

REINHOLD ENVIRONMENTAL Ltd.



**2015 APC Round Table
& Expo Presentation**

July 13 & 14, 2015, in Atlanta, GA / Hosted by Southern Company

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Live Demonstration of Corona and Back Corona in an Electrostatic Precipitator

David Johnston and Rob Hummell

2015 APC Round Table
Atlanta, Georgia - July 13, 2015



Agenda

This demonstration is provided as part of the ongoing research and development B&W is conducting to enhance electrostatic precipitator operation.

- ▶ Introduction to Corona
- ▶ The Precipitator Test Cell
- ▶ Live Demonstration of Corona and Back Co
 - RDE Electrode
 - Wire Electrode



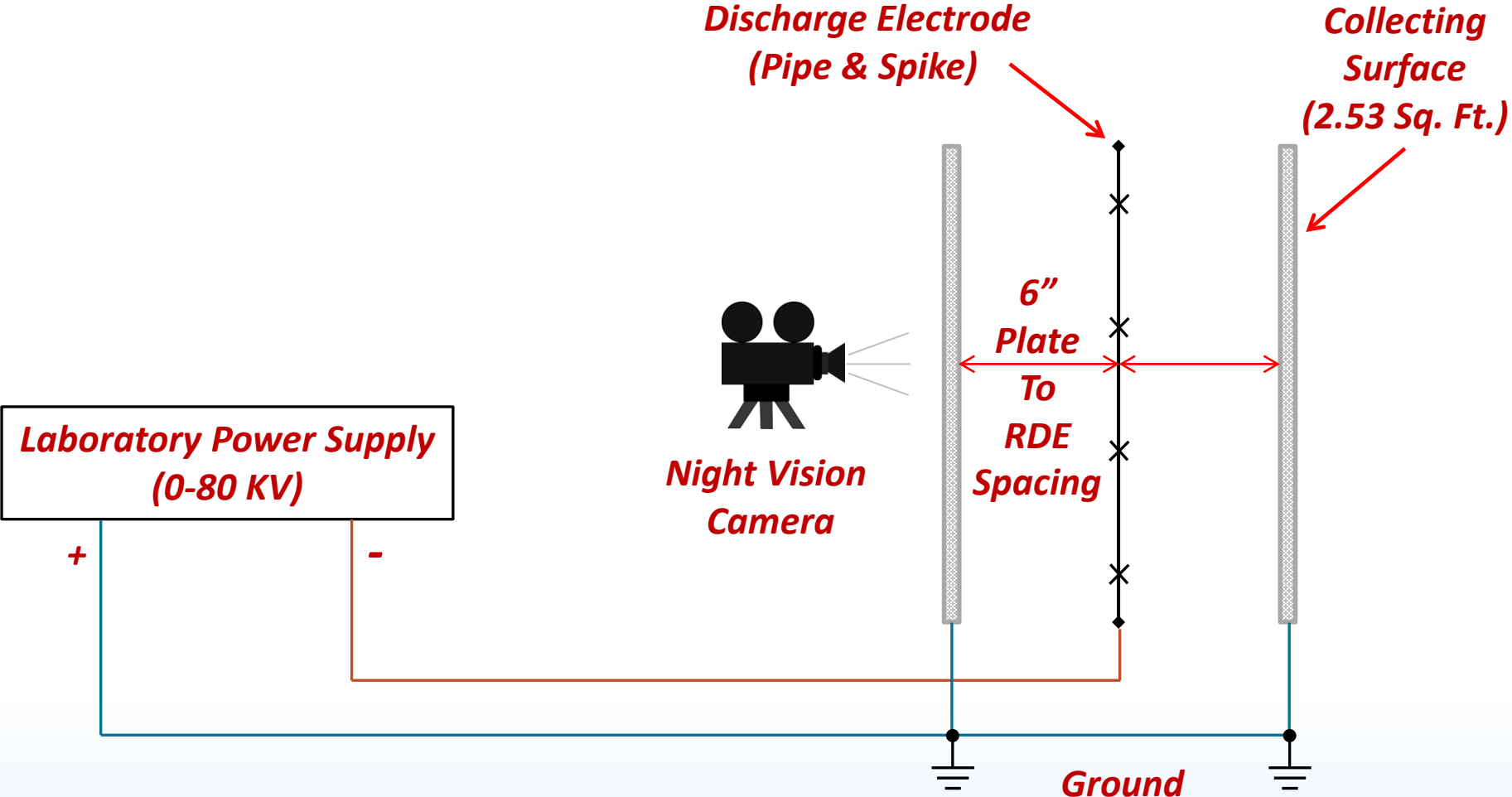
Introduction to Corona in a Precipitator

