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# Plan for Cleaning Silicon Valley Water

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A long-range plan requiring IBM to clean up a massive groundwater pollution problem from its south San Jose plant was approved yesterday by the Regional Water Quality Control Board in Oakland.

Company officials said the cleanup of the largest contamination problem in Silicon Valley could take from 10 to 20 years, cost more than \$40 million, and involve pumping as much as 1 billion gallons of water a year.

The plan requires IBM to pump contaminated water from underground water basins called aquifers until the underground systems are four times cleaner than state and federal drinking water standards.

In addition, IBM will have to treat and recycle all the extracted water. Precisely how the water will be reused was left open, with agricultural and landscape irrigation, re-injection into aquifers, industrial plants and even domestic consumption cited as options. Before adoption of the cleanup plan, H. Ray Kerby, IBM's director of environmental programs, objected to a requirement that the company undertake a continuous pumping operation at a key underground formation called the Edenvale Gap.

He argued that his firm already monitors the site sufficiently and that there was "no valid scientific or technical support" for the pumping requirement, which he said would entail cost outlays of up to \$1.6 million for a treatment plant and \$345,000 in yearly operating and maintenance costs.

† The IBM contamination problem is the largest in Silicon Valley, where numerous firms have been found to have polluted soils and groundwater with a wide range of toxic solvents used in manufacturing processes.

IBM first discovered in 1980 that organic chemicals, including trichloroethane (TCA), petroleum naphtha and xylenes, had leaked into the soil at its plant at 5600 Cottle Road. Subsequent investigation re-

vealed that Freon 113 and other chemicals had seeped into soil and groundwater, spreading in an aquifer as far as three miles north of the plant.

Investigators determined that the toxics had leaked from storage tanks and pipelines and had been spilled in the years since the San Jose facility began operations in 1956.

Public concerns became widespread when it became known that TCA and Freon 113 had been detected in private and municipal drinking water wells, although the contamination levels were reported to be below what is considered dangerous by state and federal drinking-water standards.

To gauge the extent of the contamination, IBM has installed 300 monitoring and extraction wells. More than 13 billion gallons of water have been pumped into creeks and have flowed onward into San Francisco Bay. Exposure to air has allowed the contaminating chemicals to vaporize before reaching the bay.

IBM officials said their firm already has spent \$42 million on contamination investigation and clean-up costs.

In other action yesterday, water quality directors imposed a \$20,000 civil penalty against Pacific Gas and Electric Co. in connection with a 2,800-gallon oil spill in July from a break in a pipeline serving its Pittsburgh power plant.

The regional board also rejected, on technical grounds, the Navy's application for a permit to dredge 433,000 cubic yards of bay sediments at Hunters Point Naval Shipyard in San Francisco.

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