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REPORT

Alicia Acevedo et al v. Union Pacific Railroad Co. et al
Cause No. C-4885-99-J
332nd Judicial District Court of Hidalgo County, Texas

Introduction

This report is based on various case documents; discussions with a number of ex-workers of the Hayes Sammons plant in Mission, TX on November 30, 2004; information appearing in scientific publications, government reports and industry and other documents; and the 42 years of professional occupational health and safety experience of the author, Vernon E. Rose. A copy of my Curriculum Vitae is attached. This report is a summary of the facts, issues, and my opinions in this case. My opinions are based of the available factual information combined with the interpretation and application of referenced scientific information through the application of my professional knowledge and experience. If additional case-specific information is obtained, this report may be supplemented.

Factual Background:

The plaintiffs in this case either worked for the Hayes Sammons plant in Mission, Texas or lived in close proximity to the plant. The period of employment varied by individual, with some beginning work in the 1940s and many working until the facility closed in 1967. Most of the plaintiffs were long-term, i.e. greater than a decade, employees of the company. The primary products produced at Hayes Sammons were agricultural pesticides (insecticides) of the organochlorine (OC) or organophosphate (OP) families with the OC products predominating. Hayes Sammons (HS) did not manufacture any chemicals, but rather was a "formulator" or mixer of chemicals which were then packaged and sold to pesticide applicators. OC compounds are noted for their persistence in the environment as well as in the human body where they are primarily stored in fat. OP compounds do not persist in the environment or the body for long periods of time and originally were created as chemical warfare agents.¹

Pesticide formulators are generally small companies and HS with a workforce of 100 or less places them in this category. Formulators receive the concentrated active ingredients from chemical manufacturers, usually a large petrochemical peak company, and dilute them with various "nonpesticidal" materials known as "inerts." The term inert relates to the effect of the substance on the target organism (insect) relative to the effect of the pesticide on that organism. The formulation process at Hayes Sammons included physical treatment of the pesticides to yield particular product forms: dust, powder, and liquids. These processes involved the use of kettles to melt solid products and grinders and mixers to process dry products.



During their employment at HS, the plaintiffs used and were exposed to the following pesticides in solid form: toxaphene, DDT, BHC, dieldrin, aldrin, and heptachlor. The liquid pesticides used at Hayes Sammons included: parathion, malathion, chlordane and phosdrin. All of the pesticides are OC compounds with the exception of malathion and parathion which are OP compounds. Testimony indicates in the early years (1940s and 1950s) DDT was the most used pesticide. Subsequently toxaphene became the primary product.

General Propositions

Basic to this report is an understanding of a number of general propositions that apply to the obligations of manufacturers and sellers of hazardous products.

First, in the U.S., the first system for labeling hazardous materials was published by the Manufacturing Chemists Association, Inc. in 1945. Their publication *A Guide for the Preparation of Warning Labels for Hazardous Chemicals* was updated in the years that followed. In the 6th Edition published in 1961, it is noted "Precautionary information should, so far as is practicable, reach every person using, handling or storing hazardous substances. The most practical means of disseminating this information appears to be by precautionary labels, affixed to containers of hazardous substances, bearing appropriate precautionary statements expressed as simply and briefly as possible." Later the Guide provides a description of the subject material to be included on a label and identifies four items: (1) the name of the product, (2) a signal word designating degree of hazard (e. g DANGER!), (3) an affirmative statement of hazards, (4) precautionary measures to be followed or avoided, and (5) instructions in case of contact or exposure. In 1976, the American National Standards Institute assumed responsibility for the system and continues to publish *ANSI Z129.1 American National Standard for Hazardous Industrial Chemicals-Precautionary Labeling*. The latest version of the standard was published in 2000.

The chemical industry is and has been for decades, firmly committed to the need to provide information on hazardous materials used in the workplace. This information is to be provided by the entity with the superior knowledge of the hazards of the product (the manufacturer) and is to be used by both the employer and worker in reducing or eliminating hazards in the workplace. It is important to recognize that industry recognizes the need to inform the employer and employee, usually the "end user", of the hazard of a product used in the workplace. The employer needs to know the information so they can establish safe and healthy working conditions. Where an employer does not discharge this duty, the hazard information is needed by the employee so that he or she may question their employer about the need for safe work conditions or, with recalcitrant employers, the employee may seek assistance from governmental agencies or choose to leave and seek other, safer employment.

