**Swan, S.H., M. Deane, I. Hertz-Picciotto, G. Shaw, G.C. Windham, C. Keen, R.R. Neutra, M. Golub and D. Spath (1988). Water exposure and pregnancy outcomes. Berkeley, California, Epidemiological Studies and Surveillance Section, California Department of Health Services.**

1. Overview Across Studies: Summary of Results on Reported Water Use and Pregnancy Outcomes.

BACKGROUND

On November 17. 1981, a leak of toxic chemicals was discovered near an underground waste solvent storage tank at the Fairchild Camera and Instrument Company in San Jose, California. This tank was located about 2,000 feet from a well (Well #13) which supplied drinking water to nearby industrial and residential areas. On December 7, this well was removed from service. At that time 1,1,1,-trichloroethane (TGA) was found in this well at 1,700 ppb. Following notification of the contamination , the affected community expressed concern about the possible health effects of this exposure. Adverse reproductive outcomes were of particular concern.

To address this problem, the Epidemiological Studies and Surveillance Section of the California Department of Health Services (CDHS), in collaboration with the Santa Clara County Health Department, conducted two epidemiological studies to look at the possible relationship between adverse pregnancy outcomes and the water contamination. One of these was an interview study of all pregnancy outcomes in two census tracts; the other was a county-wide hospital-based study of major cardiac defects. These studies, which have been referred to as the "Fairchild studies", were completed and results released to the public in January 1985 (1). Associations were found between residence in areas thought likely to have been served by contaminated water and increased rates of spontaneous abortions and birth defects. Congenital cardiac defects, which were studied among 1981-1982 births, were associated with residence at birth in the area that probably received the contaminated water in one of the two study years (1981). CDHS could not identify any sources of confounding or bias which could account for these findings. However, the relationship between the water contamination and these adverse outcomes remained uncertain because of the distribution of cases in time and space.

Several follow-up studies were undertaken in order to pursue these results and much of the data contained in this report is derived from them. However, this report is not directed to an analysis of the "Fairchild problem". That issue is addressed in a separate report being released concurrently (2). This report is concerned with another issue which arose during analysis of the original Fairchild studies: the question of water exposure and its possible relationship to adverse pregnancy outcomes, independent of the Fairchild contamination episode.

In the original community-based interview study (Fairchild I), we noted that women who abstained from drinking tap water had no spontaneous abortions, and that the rate of spontaneous abortion increased with the number of cups of cold tap water consumed by women during their pregnancy. This association was seen in the exposed area and, to a

lesser extent, in the control area. Therefore, this effect could not be attributed solely to the Fairchild contamination. A similar association was seen for birth defects, although numbers were very small. We have examined the relationship between water exposure variables and pregnancy outcomes in a number of data sets. In addition, further testing of well and tap water have been conducted to look for possible chemical or bacteriological agents. This reports summarizes these investigations.