GUIDE TO OFF-PREMISES POWER ANALYSIS

INTRODUCTION

An Off-Premises Power Analysis is a tool used by management to implement a loss control program like AXA XL Risk Consulting's *OVERVIEW*. Individuals responsible for the Pre-Emergency Planning and Hazard Identification and Evaluation functions use this information in their loss control activities.

An off-premises power analysis can identify effective loss control measures including a need for supplemental or alternate power sources. It provides information with which the reliability of the utility power supply and the power requirements of the facility can be evaluated.

This guide describes an off-premises power analysis and identifies questions that should be addressed. Responses to these questions may lead to additional areas of inquiry.

It is usually the larger customers who are more severely affected by utility service problems. This guide is prepared for those analyzing loss control for large customers typically having a good working relationship and good path of communications with representatives of the utility company. PRC.5.7.1.2 provides further guidance and describes when to make an off-premises power analysis.

POSITION

Document local disruptions, show relevant public utility power lines and equipment and address associated power concerns in off-premises power analyses.

DISCUSSION

Any facility served by a public utility company should know what to expect for service, and what the experience has been for the locale. An off-premises power analysis includes a record of disruptions in the utility power supply for the geographic area. The record documents the cause of each disruption and the length of time that it lasted.

An off-premises power analysis includes plans or sketches that show the general arrangement of equipment, and lines and exposures for relevant segments of the utility system. These maps describe the generating plants (type and capacity), transmission and distribution lines (voltages) and transformer and switching stations (sizes), particularly as they affect the premises. Significant exposures, such as lumber yards, wooded areas, hazardous tank farms and roads, are indicated.

An off-premises power analysis includes a narrative report on the utility power system and the conclusions of the analysis. Management can make recommendations and formulate a plan of action based on these conclusions.

The questions that follow are a starting point in developing an off-premises power analysis. Experienced loss control personnel should develop the information.

What are average and peak power (kW) needs for the facility? How much power is purchased from the utility company? How much power is generated by equipment at the facility?

How many utility circuits and connections supply the premises? How are they arranged? How are they connected to the power distribution system within the premises? Evaluating each utility connection separately, what processes and equipment cannot be supplied due to this arrangement? If utility has secondary power source connected to facility's incoming electrical power system, is the transfer to the secondary power source automatic and what is the time delay?

What is the capacity of the utility system? What are its normal and peak loads? What interconnections, pools or arrangements exist for assistance from other utilities?

What spare utility transformers are available and where are they located? Size (KVA) of the spare transformer(s)? How long would it take to replace damaged utility transformers? What emergency plans have been developed? Is the emergency plan a "written" agreement between the facility and utility? What are the restoration priorities?

How long are the circuits feeding the premises, e.g., from a grid to the service entrance? Are they exposed? Do they run along a highway where they are subject to vehicle damage? Do they run along city streets where they are subject to building fires, falling limbs of trees and vehicle damage? Do they run through woods where they are subject to grass and woods fires and falling trees?

How much clearance is maintained between trees and power lines? How frequently are clearances maintained?

How often is lightning expected to strike in this area? Are utility lines protected from a direct lightning strike by overhead static wires? Are these grounded at least at every other pole? Are utility transformers protected from lightning surges by lightning arresters? What is the history of lightning strikes or damage?

What protection is provided on utility transformers that are dedicated for the sole use of the facility? What maintenance is performed on these units?

Will a momentary loss of power result in any material interruption of process or production? How long can power be out without causing any continuing loss of production once power is restored, such as occurring with a freeze-up of molten metal or glass, or spoilage of material in process? How quickly can private power generators be put on line?

How is plant equipment affected by disruptions from normal power? Have plant monitoring or protective devices operated to indicate purchased power was not of proper quality, e.g., low voltage, surge, loss of phase?