Second, in fulfilling their legal and moral responsibilities, manufacturers must fully research, understand, and disclose health hazards associated with the products they market. Information is available from government and private research (including a seller's own research), customers, and competitors. Information obtained must be properly

evaluated by qualified personnel and disclosed if appropriate, having in mind that it is always better to err on the side of more, rather than less, disclosure. Sellers should also realize government regulations are minimum requirements. Application of the concept of "product stewardship" is an indication of care and concern on the part of the manufacturer and/or seller.

Third, manufacturers should anticipate that purchasers of their products may not rely on their warnings and instructions and pass them on to the end user. End users will review labels, not always product bulletins. Accordingly, if health hazards are presented, they must be properly and prominently disclosed not only in product literature, but also on product labels.

Fourth, manufacturers should anticipate that, if there are not proper hazard warnings, end users will be less vigilant with regard to protection. It is common sense and common knowledge that where workers are not informed exposure may cause a serious health problem, such as premature death or disability. They will not use protective equipment to the same extent, if at all, as those who are warned of significant health risks associated with exposure. This is especially true where the adverse health outcome is delayed for years after exposure takes place.

Fifth, manufacturers of chemical products should implement policies of "product stewardship" whenever possible and feasible. Product stewardship involves ensuring the chemical products are used and disposed of in a safe manner. This concept is especially applicable where manufacturer representatives visit workplaces where their products are used. The "field reps" should not only have an understanding of the technical aspects of the products they are selling, but also the hazard information and necessary safe operating practices to ensure the workers using their products are not injured or have their health adversely affected.

Basis for Opinions

1. In their depositions (see attached list of depositions reviewed), the plaintiffs consistently describe the conditions of the environment in which they worked as well as the equipment used, work practices and other factors related to their potential for exposure to toxic chemicals. There appear to be four major work situations where such exposure took place. First was the unloading and handling of incoming pesticides. For example Mr. Ramiro Bourbois, Sr. describes getting DDT on his hands when handling 50 pound bags of the product. Bags would burst and they would clean up the spilt material. The second work situation involved the melting and/or blending of the dry products. Mr. Baldemar Gonzalez described the melting of solid pesticides including toxaphene, DDT, BHC dieldrin, aldrin and heptachlor in kettles on the "porch." Mr. Gonzalez noted he wore a two-cartridge respirator when he was blending and mixing "but fumes still penetrated" the respirator. Mr. Gonzalez also reported that while he wore "rubber-like green gloves" the chemicals would sometimes get inside the gloves. Mr. Bourbois also worked on the porch mixing liquids and he states he did not wear masks or gloves. The third opportunity

for worker and community exposure to pesticides involved with the grinding and mixing of products. The grinding was done in a small building separate from the main plant area and the grinder was, apparently, equipped with exhaust ventilation.

The blending was done in a room inside the main building. Mr. Alfredo Murillo Sr., who worked inside where the dry products were mixed, describes the "dust from the blenders would get blown out into the neighborhood." Mr. Gonzalez believed "the dust would leave the building" because of the "big fan" in the blending room. Of course this would also expose the workers in the mixing room to the same dust. Finally was the packaging, especially bagging of dry product. This process took place in the blending room and the bagging machine was attached to the blenders. Mr. Cyril Weber, the plant superintendent from 1950 until the plant closed in 1967 observed there was "ventilation" on the bagging machines which he thought was effective. There was also a separate labeling and packaging area on the second floor of the main building. Mr. David Garza describes working there and labeling bags, small packages and bottles of final product. He also filled bottles (up to one gallon in size) with liquid product and package dry product. He states he wore "regular clothes or sometimes overall" and couldn't afford to pay for laundry and so his clothes were washed at home. He, as most workers reported, would shower before going home. He wore a mask and used gloves. The mask had canisters on the side and they would be changed "periodically." There is no information on the working conditions in this area.