-which we will see-

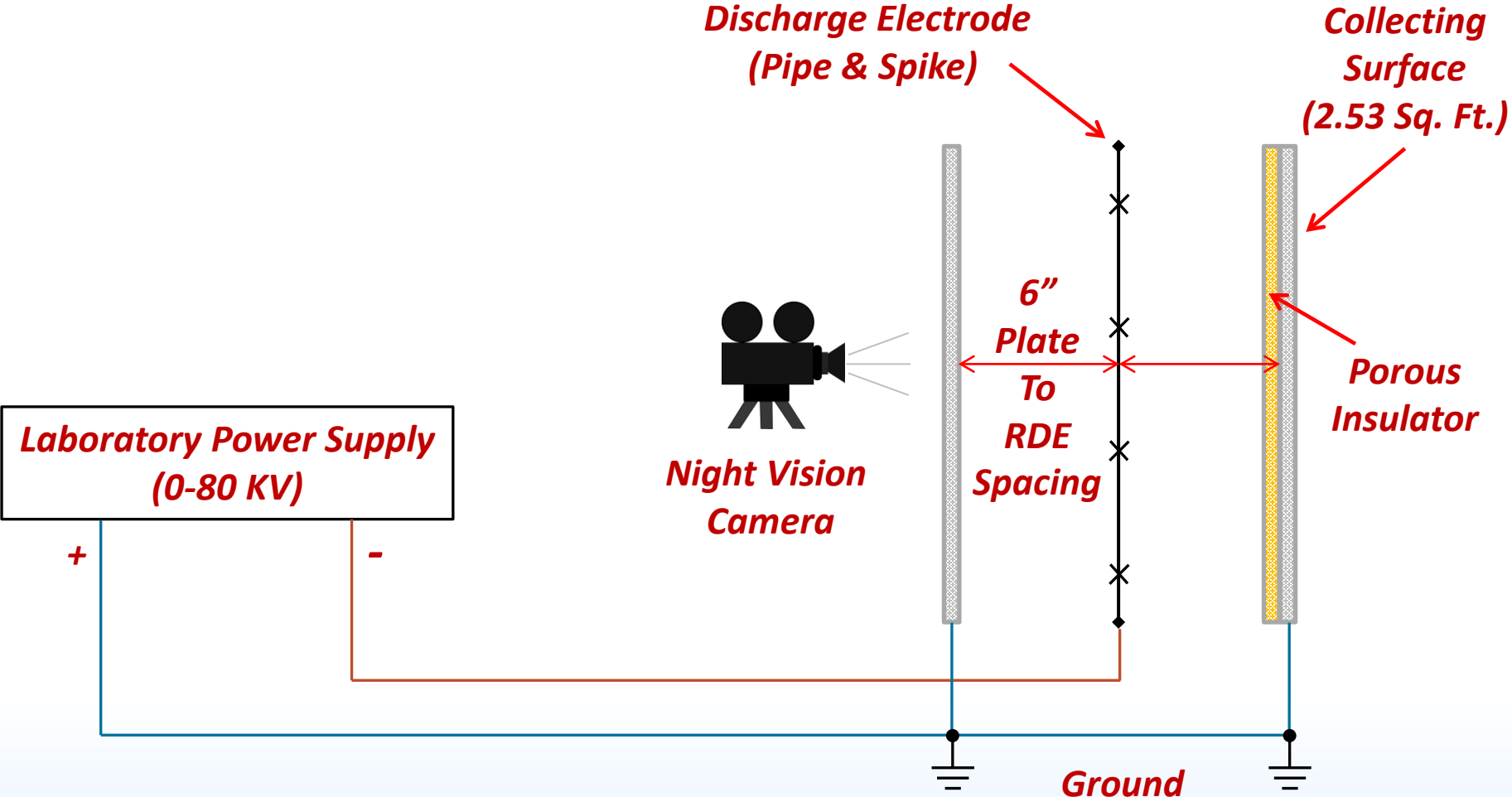
- ▶ Corona is an electrical discharge that develops when the gas around an electrically charged conductor is ionized
- ▶ To sustain corona, the electric field surrounding the conductor must maintain a balance:
 - The field strength must be high enough to be conductive, and
 - The field strength must be low enough so that arcing does not occur
- ▶ Corona is characterized by an often bluish glow, and the generation of hissing sounds and ozone
- ▶ As the field strength is increased, corona exhibits an avalanche effect



