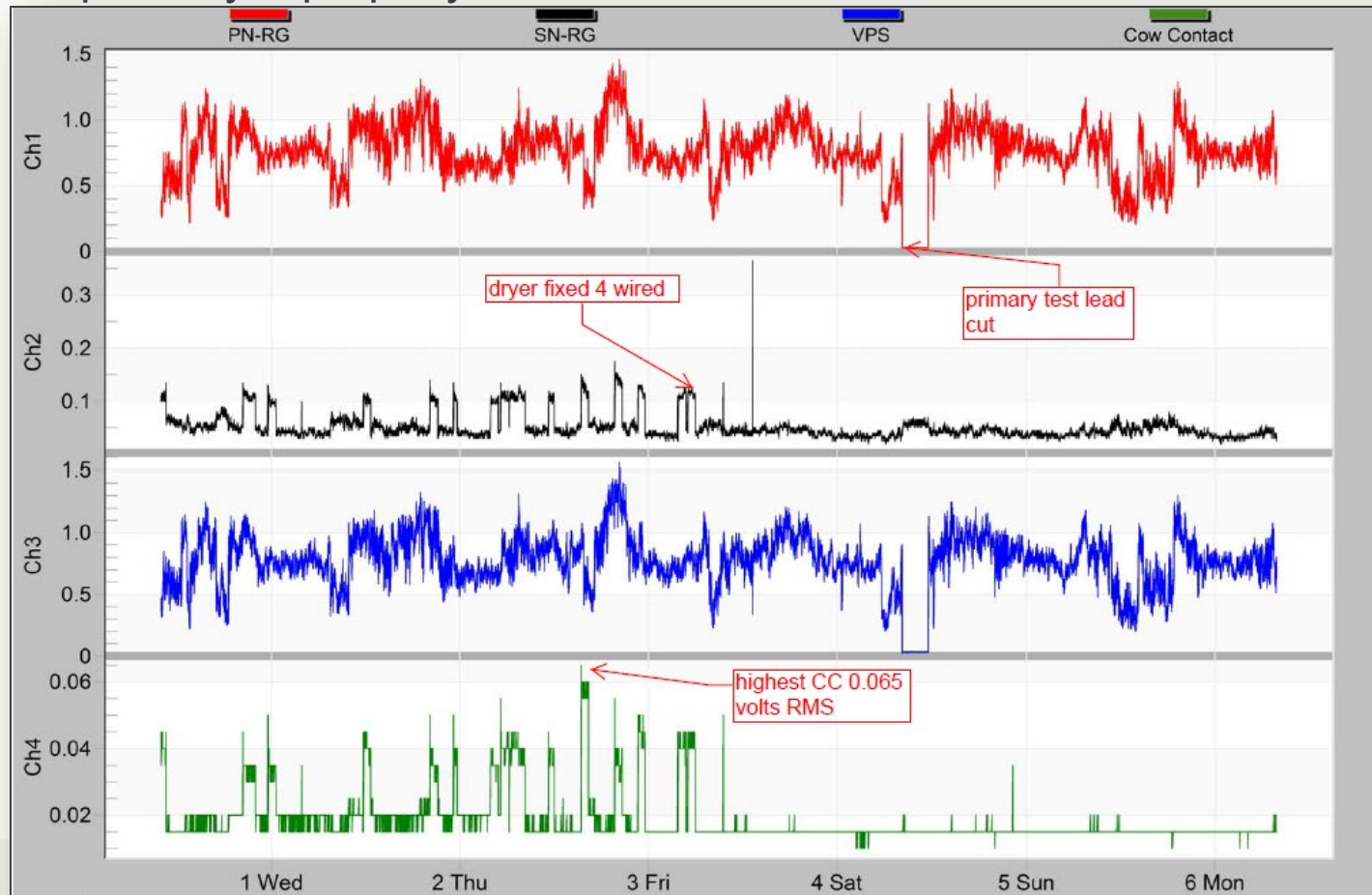
# January

- Free-stall & parlor; 300 cows