2. Mr. Weber did not think there were very many accidents "because the workers were told to take baths or showers or else they would get sick. However, several of the workers describe having acute episodes of health effects they attribute to working with the pesticides. Mr. Garza observed an occasion where a coworker, Mr. Jose Rodriguez, "got sick from the phosdrin." He describes the incident as involving Mr. Rodriguez transferring liquid phosdrin from five to one gallon jugs. Mr. Rodriguez was wearing gloves and a mask. Mr. Rodriguez went home and "got very sick." When he went back to the plant he was taken to the hospital. On the same day Mr. Garza notes he and Pedro, who both had been working 10 feet away from Mr. Rodriguez, were attending adult school when they became sick and went home. The next day they were sent to the doctor for medication. He stated there were other times he felt sick at work but did not go to the doctor. He also noted "so many people were going to the doctor that Dr. Northmeyer prescribed Atropine tablets" and there was also some at the HS office. He remembered that when he was "chopping up aldrin" he got nauseated and would start salivating and get a headache. He would take an atropine tablet and feel better.
3. It appears it was common practice for representatives/salesmen of the pesticide manufacturers to visit the plant. Mr. Louis Gray, the Sales Manager, stated companies would send representatives to "explain" products. Mr. Weber the superintendent, noted "salesmen from the suppliers would come to HS." Mr. Murillo, who was a foreman, describes "chemists from different big companies" telling him how to combine the chemicals.

4. During the summer of 1952; the Shell Chemical Co. investigated outbreaks of dermatitis cases in Southern Texas, with the majority (26) cases at the HS plant in Mission. It appears Shell sold dieldrin To HS in Mission. In their investigation report (Exhibit 3 to the deposition of Louis Gray, 11/30/04) Shell observed there was a high production rate in the summer of 1952. When looking at various chemical control methods the use of respirators by the workers "looked good" suggesting to the investigators that this might "explain dermatitis without symptoms of chlorinated hydrocarbon poisoning (emphasis added)." Concern was expressed over the lack of use of protective clothing but also recognizing the problems associated with such equipment in the high heat conditions. Other problems noted included no change rooms, inadequate shower facilities with insecticide dust tracked in, lack of smoking or eating precautions, only ventilation was one large wall fan, no medical surveillance, and, because of the "type of workers" there were language difficulties and "education is difficult." The report included eight short-term and three future corrective measures to address these perceived problems. All of the corrective measures dealt with physical changes (e.g. showers, aprons, and dust collection systems), but did not address the need to establish worker training programs to provide proper hazard and good work practice information to help reduce worker exposure to pesticides. There is also no indication Shell made any follow-up evaluations to assess the implementation and adequacy of their recommendations.
5. There is no information suggesting other pesticide manufacturers made any effort to address the health and safety hazards associated with their products.
6. There appears to have been a serious lack of understanding of the potential health hazards associated with the pesticides used at HS by these workers. Mr. Gray, who had a B.S. in Entomology and was sales manager at the plant, stated they relied on the pesticide manufacturers for information on the health hazards of the products. Mr. Bourbois reports observing some bags and barrels with a "skull and cross-bones" drawing and the word "danger" which meant to him to be careful. When he started at the plant in 1951, Mr. Gonzalez thought the chemicals were designed for insects and would not hurt him. He learned, after being exposed, that BHC would burn the eyes and skin.
7. Recommended occupational exposure standards for a number of pesticides used at HS have been developed by the American Conference of Governmental Industrial Hygienists (ACGIH).² Allowable exposure limits have been established for aldrin (1956), dieldrin (1956), chlordane (1956), malathion (1956), DDT (1957), phosdrin (1963), and heptachlor (1964).
8. In 1978, the National Institute for Occupational Safety and Health (NIOSH) published their recommended occupational safety and health standard for the manufacture and formulation of pesticides.³ Although this recommended standard was published after the HS plant in Mission closed, there is some insightful information in the document which while true in 1978, would be expected to be even

more the situation in years between 1950 and 1978.

