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Morning
Final

Chip plant study finds high miscarriage rate

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A new study shows that women production workers at a Massachusetts semiconductor plant suffered twice the miscarriage rate of other women there — a disturbing finding that prompted Silicon Valley firms this week to warn their employees and to call for an industry study of employee health.

The study, which is still being prepared for publication in a professional journal, also reported a higher rate of "general malaise" — headaches, nausea and dizziness — among chip production workers

at Digital Equipment Corp.'s plant in Hudson, Mass., during the past five years.

The study is particularly important because nobody has ever done a comprehensive study of the health of semiconductor production workers, despite the danger of chemical involvement.

The semiconductor industry is one of the Santa Clara Valley's largest employers, with almost 10,000 workers. Roughly half are production workers.

Representatives of local semiconductor manufacturers say they

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product, said two Silicon Valley experts on semiconductor manufacturing who have visited the Massachusetts plant.

The chip-making process is a complicated one. Workers wearing protective "bunny suits" and operating in super-clean rooms use expensive equipment and toxic gases and chemicals to etch microscopic circuits onto silicon wafers. Powerful solvents are used as cleaners, caustic acids are used to help build intricate layers on the wafers, and poisonous gases are used to alter a chip's electrical conducting characteristics.

The study did not explore what might be the cause for the health problems.

That must be the subject of another study, said one of the researchers — Harry Pastides, an associate professor of epidemiology at the University of Massachusetts School of Public Health.

Follow-up needed

"We feel rather strongly about that," he said. "This type of study design at best can indicate an association between occupation and outcome. It really needs to be followed up by much, much more detailed analysis of the actual chemicals that were worked with."

Pastides declined to discuss specifics of the study until the report is published, a step that will take at least six months.

Digital Equipment paid the University of Massachusetts at Amherst "more than several hundred thousand dollars" to conduct the study, according to company spokesman Jeffrey Gibson. The company, primarily a computer manufacturer, is based in Maynard, Mass., and makes a relatively small number of chips for its own use. It has several facilities in California, including three research laboratories in Palo Alto.

Gibson said the company was considering a study of production workers' health when officials began hearing reports of miscarriages among those workers.

A federal report released three

months ago recommended that semiconductor industry workers in Santa Clara County undergo a comprehensive series of health studies to assess the effects of handling toxic substances.

"There is little to no (long-term health) data available on the problems facing workers in these industries," the report said. It added that the effect of many industrial solvents on the central nervous system "represents an important, unresolved research issue."

Identifying the problem

Peterman of the Semiconductor Industry Association said valid long-term health studies cannot be conducted until a problem is identified. That is the goal of a study being conducted by University of California researchers under a \$66,000 grant from the association. The report is expected to be published early next year.

Fear of the valley's largest semiconductor manufacturers — AMD, National Semiconductor Corp., Signetics Corp. and Intel Corp. — already have told their employees about the Massachusetts study. A fifth, LSI Logic Corp., planned to do so late Thursday afternoon or today, according to Bruce Eakin, its vice president of corporate communications.

Gray Allen, a spokesman for National Semiconductor, said the

reaction from employees there was "sort of ho-hum — thanks for telling us," but business as usual as far as they were concerned.

At Intel, employees "showed no expression of alarm," spokeswoman Glyneis Kaye said. "But they're obviously curious to get more information on it, as are the rest of us."

But there is no significant difference either in process or finished

Study finds elevated level of miscarriages

Several of the local companies, including AMD and Intel, have policies either requiring or recommending that pregnant employees notify their supervisors of their pregnancies. The employees also must consult with their doctors about whether to continue to work in the same environment.

But, unlike Digital Equipment, the local companies do not guarantee that other jobs will be available. "As you know, we are running on a very lean basis," Greenagel said. "And we know it is going to be more difficult to accommodate (transferees) if we get big numbers."

Elsewhere

Scientologist's death a mystery

The circumstances surrounding Rodney Rimando's life with Scientology and his fall to his death from the sixth floor of the church's headquarters remain murky.

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Market watchdog system examined

The GAO is investigating the adequacy of the SEC and New York Stock Exchange system for dealing with insider trading.

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