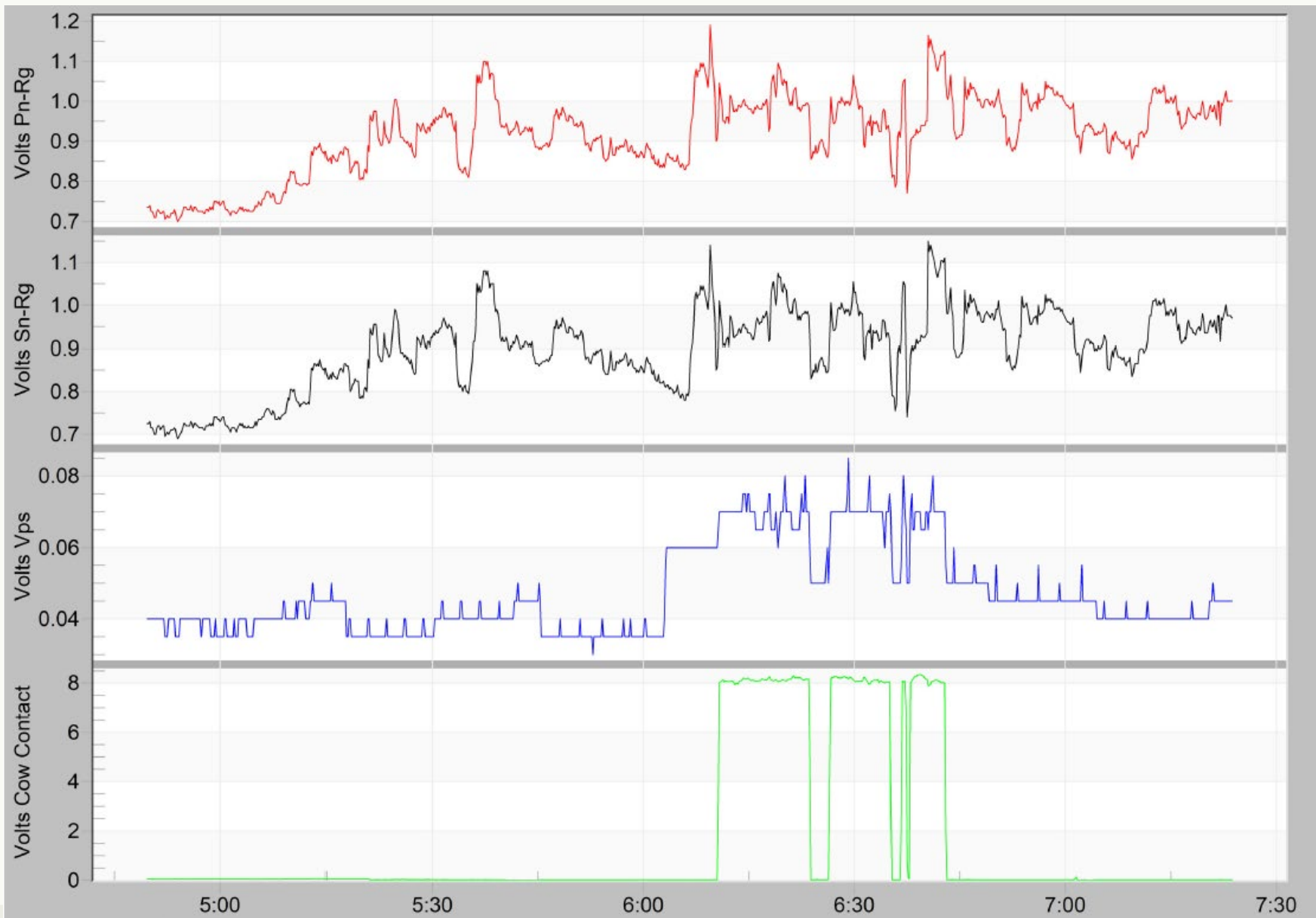


# January

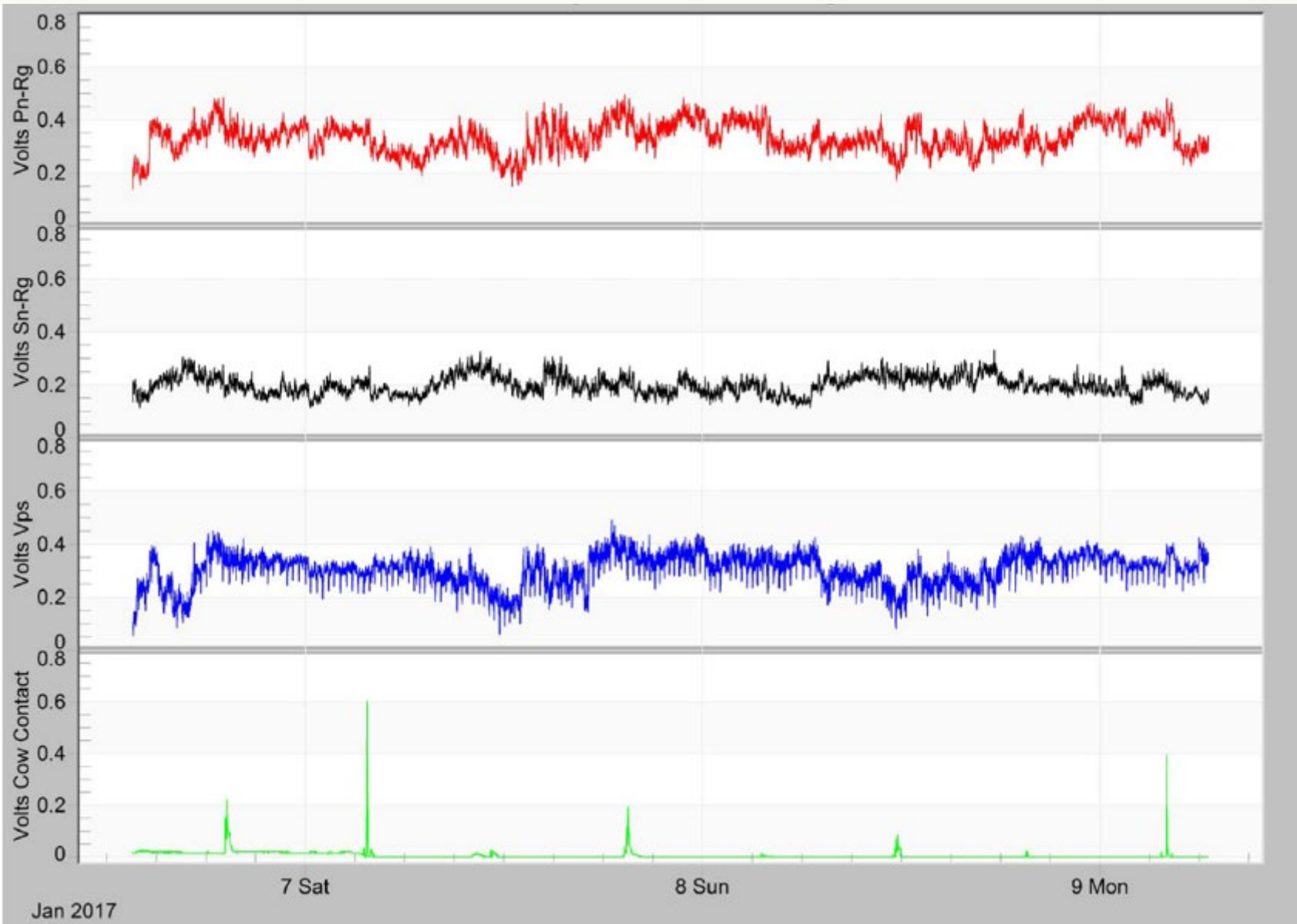
- Free-stall & parlor; 300 cows
- Graph – dryer properly 4-wired













# Questions?