- a. "NIOSH believes that immediate action is needed to protect workers in pesticide manufacturing and formulating plants. (p.2)
- b. "It should be emphasized that pesticides are an extremely diverse group of substances. There is a potential for a wide variety of toxic effects throughout the group...Consequently there is a need for constant surveillance and monitoring and thorough recordkeeping to make sure that employees are following proper procedures so that their health is not compromised. (p.5)
- c. "Pesticides have caused diverse toxic effects on various human and animal organs and organ systems including the liver, kidneys, skin, lungs, brain, nervous system, and eyes. (p.60)
- d. "Pesticide formulating establishments are generally smaller than manufacturing establishments. (p.45)
- e. "The care exercised in substance handling and control during formulation varies greatly from the relatively sophisticated procedures and equipment found in a major facility where both manufacturing and formulating occur to less complicated setups where, for example, second-hand equipment is used. (p.47)
- f. "The inhalation of pesticide dusts, vapors, mists and gases may present a significant occupational hazard. (p.49)
- g. "Workers frequently experience dermal exposure to pesticides with subsequent absorption through the skin. Exposure studies of formulators and agricultural workers have shown that dermal exposure to pesticides occurs frequently if proper precautions are not taken. Wolfe and Armstrong reported the dermal exposures of workers to DDT in two formulating plants. Highest exposures occurred at the bagging station. (p.54)
- h. "Oral exposures occur through accidental splashing of liquid pesticides into the mouth, by smoking or eating with pesticide-contaminated hands, by smoking or eating with pesticide-contaminated hands, by rubbing the mouth area with contaminated hands, and by swallowing inhaled material that may have entered the upper respiratory tract or have been swept up the trachea by ciliary action into the pharynx. (p.58)
- i. "The toxic effects of pesticides and other chemicals involved in occupational exposure should be fully explained to employees, including probable and potential carcinogenic, teratogenic, mutagenic, neurotoxic and reproductive effects. (p. 307)
- j. "The emphasis in training should be on developing good work practices to prevent emergencies, accidents, injuries, and overexposures.(p.289)

Opinions

1. The working conditions and situations reported by the employees whose depositions I have read, describe what, in my professional opinion, are unsafe working conditions at the Hayes Sammons plant in Mission, TX.

2. Hayes Sammons, as an employer, has the primary responsibility to protect the health and well-being of their employees. However, the employer can only be expected to fulfill this responsibility by addressing the health and safety hazards which they know. HS was originally a hardware store and apparently switched to selling pesticides around 1950. Being a small company who did not manufacture pesticides, but rather was a formulator of pesticide products, they would be considered as "unsophisticated" as to the range of hazards and their control associated with these products.
3. The manufactures of the pesticides supplied to Hayes Sammons plant in Mission, Texas are certainly more "sophisticated" companies, as compared to HS, in areas of the hazards and safe use of their pesticide products. As discussed above in the section on General Propositions, these companies had a responsibility to inform the end users, the management and workers at HS, of the health and safety hazards of the products they sold to HS and the effective measures need to control these hazards.
4. In addition, many if not all, of these companies had representatives visit the HS plant to sell their products and give instructions on their use. As with the visit by representatives from the Shell Chemical Co. in 1952, these representatives of the pesticide manufacturers should have observed unsafe work conditions, recommended corrections, and then followed up to ensure the recommendations were not only implemented but maintained. There is no evidence any of these companies, other than Shell, attempted to make such an effort, and in the case of Shell it took an outbreak of occupational disease in the HS Mission workers to result in such action. Also there is no indication Shell ever followed up to ensure the recommended control measures were implemented and maintained or made any attempt to evaluate worker or community exposure.
5. It does not appear any of the pesticide manufacturers supplying products to the HS Mission plant made any effort to inform management or employees of the potential adverse health effects of the products they sold.

In conclusion, I believe the above information and opinions demonstrate a conscious disregard, on the part of the pesticide manufacturers supplying HS Mission, of the health and well-being of the end users of their products and those in the nearby community who may have also been exposed.



REFERENCES

1. Finkel, AJ: *Hamilton and Hardy's Industrial Toxicology 4th Ed.* Littleton, MA, PSG Publishing Co, 1983, p 288.
2. ACGIH. *The Documentation of TLVs and BEIs.* 3rd Ed. American Conference of Governmental Industrial Hygienists. Cincinnati, OH. 1991
3. NIOSH. *Criteria for a recommended standard. . . Occupational Exposure During the Manufacture and Formulation of Pesticides.* DHEW (NIOSH) Publication No. 78-174, (1978)

DEPOSITIONS REVIEWED

Louis Gray
Ramiro Bourbois, Sr.,
Alfred Murillo, Sr.
Alfred Murillo
Baldemar Gonzalez
Cyril Weber
David Garza