

REPORT FROM THE B. F. GOODRICH COMPANY

E. W. HARRINGTON

DR. LLOYD:

We would like to pick up where we left off this morning. Our first speaker is one of the industry representatives, Mr. Harrington, from the B. F. Goodrich Company.

MR. HARRINGTON:

Good afternoon, my name is E. W. Harrington and I'm the Director of Manufacturing for Synthetic Rubber for the B. F. Goodrich Chemical Company. For the last 2 months I have been responsible for the Port Neches Synthetic Rubber Plant about which you have heard so much this morning. I find that the company, myself, and plant management are in general agreement with many of the things that you have heard this morning. We have a new attitude. We are not going to use the fact that we don't know that an organic chemical is a carcinogen as an excuse not to reduce employee exposures.

The account that you heard from Mr. Beliczky about how we were alerted to this problem at Port Neches is absolutely correct. We wish to thank Mr. Contessa and the president of the local OCAW unit for alerting us. I wasn't at the plant at the time and, if I had been, I'm not sure that I would have been alerted. After all, two of these people had been gone from the plant for 11 years; one was age 76; and the other two of the five were brand new cases. So, we were alerted in a month and that's not bad by the old standards, but maybe not good by the standards that we would aspire to now.

When we were alerted, as you know, we notified NIOSH and invited them to assist us. We also notified our employees and the unions at the plant, and we issued a news release.

To date, at least up to this morning — we have found no reference implicating any of the materials that we use in the plant with leukemia, although toxicity studies have been carried out on a number of them, including styrene and

butadiene. The point is that at this point and stage we still have no solid clue as to whether these leukemia cases are work oriented or whether any materials used at the plant or other similar SBR plants could be linked with this disease. We definitely agree, however, that it warrants the investigation going on.

We had already taken a number of steps before March 18th. We had monitored the atmospheres in the plant, by personal monitoring of the type that has been specified by OSHA for PVC plants. We haven't done it as much as we would have liked to have done it with the knowledge that we now have, but the results that we did get are as follows: the highest personal monitor reading we have found for butadiene averaged from 20 to 30 ppm. We monitored where we thought the exposures were the highest.

For styrene, our highest readings by personal monitors were from one to 15 parts per million. These were over six-hour periods for the most part, as I understand it. For butadiene, the present OSHA standard is 1,000 and for styrene it is 100 ppm.

We have strictly enforced vessel entry procedures. No person is permitted to enter a vessel without a permit from the plant safety department and until all rigid safety precautions, including ventilation, have been carried out and the atmosphere in the vessel has been checked.

We have recently established a policy since March 18th that all persons entering any of these vessels shall wear air-fed respirators. This process is being implemented as rapidly as we can acquire the approved respiratory equipment, and we expect it to be in effect in early May.

We have also offered blood tests to all employees at the plant. Between 400 to 500 employees, so

far as I understand it, have taken these. As soon as the results have been completed and analyzed, we will make the results known to NIOSH, to the unions at the plant, to the individuals on a private basis, and we will publish the results. We expect to be able to do this in the near future. In addition, over the years, many of our direct workers have had the opportunity to be given physical examinations, when they requested it, by the plant physician.

While we do not know what chemical, if any, may be linked to leukemia at this plant, and we have no reason to believe worker exposures have been excessive, as a matter of prudence, we are now implementing still more sophisticated and more frequent monitoring procedures to determine the extent of any exposures.

We are going to put in a procedure that monitors the butadiene, styrene, and benzene simultaneously, and samples will be analyzed at the plant laboratory instead of at Akron as has been done in the past.

The SBR process is mostly, as you've heard, a continuous rather than a batch process. Vessel entry is much less frequent than in other chemical operations such as PVC, for example.

SBR polymerizers or reactors need to be inspected and cleaned only at intervals of six months to a year. Blend tanks are cleaned about twice a year. Stripping columns are cleaned about once in three months.

The SBR process is efficient compared to many polymerization processes. The unreacted monomer is recovered and reused. The process is closed until after the monomers are removed and recovered in the stripping column process and then the mixture goes into open blend tanks for coagulation and drying after most of the butadiene-styrene have been removed. This accounts for the low readings that we have found in our monitoring of work atmosphere. This is not to say, like in any plant, that we don't occasionally have leaks and spills. We are obviously going to have to tighten up on those and make them less frequent.

