

SYMPOSIUM CLOSING SESSION REMARKS

Session Moderator:

DAVID A. FELINSKI, Manager, Occupational & Environmental Programs, AAMA

LAWRENCE J. FINE, MD, DrPH, Dir. Div. of Surveillance, Haz. Eval. & Field Studies
NIOSH

JOHN K. HOWELL, PhD, Director, Health & Safety Research
Castrol Industrial North America

FRANKLIN E. MIRER, PhD, CIH, Director, Health & Safety Department
UAW

JAMES B. D'ARCY, PhD, CIH, Staff Research Scientist
General Motors Corporation Research & Development Center

TAI L. CHAN, PhD, CIH, Manager, Occupational Health & Safety Research
General Motors Corporation Research & Development Center

HENRY B. LICK, PhD, CIH, Manager, Industrial Hygiene Department
Ford Motor Company

DAVID A. FELINSKI, Manager, Occupational & Environmental Programs
AAMA

SYMPOSIUM CLOSING SESSION

SESSION ARRANGER CLOSING REMARKS

Mr. DAVID FELINSKI, AAMA: Are there any further questions? Okay; we're going to move directly into the Symposium Closing Remarks by the Session Arrangers now. Dr. Fine?

Dr. LAWRENCE FINE, NIOSH: Well I would like to summarize a few observations from the first session. For those who cannot remember what it was on, it was on the cancer epidemiology studies, and I have about three or four points to make. I think the core conclusion of that session was that the evidence for past exposures which occurred in the period of 1930 to 1970 suggest that the evidence is strongest for cancers of the stomach and the digestive tract. Not surprisingly, some observers found the results more consistent and compelling than others, among the Discussants. I personally believe that the evidence is somewhere between some and substantial, but there will be many points of view on that, and that debate will continue for quite some time. I like Gordon Reeve's summary saying that, basically, we were somewhere between a situation in which the cancer epidemiology was clearly negative and that there was no risk associated with past exposures, and the kind of overwhelming evidence we have for a limited number of occupational exposures such as asbestos, and we're somewhere in the middle. Of course, people would like more precision about where we are in the middle, but I think we can leave that for another time.

I think there was agreement, which is important, that the scientific quality of the studies was overall, excellent. But it also recognized in our discussions that cancer epidemiology does have limitations. There are some important questions for which it does not provide effective answers. Epidemiology cannot really evaluate

whether the post 1970 changes, which I think have been clearly demonstrated during this Symposium, such as the reduction in PACs, the reduction in nitrosamines, and other changes in fluid types, whether they have solved the past problems that existed with regard to occupational cancer.

An additional thing that came out of that session, and one which I think is important to understand, is that occupational epidemiological studies in this particular setting where we have such complex mixtures of exposures, and exposures that change over time, we will have difficulty in evaluating whether any particular constituent is the main source of a problem with any precision. As I think Bill Lucke was indicating, this kind of research really is the role, or in the realm of toxicology and other kinds of specialized epidemiological studies.

With regard to the overall cancer risk, in terms of today, what can we say? Because that is really the question that is most important to today's workers. From my personal perspective, I think we can say two things (not for certain, but with a little bit of confidence): that for those exposures which were common in the 1930's to the pre-1970 period, the risks today are reduced compared to what they were during that period. We can say this primarily because the general level of exposures is substantially lower. Also, perhaps it's lower because of the changes in formulations, but the impact of those changes in formulations is, I think, harder to evaluate from the epidemiological data. On the other hand, it would not be prudent to assume that we have shown that there is no risk for current exposures. We are in what I call a "flashing yellow light" situation; neither green light, nor necessarily a red light. I also think, just as a note of caution, that as these fluid compositions change over time, it is not always true that substitutions don't introduce

new problems. So I think we need to remain vigilant and continue to look.

