

# STUDY RANKS TOXIC SPILLS

California water board calibrates sites in Silicon Valley as threats to

drinking supply, while industry report stresses cleanup  by Clifford Barney

## Palo Alto

For the first time since the problem developed, residents of Silicon Valley know to what extent their drinking water is threatened by leaks and spills of toxic chemicals.

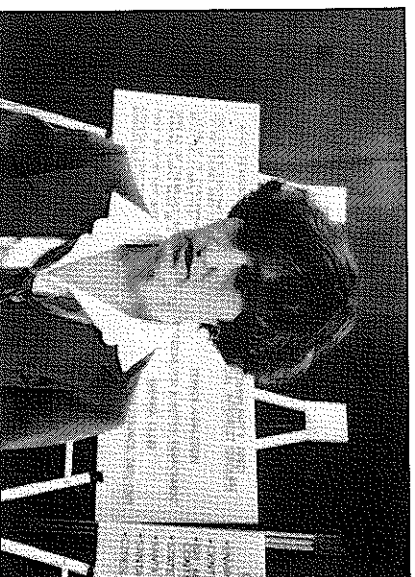
The San Francisco Bay Regional Water Control Board issued a first tentative calibration this month of the extent of ground contamination by toxic wastes from electronics firms and others. Existence of the spills has been known for several years, but the list just issued is the first to rate the firms' relative danger to the water supply.

The water board ranked the 46 sites in San Jose, Santa Clara, and Sunnyvale according to toxicity and amount of chemicals spilled, and the likelihood of their reaching the water supply. The water board's report did not take into account cleanup efforts that may have been started at some of the sites.

The purpose of the ranking was to enable the water board's 14-member toxics staff—hard-pressed by the need to identify, monitor, and control the cleaning up of over 100 spills—to make sure that the worst spills get taken care of first. The board, a state agency with members appointed by the governor from industry, municipal government, and agriculture, has requested an additional 22 staff positions for work on analysis and cleanup of toxic wastes in the Bay Area. This move is sup-

ported by the electronics industry through its Clean Water Task Force.

The task force, meanwhile, issued its own report on cleanup of the same sites. It showed that of the 43 found by the water board to require cleanup, 35 were in the investigation



**More money.** Megan Taylor, head of the Industry Clean Water Task Force, calls more funds for the water board a top priority.

and initial cleanup stage, with only eight approved for full-scale cleanup.

The director of the task force study said a major bureaucratic logjam is likely to occur when the 29 firms still in initial cleanup submit detailed plans to the board in the next few months.

**Increase in leaks.** Most of the leaks date from several years ago, when single-walled tanks were used for storage of solvents. Double-walled tanks are now required by local and regional ordinances. Two years ago, there were 77 confirmed leaks; today, there are nearly 300.

The spills involved are mostly of

solvents that leaked from storage tanks outside electronics plants and at chemical distribution and waste disposal firms. Many of the chemicals are suspected carcinogens and teratogens (agents that affect the reproductive process).

Last month, two state epidemiological studies showed a significant statistical excess of birth defects and spontaneous abortions in an area that draws water from supplies near one of the worst spills. That study stopped short, however, of attributing these problems directly to the leak.

As expected, spills at two south San Jose plants that are owned by IBM Corp. and Fairchild Camera & Instrument Corp. were near the top of the board's initial list (see table). The danger of toxic spills first came to light in 1981, when these firms discovered leaks.

**Majority electronic.** Of the 46 sites listed, 40 are associated with electronics companies and all but one of the rest with solvents-handling firms. (The exception is a nursery.) The water board will evaluate 24 sites in five nearby Bay Area communities in May and add them to the ones that it ranked this month.

The water board based its ratings partly on data obtained from the companies involved and partly on its own geographical data on the water supply. Adam W. Olivieri, the engineer in charge of preparing the re-

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port, said most of the firms reviewed the material after the board had organized it. He does not expect many challenges to the rankings.

Larry Borgman, manager of facilities planning and engineering for Intel Corp. and a leader in industry efforts to clean up the spills, said the water board's list was useful because "It [the board] needed some way to prioritize the problems." He noted, however, that much of the information was outdated in that it did not include data on cleanup efforts that have already begun.

The rankings were based on seven main factors: the magnitude of the contamination, including the number of chemicals and their toxicity; the physical and chemical properties of the chemicals; their toxicity; the distance between the spill and the point of water use; the depth of the water supply and the soil's porosity; the extent of the chemical's use; and the direction and angle of flow of the underground water supply. The magnitude of contamination is weighted highest, counting 60 points. The depth to the water table is second, at 50 points. Gradient of the water table is least important, at 10 points. The worst possible score is 230.