The principal raw materials, as you've heard, are styrene and butadiene, neither of which is

produced at this plant. Since styrene is made from benzene, of course, you've heard speculation that styrene may be a suspected cause of leukemia and that the benzene in the styrene may also be the suspected cause. We analyze the styrene when we get it in our own plant and, although the manufacturers say it's nil to 10 ppm, we find 0.01 per cent or 100 ppm by our chromatograph analyses. We believe this is a result of styrene being shipped to us in barges that are used alternatively for benzene, but we don't use benzene in our process nor have we monitored for it so far. But as I have said, we intend to simultaneously monitor it when we're monitoring for styrene and butadiene.

You have heard a number of other materials are used in the production of SBR. These include the soaps, extender oils, carbon black, and antioxidants. All of these must be investigated.

There is another chemical that we don't buy, but it's formed in every operation using butadiene and that is butadiene dimer. This is formed continuously as butadiene is stored no matter what you do. This is vinyl cyclohexene and it is present in our plant and is in our recycled styrene. Probably, there would be traces in the finished rubber.

We feel that the most important part of this investigation will be the epidemiological studies. It is our belief, shared generally by scientific and medical experts, that NIOSH and the Center for Disease Control are the best agencies in the world to carry out this study. A complete epidemiological study of the SBR industry may give us the best help in unraveling this puzzle. We are certainly ready and willing to cooperate with the study.

I would certainly recommend that NIOSH study all of the remaining SBR plants and not just the ones we've heard of today. I would like to point out that SBR plants are generally in an area where there is a heavy concentration of petroleum refineries. I don't know whether that has a relationship, but it is a coincidence.

If we don't solve this problem now and find out which, if any, chemicals, including butadiene-styrene and any of these other mentioned

chemicals, are the cause, we could discover in 5, 10, or 15 years from now that the problem still exists.

We certainly hope that the investigations proceed in an atmosphere where there are no adversary positions. After all, labor, management, and government health bodies all have common interests in this investigation.

Just a few remarks about what I've heard this morning. In response to respiratory protection, I've already stated that we have instituted a policy on air line respirators that will be in effect in May. On the exposure to talc dust, I would like to point out our corporate industrial hygiene department has criticized this as well and we intend to do something about it.

We have given a complete list of chemicals used in the plants to the union involved. We have a letter from the local union requesting a lot of additional information and we are now accumulating that information and we intend to give it to the union just as asked. We are going to continue to increase our monitoring as I described and that information will be available to all the workers in the plant and to the unions and to the government health bodies who should have it.

Radiation sources are there in the plant. I'm certainly going to ask the plant to check, but it's my understanding that those are under the control of the safety precautions as specified by the Atomic Energy Commission. I believe we are complying with those precautions in protecting our employees from radiation from those devices which are low level radiation devices.

The lunchroom situation that was mentioned will be corrected. We have had engineering studies under way for a number of months on this.

I heard about the possible problem which is a little new to me this morning on the possible exposure to sampling reactors. Our production manager from the plant is here; he heard that; and I'm sure he'll investigate that quite promptly. We have had problems in other plants and we solved them and we can solve them in this plant.

I would like to thank you. Do you have any questions?

QUESTION:

I'm sorry, I didn't get your name, I came in late.

MR. HARRINGTON:

My name is Harrington and I'm the Director of Manufacturing for B. F. Goodrich.

MR. DEMERY:

My name is Bill Demery and I'm with the U. S. Department of Labor, OSHA, and I am now at the Dallas Regional Office. I just would like to clear up one minor technical thing. I think you mentioned that you were finding a tenth of a per cent of benzene in the monomer?

MR. HARRINGTON:

One hundredth of one per cent which is 100 ppm of benzene in our incoming styrene. The manufacturer says when it is shipped out, it isn't more than ten. I don't know what it was in the distant past, in the early 40's, when these plants started up. I don't think anyone had analytical equipment that sensitive at that time.

MR. SAMUELS:

My name is Samuels. Do you have plants abroad?

MR. HARRINGTON:

We're building a plant in one country, but I don't think that we have any in operation now.

MR. SAMUELS:

But in the plant you're building and in other rubber industry plants in other countries, would you recommend that these countries institute the same measures at the same time?

MR. HARRINGTON:

I think it would be only prudent.

MR. SAMUELS:

Would it be appropriate for the chairman to perhaps have an affirmatory statement from the representatives of the British Rubber Industry who are here. We're rather disturbed by the fact that for asbestos and vinyl chloride, for example, our British brothers are not given the same stringent protection.

MR. HARRINGTON:
Anything else?

DR. LLOYD:

I have a brief announcement. There are additional handouts available at the registration desk, including a supplement to the bibliog-

raphy. Would anyone who hasn't registered yet, please register.

Are there any other people who would like to offer any other comments on the health effects or the epidemiological studies of the leukemia experience of workers in SBR?