Then I think, in closing - not related to my session - I would like to make an observation, because in some ways, I have been an observer of this process of dealing with cutting fluids since about 1981 or 1982. I do not think we would be here today discussing the problem with the level of depth and clarity that we have, even though we have a lot of unanswered questions, without the joint research programs initiated by Ford, Chrysler, General Motors, and the UAW. There have been many people who I'm sure have been responsible for the joint programs, but there are three people who I would like to acknowledge. I saw their role early on in initiating this kind of research activity which has provided the information which has eventually led to this Symposium, and eventually, I think, to lower exposures. They are Robert Wiensek, who is the former director of Occupational Health for General Motors, and Michael Silverstein and Franklin Mirer who are here today, and at that time, were working for the UAW (I guess Frank is still working for the UAW). I'm sure there are actually many others who I did not have the pleasure of meeting, who have contributed to that effort.

And then lastly, as I thought about saying this I realized that as you look at the exposure levels as they have come down over the last 50 years, that there really are probably thousands of other individuals that have contributed to the reduction of exposures, which have been documented during this Symposium. I feel that the challenge to us is to continue their good work. Thank you very much.

Mr. DAVID FELINSKI, AAMA: Thank you Dr. Fine. Dr. Howell?

Dr. JOHN HOWELL, Castrol North America (ILMA): Thank you very much Dave, and on behalf of ILMA, I want to thank AAMA for providing the leadership and the organization to arrange this Symposium; it has truly been

wonderful.

I would like to review Tuesday morning's presentations. They may be, as Larry said, as equidistant away as Monday afternoon's presentations, but if you look back, what did we do? Well, We looked at the issues of ethanalamine and chlorinated paraffin carcinogenicity issues. Ethanalamine toxicity was covered. Biocide toxicity was covered as well. We talked Tuesday morning about the use of an animal model to understand what fluid types and what included raw materials might cause sensory or pulmonary irritation. And last, but certainly not least, we began to hear some of the research regarding respiratory health effects of machining fluids.

The AAMA Symposium that we have attended and been a part of this week has really been an unprecedented exchange of information between organized labor, government, industry, and academia. We have learned a lot about fluids, about health effects, how to measure things, and we have learned a lot about how to control fluids, machine tools, and particularly the emissions from machine tools. We have come a long, long way, and if you recall on Monday afternoon, Dr. Jane Teta showed a slide of the change in magnitude of fluid mist exposures that have occurred over the last twenty or thirty years. We indeed have come a long way, but we still have a ways to go, and that is what this is all about. ILMA is vitally interested in the safety of workers who use the fluids, and we are committed to manufacturing safe and effective fluids that enhance the safety and health of our customer's workforce, as well as our own workforce who manufacture the products that are protective of the environment, as well as improve the productivity of the workplace, because that is important too.

Now, what have we come to understand, and what do we have to do in the following days, weeks, and months? Well we've come to understand, I think, that metal removal fluids are complex dynamic mixtures that can quickly become contaminated with tramp oils and microorganisms that can quickly produce deleterious effects if not controlled. John [Burke] presented

some of the basic research this afternoon that showed you how some of those deleterious effects can in fact take place. ILMA members have been responsible and responsive regarding product stewardship. We talked about issues like the removal of nitrites many years ago; base oils that are used are now severely refined. Those short chain 60% chlorine chlorinated paraffins have been removed. DEA, diethanolamine, one of the alkanolamines has been reduced; we did not talk a whole lot about that, but that happened in 1989. There was no government regulation in place at the time, there was no threatened regulation. It was just ILMA member companies exhibiting sound product stewardship. And when the NTP 90-day studies came out, we saw what the impact was on target organ potential damage and began to take action at that time. We will continue to use sound science as new health effects information continues, you can count on that.

ILMA is going to continue to be a proactive force for worker health and safety. It was our suggestion actually, to NIOSH in 1994 that resulted in the conference that occurred in Cincinnati last November. We have obviously helped arrange and participate in this Symposium as well, and we have already made contact with both OSHA and EPA about next steps after this Symposium. Keeping in mind the needs of smaller and mid-size manufacturers who are not necessarily represented at this Symposium, we will continue to work with AAMA, with organized labor, and government agencies. We will continue to monitor the health effects of the materials that are included in the formulations as they become available, to bring new technology and products to the workplace, to educate ILMA members and our customers regarding all the things that have been taking place. To continue the dialogue through our discussions and other forums like this, or perhaps forums different than this. And we will continue to evaluate our product and component health and safety, and most importantly, we will continue to work toward the achievement of lower exposure levels in the workplace. It has been done, it will be done, and we will be here to help make it happen.

