STATIONARY APPLICATIONS AND FREEZE/THAW

Workshop on Fuel Cell Operations at Sub-Freezing Temperatures – 2005

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SAFE HARBOR STATEMENT

This presentation contains forward-looking statements, including statements regarding the company's future plans and expectations regarding the development and commercialization of fuel cell technology. All forward-looking statements are subject to risks, uncertainties and assumptions that could cause actual results to differ materially from those projected. The forward-looking statements speak only as of the date of this presentation. The company expressly disclaims any obligation or undertaking to release publicly any updates or revisions to any such statements to reflect any change in the company's expectations or any change in the events, conditions or circumstances on which such statement is based.

PRESENTATION OVERVIEW

- Plug Power's Business
- System Operating Environments
- Some Freeze-Damage Observations
- Research Directions

LEADING DEVELOPER OF PEM FUEL CELL SYSTEMS

- Focused on commercialization and profitability
- Targeting large, near-term markets for back-up power
  - Positioning for longer term mass stationary markets
- Commenced deliveries of first commercial product in Q4-2003
  - Customer evaluation in process
  - Network Equipment Building Systems (NEBS) Level 3 certification
- More PEM field experience than any other company in the industry
  - Delivered over **500 systems** worldwide since 2001
  - Produced more than **5.2 million kWh** of electricity
  - Accumulated over **2.0 million** operating hours
- Strong technology position with 133 patents issued and 146 pending

