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Estate of Barry C. Lange, by the  
Administratrix, LINDA LANGE, and LINDA  
LANGE, Individually

Plaintiffs,

v.

ROHM & HAAS CO.

Defendant.

COURT OF COMMON PLEAS  
OF PHILADELPHIA COUNTY

APRIL TERM, 2005  
NO. 002860

MOTION CONTROL NO. 080585

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JEMIN CHARLES HSU and  
KUO-HOM HSU, h/w

Plaintiffs,

v.

ROHM & HAAS CO.

Defendant.

COURT OF COMMON PLEAS  
OF PHILADELPHIA COUNTY

APRIL TERM, 2005  
NO. 002861

MOTION CONTROL NO. 080586

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**DECLARATION OF DR. ARVIND V. CARPENTER  
IN SUPPORT OF DEFENDANT'S OPPOSITION  
TO PLAINTIFFS' MOTION FOR  
PRE-COMPLAINT DISCOVERY**

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My name is Arvind V. Carpenter, and I am making this declaration in support of  
Rohm and Haas's Opposition to Plaintiffs' Motions for Pre-Complaint Discovery.

**Background and Credentials**

1. I am currently the Director of Epidemiology and the Director of Health,  
Safety and Reporting for Rohm and Haas Company, where I have worked since 1989.

2. I have a Doctor of Public Health degree in Epidemiology from the University of Alabama in Birmingham.

3. Before joining Rohm and Haas, I served as an Epidemic Intelligence Service officer at the Centers for Disease Control, and was assigned to the National Institute for Occupational Safety and Health ("NIOSH").

4. My experience at NIOSH included conducting a study on excess rates of bladder cancer at a Goodyear facility near Niagara Falls. The study, which was published in a peer-reviewed journal, concluded that the excess of bladder cancer rates was associated with exposure to ortho-toluidine.

5. Before joining the Centers for Disease Control, I worked as an epidemiologist at Oak Ridge Associated Universities in Oak Ridge, Tennessee.

6. While working at Oak Ridge, I conducted a case-control study of brain cancer cases among workers at three nuclear facilities in Oak Ridge. Three articles relating to this study were published in peer-reviewed journals in the mid-1980s.

7. I am a member of the American College of Epidemiology and a part-time faculty member of the School of Public Health at Columbia University in New York City.

**Developments Leading to Case-Control Study**

8. In mid-2001, I learned that a Spring House employee, Dr. Barry Lange, had been diagnosed with brain cancer.

9. In addition, in December 2001, BP Amoco reported the results of its brain cancer case-control study. That study was inconclusive as to the possible causes of the brain cancers among its employees.

10. In light of that information, I undertook to review the most recent data on causes of deaths among past and present Spring House employees.

11. Rohm and Haas maintains data from the National Death Index, state vital statistics records, internal Corporate Cancer Registry, and personnel records to keep track of deaths and illnesses among present and former Rohm and Haas employees. This data is updated periodically.

12. Upon review, the data showed 9 reported cases of brain cancer among the Spring House employees in addition to Dr. Lange.

13. Spring House has had approximately 6,000 employees since opening in 1963.

14. The U.S. national brain cancer rate in 2002, as today, was approximately 5.5 in 100,000. That figure is based on the risk of getting brain cancer *in any given year*.

15. Thus, in order to compare the national rate with the number of brain cancer cases over Spring House's entire history, I needed to account for the fact that we were looking at brain cancer cases occurring over a period of nearly 40 years, not just a single year (which is the time period used for the national rate).

16. Using the standard epidemiological method referred to as "person years at risk," *see* Exhibit 1, I estimated the total number of years each Spring House employee – past or

present – continued to be alive and free of brain cancer after beginning employment at that site in order to determine the cancer rate among Spring House employees.

17. I estimated that the number of “person years at risk” for all Spring House employees as of 2002 was approximately 120,000.

18. The number of brain cancer cases at Spring House as of 2002 therefore appeared to be nearly double what one would expect when compared to the rate in the general United States population.

19. When I had previously reviewed this data in 1996, only five cases were reflected in the data out of approximately 100,000 “person years at risk,” a rate lower than the national brain cancer rate.

20. As a result of my updated review of the data, I recommended that Rohm and Haas undertake a detailed epidemiological study to determine whether there was any link between exposure to chemicals at the Spring House facility and the apparent excess of brain cancer among past and present Rohm and Haas employees.

21. Standard epidemiological procedure would ordinarily call for conducting a “cohort mortality study” *first* to assess whether the number of cancer cases at Spring House was actually elevated in comparison with national cancer rates.

22. However, because of the level of detail involved, such a study takes approximately three years to complete. I wanted to know expeditiously whether any chemicals used at Spring House could be linked with the brain cancer cases.