Thank you.

Mr. DAVID FELINSKI, AAMA: Thank you Dr. Howell. I understand that Dr. Hawkins had an emergency and could not be with us, so we will go right to Dr. Mirer.

Dr. FRANKLIN MIRER, UAW: Thank you very much. It's difficult to know what to say, other than to thank you for putting up with being pounded with all of this information time and again.

I think the technical lesson from the toxicology session, and some of the others that flow from it, is that we cannot find the magic bullet that will solve the problems faced by workers exposed to machining fluids. We can take some comfort in knowing that some of the worst known toxic agents in the fluids have been removed; that the PAH level and nitrosamine levels are lower, although they are still there; that some of the chlorinated paraffins, are gone but others still remain; and that we now understand the bacterial process a little bit better and the hazards it can pose. We can take pleasure particularly in that the exposure levels have gone down from where they were in the past. But as John Howell said, we still have a lot to do. If there was one message from the Symposium for the people that work with this problem day to day, it is that this is real, and there has been an enormous amount of scientific effort devoted to it. We are not talking about a nuisance, we are talking about something that is serious and needs to be worked on. So, in one sense, while we have a take-home lesson at the national level, I would hope that you would be able to address at the local level the problem of getting everything that's there already working. Look at the changes that you can make immediately and try to drive those levels down with what you have, and with what you can reasonably achieve in the near future.

What's the technical lesson that we have here? I think we have an ongoing respiratory problem that we are all going to have to work a lot harder to keep in control, as these case reports of

hypersensitivity pneumonitis prove.

Now let me talk about the broader issue. When we talk about living in an ivory tower, I think I'm the one here who really lives in the ivory tower, because we're standing here today looking at ways of working together, and I think we will work together, and I thank AAMA and ILMA for their cooperation and really, for taking a very risky and advanced and positive step in holding this Symposium. We have also been reminded time and again this week that the NIOSH folks, the do-nothing bureaucrats that we want to get off our backs are here, probably in secret, working on their day off, and they don't know how many more days off they are going to have in front of them. That budget conflict which has shut the government down is a conflict over a budget that is going to cut OSHA enforcement by a third, close half the OSHA offices, eliminate all NIOSH training programs, and cut the NIOSH budget by a quarter that leads to another quarter and another quarter, and then it's all gone. The budget includes a 25% cut in EPA, which includes the Toxic Substance Control Act, which would level the playing field with regard to the ingredients in these materials. We are in the middle of really what I hope is not a turning point in our efforts in safety and health. But it could be a turning point if we go back to where we were in 1970, but hopefully not to the exposures that we had in 1970.

So as we are leaving here, I think we all have some things to do. We have to remember, how do we get to the cooperative arrangement? There was a lot of struggle and conflict in getting to it, but we are here now. We have to move forward, we cannot lose our momentum. For us up here, we should not lose the momentum we had, as we did back in November a year ago. We have to move forward with trying to reach some reasonable solutions, and for you that may be listening to this for the first time, you have to go back and not lose the momentum and commitment in controlling those exposures at the plant level. I guess I'm an optimist, hope to be an optimist, so I think that if we were to come back again in a year, we would be talking about and

sharing the control successes we have enjoyed in the past year. Thanks very much.

Mr. DAVID FELINSKI, AAMA: Thank you Dr. Mirer. Dr. D'Arcy?

Dr. JAMES D'ARCY, General Motors: Well, you people do deserve a lot of recognition for still being here - this has been a long week. I would like to review the session on the epidemiology of respiratory effects that took place on Tuesday, and then make some general comments about the overall Symposium. During the respiratory effects session we heard about surveillance data, and certainly this has some limitations, but this was certainly the 'amber traffic light' that Dr. Fine talked about; this does raise a lot of serious questions. We know about the published Kennedy study and the follow-up Robins and Kriebel studies that expanded on what was shown previously. Robins was able to provide a more comprehensive exposure assessment, because he knew what to look for. Robins also identified the interaction of exposure with smoking and lower baseline lung function. The smoker effect is something that needs to be examined further. Finally, there was the Kennedy longitudinal study which promises to have the best of all information here. This is the type of study you would like to be able to do, and we have not been able to do it in the past, partly for economic reasons . . . we have not been hiring new people, but at any rate, that promises to be an interesting study. We also discussed what the significance of respiratory changes are. Are they real? Are they adverse health effects? We don't know.