CUSTOMER DELIVERIES

Delivered systems to customers in **28** US states and **12** Countries

FIELD DEMONSTRATIONS

Multiple applications in diverse environments

Freeze Workshop - 2005

GENCORE®

GenCore® 5T Fuel Cell System

Backup power products

- Telecommunications
- Broadband
- Industrial uninterruptible power supply

Valve Regulated Lead Acid Battery Replacement

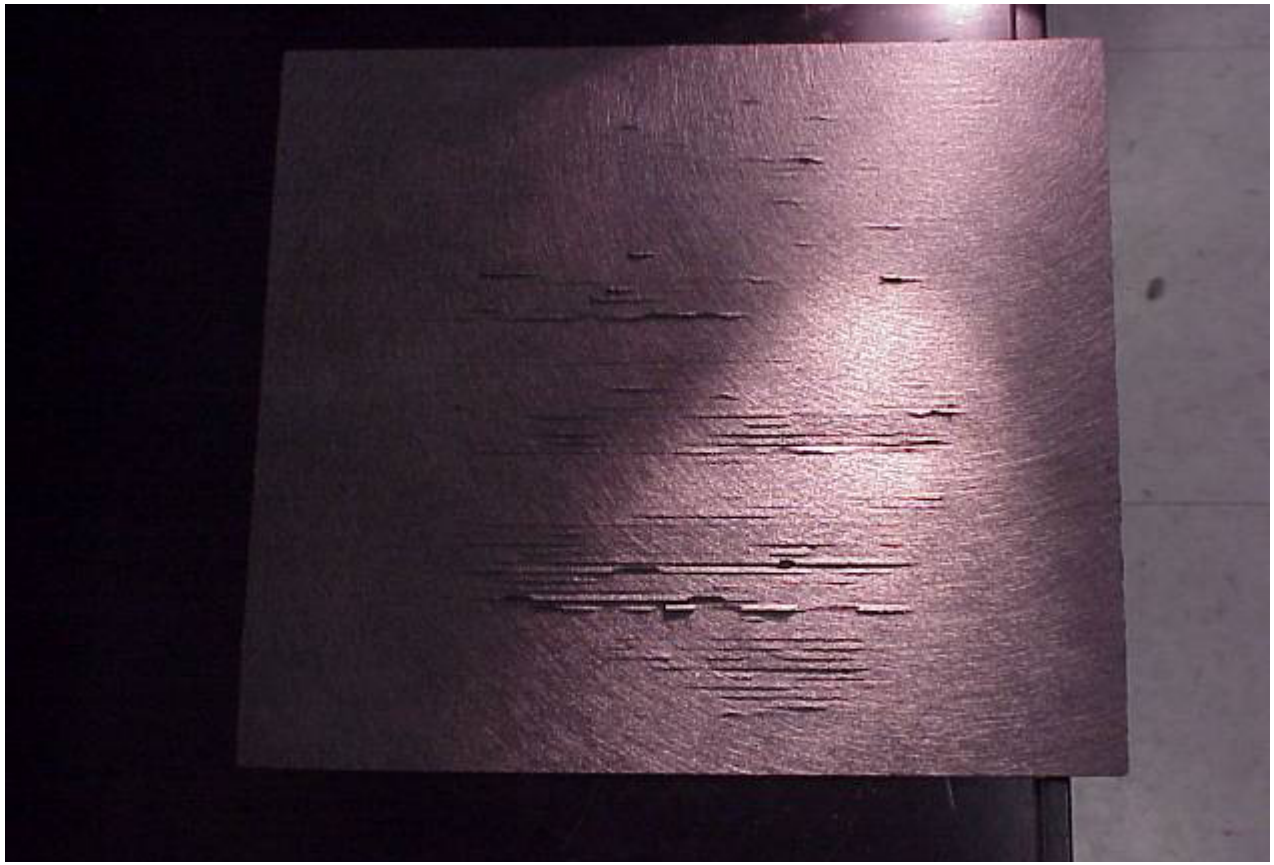
H_2 fueled DC backup power supply

GenCore

FIELD CONDITIONS

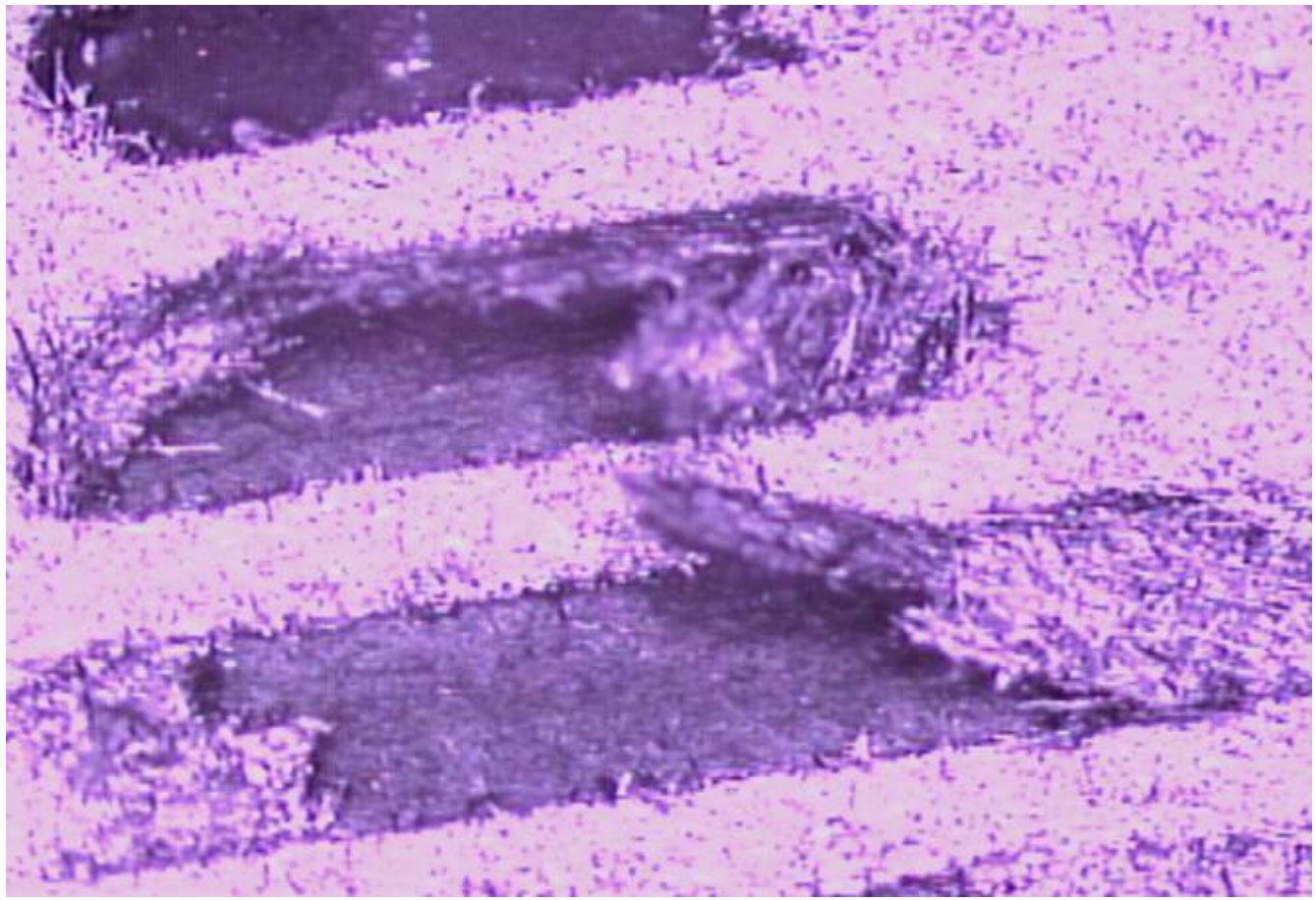
Freezing Conditions Expected – During installation and shipping