23. Therefore, I recommended -- and Rohm and Haas agreed -- that the best course of action would be to conduct a "case-control study," which would focus on expeditiously identifying any association between chemical exposure at the facility and brain cancers or benign brain tumors.

24. We publicly announced to all present and former Spring House employees ~~that we were beginning this study, explained the concerns motivating the study, and enlisted their~~ help in identifying cases of brain cancer within the group. *See* May 29, 2002 Letter from E. Bonner to Spring House employees (attached hereto as Exhibit 2).

#### The Case-Control Study

25. I designed and conducted the case-control study in accordance with generally accepted standards for epidemiological studies. *See* Exhibit 3 (describing protocol for conducting this type of study).

26. The study's methodology and results were reviewed by three independent epidemiology and industrial hygiene experts from the American Cancer Society, Johns Hopkins University School of Public Health, and Emory University School of Public Health.

27. The case-control study was conducted over an 18-month period by a team that included an epidemiologist (myself), an industrial hygienist, a toxicologist, two medical doctors, a statistician, a computer database manager, and several chemists.

28. In the case-control study, four employees without brain cancer were selected as controls for each of the known brain cancer cases and matched based on general characteristics such as age, race, gender and date of hire at Rohm and Haas to control for such variables as much as possible.

29. The study analyzed over 100 potential risk factors, including 34 different categories of chemical/physical agents, where within the Spring House facility the employees worked, and non-work-related risk factors like epilepsy, brain trauma and smoking.

30. In order to identify every chemical to which the study employees may have been exposed while working at Rohm and Haas, the research team thoroughly reviewed and ~~analyzed the daily laboratory notebooks of each scientist included in the study, some of whom had~~ worked at Spring House for over twenty years -- an undertaking involving review and analysis of literally hundreds of thousands of pages.

31. To determine whether there were any other cases of brain cancer diagnosed in former Spring House employees of which Rohm and Haas was not already aware, our research team searched both national epidemiological databases and internal medical databases, such as the National Death Registry, Rohm and Haas's internal Corporate Cancer Registry and personnel records, and asked past and present Spring House employees to help by reporting any cases of which they knew.

32. We took a conservative approach and erred on the side of inclusiveness in deciding which cases of cancer to consider in the study. For example, one employee had worked at Spring House for only a month, but was nonetheless included in the study. Another had worked at Spring House for just 18 months, but was still included. In addition, the study included three cases of benign tumors. And, although the cutoff date for the study was to be December 31, 1999 due to the unavailability of complete cause-of-death data for subsequent years, Dr. Barry Lange and Dr. J. Charles Hsu were included in the study even though each was diagnosed after the study cutoff date.

### The Results of the Case-Control Study and Next Steps

33. In January 2004, I announced the results of the epidemiological case-control study in a series of meetings with current and former Spring House employees, including a separate presentation for the families of those with brain cancer.

34. As we explained to the past and present Spring House employees and their families, the study found no statistically significant risk factor linked to the occurrence of brain cancer or benign brain tumors at Spring House. See January 8, 2004 Letter from A. Carpenter and D. Greenley to Current and Former Spring House Employees (attached hereto as Exhibit 4).

35. I explained, both in a letter and in presentations to the employees, that we still could not explain the apparently elevated rates of brain cancer among Spring House employees; that further research was needed to better understand whether the rates were actually elevated in comparison with the general population; and that given the study's results, Rohm and Haas believed that the Spring House facility was a safe place to work.

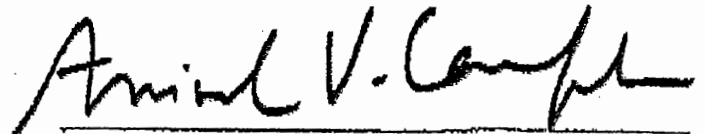
36. When I reported the results of the case-control study, I also announced that Rohm and Haas would begin an in-depth cohort mortality study, which would examine the causes of death of anyone who had ever worked at Spring House and would help to determine whether the number of brain cancer cases at Spring House was elevated in comparison to the number of brain cancer cases in the general population.

37. Although such a study will not be able to identify any association between chemical exposure at Spring House and brain cancer – the case-control study would have done so had any such link been scientifically identifiable – it will shed further light on the brain cancer cases at Spring House. The study is scheduled to be completed in 2006.

38. I and others involved in the study were made available to other past and present employees of Rohm and Haas to answer any further concerns or questions they might have about the study or the brain cancer diagnoses, and we met with various individuals and groups for that purpose.

39. The results of the case-control study are in the process of being prepared for publication in a peer-reviewed journal.

The foregoing declaration is made subject to the penalties of 19 Pa. Con. Stat. § 4904 relating to unsworn falsification to authorities.

  
Arvind V. Carpenter, Dr.P.H.

Dated: August 26, 2005