From that, we had a very lively discussion both with the Discussants and the audience. It was a very good time, and I think that really, we came to two conclusions. One is that these changes do take place, at least among a subpopulation, and the second conclusion is that we are not going to worry about what they necessarily mean. We do need to do more research. That is what research is for - to show

that you need to do more research. But I think what we decided was that remediation efforts need to be undertaken now, and not wait until we understand fully what causes this and what the significance of it is. And I can say for the auto companies, and you have seen evidence of it here in the last several days, that we **have** taken efforts, and we **are** putting together the database that Dr. Mirer would like to see, where we can prove statistically that we are reducing concentrations. We have good evidence of that within General Motors, and I don't have access to the data of the other folks, but I am sure that probably the same is true over there.

I think that we came to the conclusion that we are going to keep moving in that direction, and I think that we can accomplish what everybody would like to see. And finally, I think that we have accomplished what we set out to do here at the Symposium, which is to try and put all of the science of this very complex issue out in one Symposium where we can look at what the health effects are, and what the exposure assessment protocols should be. While there are problems, we have tools that we can use, and ultimately we are going to control any adverse health problems

I was very honored to represent the auto companies as chair of the AAMA organizing committee that put this Symposium together. Something that we have kept saying here for the last several days is "AAMA did this, that, or the other thing," but in reality, there was one person at AAMA that did all this - Dave Felinski. AAMA is an acronym, but it does have a name too. Thank you very much.

Mr. DAVID FELINSKI, AAMA: Thank you very much Jim. Dr. Chan?

Dr. TAI CHAN, General Motors: I want to extend my congratulations to every one of you, and I commend you all for your commitment to improve the industrial metalworking fluid environment by being here this week for four full days. We have had a great deal of high science

presented this week, and I believe it has been a good educational experience for all of us. As we depart from this Symposium today, we have to ask ourselves three questions: What have we learned? What are we going to do next? and How can we work together to practice preventive medicine in the workplace?

Those of you who have seen the science movies *Outbreak*, *Aliens*, or *Andromeda Strain* might remember the common theme in those movies: a deadly biological species which caused havoc. The control strategy taken in each of those movies was to identify the species, isolate the organism, and kill it. It was fairly straightforward. With metalworking fluids, the situation is not that bad, not that hazardous, but there is some analogy. We are dealing with a microbial component in these fluids, and there are more than one causal agent. The outbreak of Pontiac fever in 1981 in Windsor was as bad as it can get, but we have yet to implement a common and effective strategy to control the *multiple* causal agents in the industrial metalworking fluid environment.

So, what have we learned? As Frank Mirer pointed out earlier, there is no silver bullet. And from the presentations we have seen and heard, total particulate can best be described as a fuzzy exposure measurement. It may be the best we can do as an overall exposure index right now, but we have to improve on that. There has to be better analytical measurements which are a direct measure of the causal agents. Metalworking fluids and metalworking fluid aerosols are complex mixtures which contain a significant microbial component which is one of the many causal agents. I am convinced that the observed health effects are likely a synergistic effect from the many components in the metalworking fluids.

We have discussed a lot of scientific knowledge this week; scientific knowledge and analytical knowledge, and this week we have all learned about the latest results from the epidemiology and toxicology studies conducted over the last ten years. I believe it is now time to focus our attention to assessment and control. As I said before, that is where the rubber meets the road. If all we do is enrich the scientific literature

and don't make any corrective actions on the plant floor, then we have failed and we have not done our job. We need to focus our attention and shift our resources to two specific areas: Develop and establish a standard sampling and analytical method which reflect a direct measure of the causal agents. This may be the first time to specify a workplace bioaerosol sampling method. Let science drive these sampling standards and methodology. Second, develop new control technology and strategies to enable those of us in the auto industry to practice DFM, Design for Manufacturing and DFS, Design for Safety from a systems approach. We have to design safety into our manufacturing process, and design it right. Retrofitting reflects poor planning and poor engineering.