Example of freezing induced damage



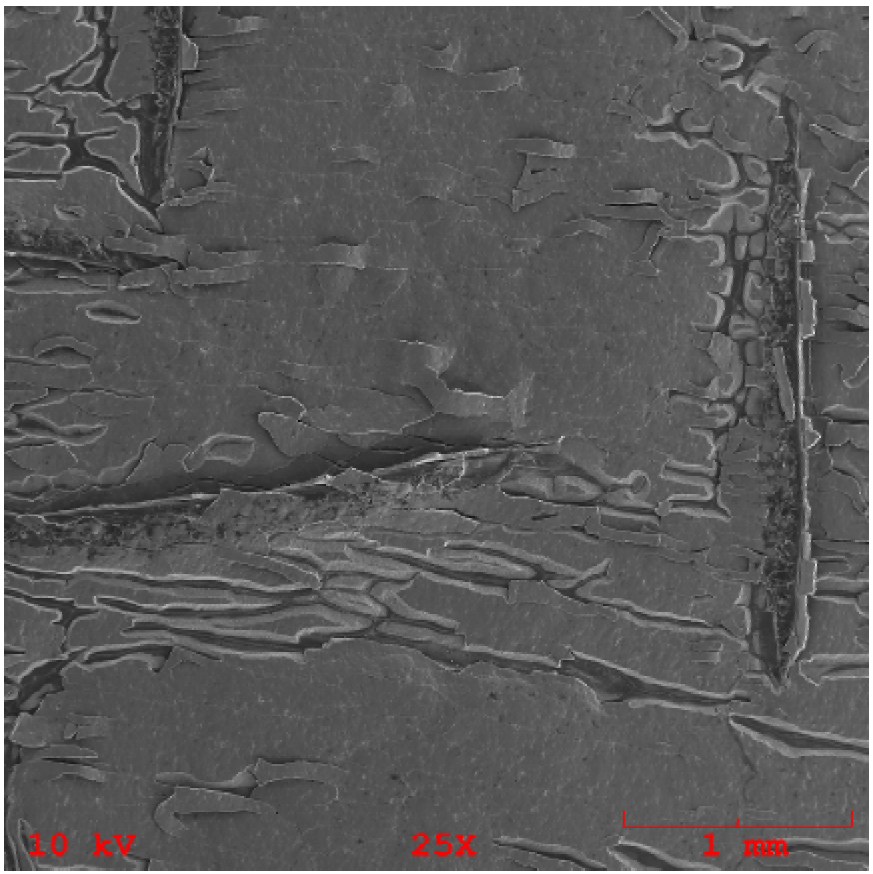
Idled during winter or with long duration winter install

GDL sheared by flow-field



Membrane May Be Perforated

Electrode and Membrane Damage



RESEARCH DIRECTIONS

- Influence of GDL wet-proofing
- Increased GDL/Catalyst ductility
- Delineation of failure modes in freezing
- Frozen stack startup
- Stack shutdown processes to mitigate freezing damage

PLUG POWER. PLUG WILL.

plug power
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