ENGINEERING REPORT

Company XYZ
Chicago, IL

PERFORMED BY:
MIDWEST ELECTRICAL CONSULTANTS, Inc.
18055 Upland Drive
Tinley Park, Illinois 60477
708-444-0001 fax: 444-0003

October 15, 2004

ABC – Electrical Contractors October 15, 2004

Attention: Mr. x

Subject: Engineering report of ground system testing Company XYZ

Enclosed is the engineering report detailing the project at Company XYZ which **Midwest Electrical Consultants- MEC** recently completed at ---------- Chicago, Illinois. MEC is a full service independent testing company and appreciates the opportunity to provide your electrical maintenance, testing and engineering services.

Our mission is to provide an independent technical service to enhance the safety, reliability and efficiency of electrical systems and provide a one-stop solution for quality electrical services locally.

Thank you for the opportunity to provide this service. Please contact us if you have any questions or wish to know more about MEC's services.

Respectfully Submitted,

Bruce Woyna
Project manager
Emailbruce8359@aol.com

ENGINEERING REPORT

Company XYZ

Chicago, Illinois

Grounding System Tests **10-15-04**

SECTION 1 SCOPE; PURPOSE; PROCEDURE; APPRAISAL AND RECOMMENDATIONS

ENGINEERING REPORT

Company XYZ

Chicago, Illinois

2004 Ground System Tests **10-15-04**

SECTION I

SCOPE:
On October 7, 2004, *Midwest Electrical Consultants* performed an inspection and Testing of the grounding systems and associated equipment bonding at the Company XYZ facility located at ----------, Chicago, Illinois..

Detailed inspection notes and observations documented during the execution of this project are contained in the Inspection Log section of this engineering report. This log contains a listing of all buildings inspected during this project.

PURPOSE:
The purpose of this inspection/ Monitoring was to determine the condition of the grounding system including ground rods, ground grids, electrical equipment bonding and building steel bonding as appropriate. This report is intended to assist you in reducing loss to property by bringing your attention to hazards and problems. It is not intended to imply that other hazards or problems may exist at the time of the inspection.

PROCEDURE:
All testing is performed in accordance with MEC's standard procedures including, but not limited to, selected specifications from the following: International Electrical Testing Association (NETA), National Electrical Code (NEC), National Fire Protection Association 70B-Electrical Equipment Maintenance (NFPA 70B), Institute of Electrical and Electronic Engineers (IEEE), American Society for Testing and Materials (ASTM), National Electrical Manufacturer's Association (NEMA), manufacturer's instruction manuals and/or project specifications, unless otherwise noted.

ENGINEERING REPORT

Company XYZ

Chicago, Illinois

2004 Ground System Tests **10-15-04**

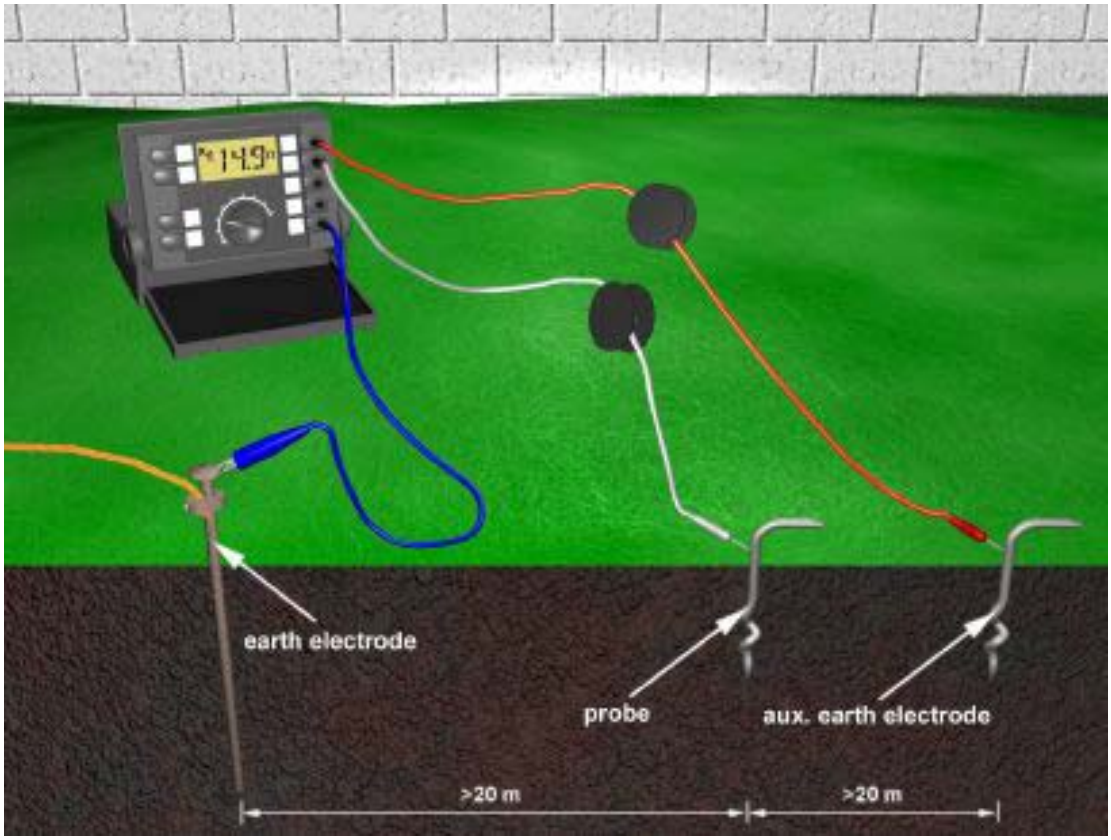
APPRAISAL AND RECOMMENDATIONS:

MEC recommends regular inspections, cleaning and testing of electrical equipment to assist in identifying deteriorated equipment and abnormal operating conditions prior to equipment failure. Properly installed and maintained electrical grounding systems provide safety for personnel and proper dissipation of electrical disturbances and system noise.

- Ground grid testing indicates that the grid system is acceptable for continued safe operation. Ω. An acceptable ground resistance measurement would be under 5.0Ω. The International Electrical Testing association and IEEE Standard 142 indicate that 'A commercial or industrial grounding system measurement should be no more than five (5) ohms'.
- Utility service surge suppression is acceptable for protection of the Utility service. We recommend installation of surge suppression at the main incoming panel location to protect the main service from any surges which may pass through the Utility protection.
- Voltage levels at the facility were measured and found to be unusually low during the testing period.
- We recommend regular cleaning and infrared inspections of electrical distribution equipment to reduce the likelihood of failure, overloads and corrosion.
- All electrical protective equipment including ground fault relays, circuit breakers and fused disconnects should be tested, exercised and lubricated on a regular basis. Mechanical equipment may not operate properly when called upon if regular maintenance is neglected.

Equipment inspection: See the attached test forms for detailed data at each of the locations listed below.

Panel DP6
Building Steel (Near main Substation)
Main Service entrance Equipment
Main Distribution Panels



Ground resistance tests are performed with two electrodes driven into soil at a distance from the ground system. A low measured resistance of the ground rod or grid system enables the power system to safely dissipate electrical charges associated with static buildup, surges, power system faults, and noise. If the resistance of the ground system is too high, the energy will find another path with less resistance (possibly through personnel or expensive electronic equipment).

In addition to the ground resistance tests, we want to make sure that all electrical panels are solidly bonded to the ground system. A two-point test is used to determine the resistance from the ground system to critical distribution equipment.