Finally, we need to engage everyone here, the chemical companies, the user community, the workforce in the trenches, and the scientific community to improve the industrial metalworking fluid environment. On a personal note, I am pleased to be part of the NIOSH-GM-UAW partnership to focus on occupational health and safety research, and we will soon begin our joint projects on metalworking fluids. Working together, we will be able to accomplish a great deal through inspiration, innovation, and most importantly, implementation. Let's do what is scientifically correct and provide a healthy environment for the American worker. Thank you very much.

Mr. DAVID FELINSKI, AAMA: Thank you Dr. Chan. Dr. Lick?

Dr. HENRY LICK, Ford: Thank you Dave. I too would like to thank ILMA, OSHA, NIOSH, EPA and everyone else who has had a role in this Symposium. As the cover of the Program shows, a lot of folks were involved, and it is really significant to get this many people focused on a particular subject for this length of time.

We talked about basic Industrial Hygiene principles in this Symposium. We did not talk too

much about anticipation, although in some respects we are talking about anticipation within the realm of new technologies. We talked about recognizing what the problem was, we talked about evaluation, we talked about control, and you have to look at these things in this fashion. We presented a great deal of information, and did a sort of data dump on you. You sat here all through this week and listened to the myriad of papers presented because we wanted to put as much information out as possible. We did, but the unfortunate part is that it was probably a little bit painful at times, judging by the frustration expressed in some of the questions.

One thing you all have to remember is that business is changing and it's changing rapidly. The metalworking industry is changing rapidly. That is good in a way for this particular subject, because it presents an opportunity for us. If we miss the boat in getting started on this issue and don't come to some conclusion on direction and control, then this whole thing will be a lot more costly. We can regulate things and say we are going to get down to point five, but if you look at the enormity of this problem, it is huge. We have people here from the auto industry; we have the fluid manufacturers, and people from other industries as well, but we did not have the automotive supply base here. We didn't have Borg Warner here, we didn't have Dana here, we didn't have the big companies here let alone all the small tool and die shops. You have to remember all of this as we go and seek a solution to this issue.

Regarding the epidemiology, I too, like Larry Fine, appreciate Gordon Reeve's remarks, although I interpret them a little differently. It needs to be a priority, and whether it's the number one priority or not, that is open to debate, but if we wait for that debate to be settled, that becomes very foolish because we will have missed the business opportunity to do something, so we cannot afford to wait. Something is going on, and if you look at some of the respiratory disease, you are tempted to say that something is happening from that area. One of the things that is interesting is that lung cancer does not appear to

be showing up. I find that strange, especially when you look at the way the exposure is generated, but forget all that. There is something happening.

When we started looking at this issue at Ford, a lot of us got together and concluded that we were not likely to determine the precise causal agent or agents. If you view it as just microbial, you are going to miss the boat. If you view it as just dermatitis, you are going to miss the boat. But we all did agree that if we don't do this right and if we don't manage our metalworking fluids in the right fashion, then it will be very costly. We knew that we had to view it as a system, but a very complex and costly system. There are probably 18 or 19 elements, and then you multiply that by about another 10 or 15 elements that can and do interact. It's complex. If we want to get to point five, and point five can be reached; we have seen it, and we just had a nice testimonial from an hourly employee [Mr. O'Neal] at Cleveland Engine. It can be reached, but Cleveland Engine didn't reach their point five or less by just looking at enclosures, they looked at the collectors, and they looked at their entire coolant management operation from a whole process or systems perspective. Remember when we started out today, I talked to you about systems thinking and process orientation; it's the only way you are going to get there. So there are plenty of opportunities to do things right, and looking at it from the business side, if you manage your fluids better, you are going to save a whole passel of money. If you don't dump a 20 or 30 thousand gallon system every few weeks, you are going to save a lot of money. If you manage your compressed air better to reduce or eliminate mists, you are going to save a lot of money. If you look at how you buy your collectors, you are going to save a lot of money. This is not just something that you talk about, it is serious business. If you look at what the machine tool industry means to this country, it is a serious issue, and we just can't afford to say that it's a collector problem or it's an enclosure problem; we have to look at it as a system.

