COMPANY HAZARD REDUCTION/COMPUTER SYSTEMS PROTECTION: COST EFFECTIVENESS OF HAZARDS REDUCTION PROGRAMS

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ABSTRACT

The payoff from Hazards Reduction Programs cannot be measured until a disaster occurs. At that time, the value of the program is directly proportional to the savings in life, equipment and inventory that the program has affected.

Trying to determine the cost effectiveness of Hazards Reduction Programs is very difficult and can probably only be done, if it can be done at all, after an earthquake or other catastrophic event, and the costs associated with the program can be compared with the estimated damage that might have occurred without it. At IBM San Jose, for example, we undertook a very extensive (and very costly) Hazards Reduction Program involving:

1. Strengthening buildings After extensive seismic and geological studies of the plant site, thorough structural analysis of all the site buildings, and development of comprehensive plans to strengthen each building (most of them built between 1957 and 1975) to the level of a site specific earthquake resistant design criteria developed jointly by IBM, independent-consulting structural engineers and consultants from Stanford and Cal Tech, installation of internal shear walls or construction of external braced frames began. The resulting building designs were considerably stronger than required by the current Uniform Building Code. While construction was underway, we kept all of our activities – manufacturing, development, and research – in full operation.

2. Extensive review of building interiors to identify items that could become hazardous in an earthquake. This involved such things as tying air diffusers and light fixtures to the structural ceiling above, bolting storage cabinets back-to-back through demountable partitioned walls, and installing seismically activated shut-off valves in natural gas and oxygen lines. It also involved the much more extensive measure of reviewing each individual piece of manufacturing or laboratory equipment and engineering unique designs to eliminate or mitigate their hazard potential during a strong earthquake.

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