Test Cell Demo #1: RDE and Clean Plates

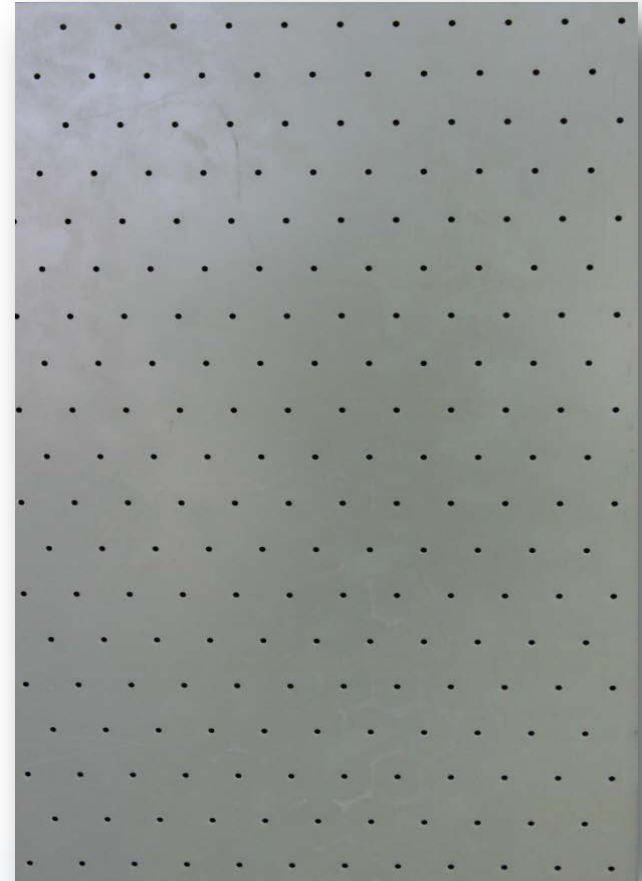


Test Cell Demo #1: RDE and Clean Plates

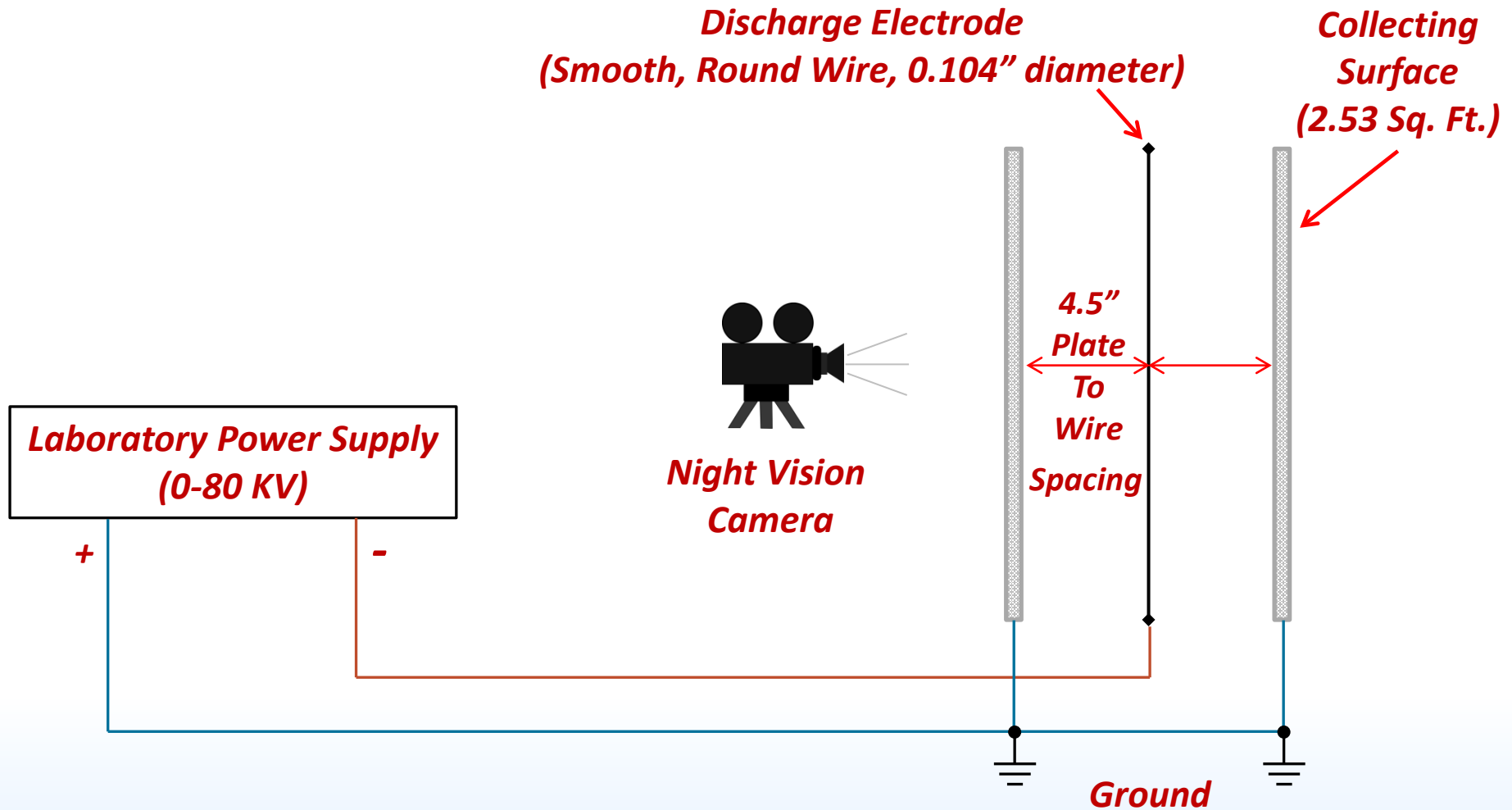


The Porous Insulator

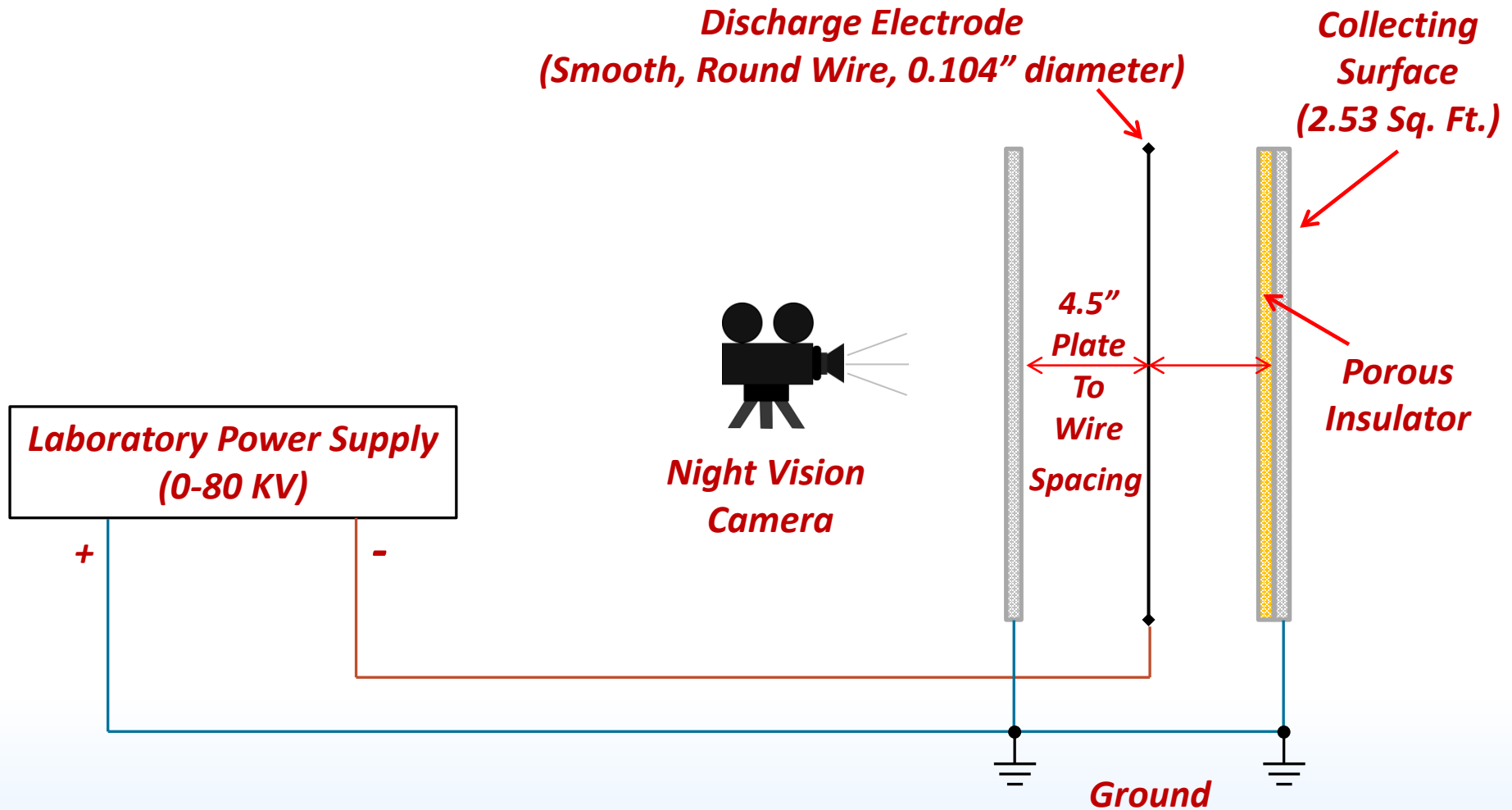
- ▶ This is the porous insulator that is being installed in the Test Cell on top of the standard steel plate.
- ▶ The porous insulator will demonstrate back corona.



Test Cell Demo #3: Wire and Clean Plates



Test Cell Demo #3: Wire and Clean Plates





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Thank You. Questions?

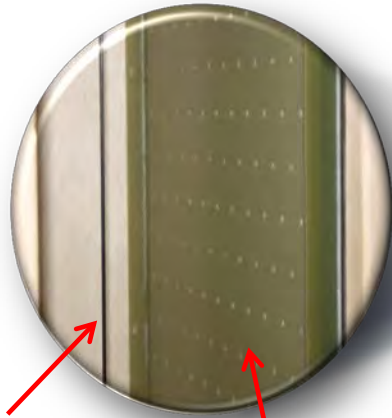
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The Precipitator Test Cell

The Test Cell is a portable version of an electrostatic precipitator, complete with electrode, collecting plates, and power



Discharge Electrode

Collecting Surface with Perforated Insulator



Data Collection



Night Vision Camera