I think we need a phased-in approach to

this issue. Retrofitting, from my experience, and I started out in this business of mist control as a soldier in the field. I would like to think that I'm still a soldier in the field, but that is not correct; my shoes don't get dirty anymore, but they don't get dirty because in many places, there's no coolant to get them dirty anymore, so retrofitting is not an appropriate solution and we have to do this over a phased in period of time. We have talked about the complexity of this issue; we have talked about the number of shops that are out there. We are not going to get there overnight, and we have tried to make that point clear. It is continuous improvement, and we have got to work on getting things better for the worker. Yes, we can substitute one material for another, but then we may have another problem, so we have got to deal with all these issues.

Okay, where do we go from here? We have got to take the incentive and momentum and build on it. When we made our presentation at the NIOSH meeting last year that AAMA would have a Symposium, but that we couldn't put it on for a year, it really worried me that we wouldn't or couldn't keep the dialogue going. If you have been in this business a long time, the issues that have polarized us like the asbestos issue, the formaldehyde issue, all of this polarization that has happened to us as we discuss issues. We cannot afford this here. This issue is too complex, it means too much, it will cost the country too much money. We cannot afford to waste the country's money because as Frank [Mirer] said, the OSHA budget is not there. But while the country says something is wrong, they don't want to waste money on frivolous things. And we are not talking about frivolous things here, but if we get off on tangents, we'll have the same effect. So we want to open the dialogue on regulation. Personally, I have talked to Joe [Dear], AAMA has talked to Joe. We do not want this to end up in rulemaking in the classic sense. We may end up with a rule, but we want to make sure that suppliers stay in business, that we and the formulators stay in business, and the country ends up being strong and the workers are benefitted. I started out, like I said, as a soldier in this business,

my father was a laborer, and that is why I'm in this business, to make things better for the worker. And I think we have, we have achieved a lot of improvements over the years, and we will do better, so, there you go. Thank you.

Mr. DAVID FELINSKI, AAMA: Thank you Dr. Lick. Turn about is fair play so I'll put the timer on myself and I'll be very brief here. First of all, I would like to quickly address one comment that Frank just made in his closing remarks. From my office, it doesn't seem like we have lost very much momentum since the NIOSH meeting last November because I've been embroiled in the planning of this Symposium ever since then, and actually for me, this is just the event happening. The real work for this Symposium is going to begin with the Symposium Proceedings yet to be done. So for me, it doesn't feel like any momentum has been lost. About the Symposium Proceedings, as I said, I am very committed to having those published as quickly as we possibly can. I understand that Proceedings are usually about a year in the making. I am committed to having them published in three months or less, and hopefully less, so I just want you to know that. Also, there have been a few requests for additional copies of the Symposium Proceedings. Obviously we have announced here . . . oops, there I go, I've exceeded my time, . . . um, we have announced it . . . God, that beeping is **really** annoying . . . thank you . . . how did you guys speak through that? Who ordered this thing? Oh I did, that's right. Anyway, as far as extra copies of the Proceedings, you will of course receive a copy in the mail as part of your registration fee. If you would like additional copies, you can contact the AAMA Statistics Department at 313 / 872-4311.

I would also really like to acknowledge all of the Session Arrangers here on the stage, and especially the Symposium Planning Committee, which of course includes the Session Arrangers but also several other folks, some of whom could not be here this week, like Ed Stein from OSHA and Andrea Blaschka from EPA, and several other organizations and associations who helped make this possible.

I would also like to acknowledge all of **you**, and I thank you for taking four days out of your very busy schedules in order to participate in this landmark Symposium.

And lastly, I would like to acknowledge one person in particular; I don't think he is here, although I did send him a complimentary registration to the Symposium. **Doug Hodgkins** used to be Manager of Industrial Hygiene for General Motors, and I think it was largely his vision that set this Symposium in motion. It happened prior to the NIOSH meeting, and it has snow-balled from there, but it was really his vision that I think initiated this whole concept, so I would just really like to acknowledge Doug. He is currently working for Detroit Edison, and I understand he is up a lot of utility poles these days, so that's probably where he has been these last four days.

On behalf of AAMA and our members, I thank you all very much.