Last October, the American Electronics Association, the Semiconductor Industry Association, the Santa Clara County Manufacturing Group, and the Electronics Association of California funded the Industry Clean Water Task Force, with a charter to provide information on industry cleanup efforts. Its initial report, issued the day after the water board's list appeared, emphasized the progress already made. "The vast majority of the sites requiring cleanup... are involved in advanced remedial programs," says Megan Taylor, director of the task force.

**Just starting.** The task force's report, however, notes that 35 sites have advanced only to investigation or initial cleanup. Before advancing to full-scale cleanup, companies must submit a detailed plan to the water board for evaluation. Without more staff, Taylor said, the board would bog down in the paperwork. She called more funds for the water board a top priority.

As a practical matter, Taylor said, many firms have not waited for formal approval to begin cleanup. But

Ranking	Threat score	Company	Location
1	193.50	Solvent Services Co.	San Jose
2	175.50	IBM Corp.	San Jose
3	172.10	Fairchild Camera & Instrument Corp.	San Jose
4	169.50	Van Waters & Rogers Corp.	San Jose
5	169.00	Pacific Nursery Pots Inc.	Santa Clara
6	166.40	National Semiconductor Corp.	Santa Clara
7	163.30	Magnex Corp.	San Jose
8	160.80	Technical Coatings Inc.	Santa Clara
9	160.60	Westinghouse Corp.	Sunnyvale
10	159.70	Avantek Inc.	Santa Clara
11	157.50	Lorentz Barrel and Drum Co.	San Jose
12	156.40	TRW Inc.	Sunnyvale
13	156.20	Applied Materials Inc.	Santa Clara
14	156.00	Signetix Corp.	Sunnyvale
15	154.60	Memorex Corp.	Santa Clara
15	154.60	Hewlett-Packard Co.	Sunnyvale
17	153.00	Xidex Corp.	Sunnyvale
17	153.00	Signetix	Sunnyvale
19	152.00	Advanced Micro Devices Inc.	Sunnyvale
20	149.20	Monsanto Co.	Santa Clara
21	147.00	Precision Media Corp.	Sunnyvale
22	145.50	American Microsystems Inc.	Santa Clara
23	145.00	Spectra Physics Corp.	Santa Clara
24	144.60	Precision Monolithics Inc.	Santa Clara
25	144.50	Advanced Logic Systems Inc.	Sunnyvale
26	143.70	Intersil Inc.	Sunnyvale
27	143.00	United Technologies Corp.	Sunnyvale
28	142.90	Fairchild	Santa Clara
29	142.00	Verbatim Corp.	Sunnyvale
30	136.20	Ampex Corp.	Sunnyvale
31	136.00	Circo Inc.	Sunnyvale
32	134.70	KTI Chemicals Inc.	Sunnyvale
33	133.50	AMD	Sunnyvale
34	132.10	Signetix	Sunnyvale
35	131.40	Monolithic Memories Inc.	Sunnyvale
36	130.60	Dysan Corp.	Santa Clara
37	129.90	MMI	Santa Clara
38	129.50	Magnetic Peripherals Inc.	Santa Clara
39	126.50	Synertek Inc.	Santa Clara
40	125.40	Exar Integrated Systems Inc.	Sunnyvale
41	122.60	Intel Corp.	Santa Clara
42	120.60	Data General Corp.	Santa Clara
43	119.70	HP	Sunnyvale
44	117.10	Zymos Corp.	Sunnyvale
45	110.70	Intel-Magnetics	Santa Clara
46	109.10	Dysan	Santa Clara

Scores are weighted figures that depend on magnitude of contamination, properties of pollutants, toxicity of chemicals that leaked, gradient and flow/direction of drinking-water supply, depth of supply and porosity of soil, extent of present water use, and distance between spill and point of water use.

SOURCE: SANTA CLARA COUNTY REGIONAL WATER QUALITY CONTROL BOARD

they cannot discharge contaminated groundwater or vent toxic chemicals through airstripping without permits that will be available only when the approval is granted.

The task force suggested that the state or the Environmental Protection Agency provide the board with a computerized management information system so it could better monitor the cleanup's rate of progress. The task force also recommended that local authorities consider relaxing some environmental regulations on air and water discharge to speed the cleanup.