

MINUTES OF MARCH 22, 1971

MEMBERS PRESENT: CHAIRMAN: Virgil Getto, Melvin Howard, Frances Hawkins, Norman Galser, William Swackhamer
Roy Young, Roy Torvinen

Chairman Getto called the meeting to order at the hour of 10:20.a.m.
GUESTS ARE DOWN IN ORDER OF TESTIMONY:

The purpose of this meeting was to hear testimony on:

AB 122: Makes sale, distribution and use of DDT unlawful

AB 280: Regulates application of pesticides.

AB 281: Empowers state department of agriculture to regulate use of pesticides.

The first speaker was Dr. Emil Marak, Chancellor of the University of California, Davis; and authority of pesticides, He is a member of the Assembly Advisory Committee of California on technology.

Mr. Marak gave the following remarks concerning the above mentioned bills:

I have looked at the three bills you sent me, and I think briefly that AB 280 and 281, I feel the state should go with these bills. I can't speak so well for AB 122. I have made some notes on AB 280, and as I recall, you have a different situation in Nevada as do we in California regarding close lands, neighbors, when you talk about a farmer and relative lands. We restrict him pretty much to his own lands, now I have no strong feelings on that, I just want to point this out to you, when you talk about liscensing a man, where do you draw the line? But I think all and all these bills are going in the right direction. I think we are going to have to have things of this type and I would like to see the states take them over. I would also like to see the states be aware of what is happening at the national level and be certain we don't get into conflict with them. I am leaving with you their statement, for the record, of the enviornmental protection agency on their statement regarding DDT, 245T, Aldrin, Dieldrin, and some others they will look into in the future.

I would point out that they have cancelled these, which does not mean that they have cancelled them, they have served notice on the industry that they have to have hearings. The word cancel means suspention and the word suspension really means cancel, when they are cancelled they have to have hearings. The reason I brought that up, is that I think in the bills there is a place for hearings. And this is a very

important thing. I think you are going in the right direction. On AB 280 and 281.

116

Mr. Getto:

Do these bills correlate with the bills around the states around us ?

Mr. Marak: Yes, I wouldn't say the wording is the same, but they are pretty much along the same lines. Again I would like to emphasize I think the states should take the initiative on this and be very constructive and I think if they don't we will get into nibbling away and one thing and another thing and eventually we will end up with an impossible situation. I think I like most about this is that it puts it in the hands of the Director of Agriculture. This is important, he is the one who knows he is the one who uses judgment and if he does a bad job then he should know about it.

Back to the bill, on page 3, line 25, is in variance with what California has. There may be a reason for this in Nevada, you may not have a large number of applicators and things of this type.

We require examination of people that we license; on line 45 through 49 on page 3, and I would presume that applies here too.

Page 4 line 13, where the license period is for the fiscal year, I was wondering why he was restricted only for one year, does he have to take an examination every year?

Mr. Burge; just for a renewal

Mr. Marak: I like 22, 23 and 24 page 4; Mr. Marak directed a question to Mr. Burge about drift insurance.

Mr. Tad Dickerson answered: Yes, I had it last year and as of this year I can't see any change.

Mr. Marak: If you can get it, I think that is fine, some of the Insurance Companies are not insuring.

Mr. Burge: this insurance is optional not mandatory.

Mr. Marak: I just brought this up because this seems to be the way the insurance companies are going, and we are getting more and more suits in this ecology thing. I think that is what I am coming to down further, and some of them are pretty wild I'll tell you.

Mr. Marak directed the committee to lines 43, 44, 45, 46, of page 4; and the proof; Any person injured by the breach of any such obligation shall be entitled to sue in his own name in any court of competent jurisdiction to recover the damages he

Dr. Marak cont'd

117

may have sustained by such breach, providing each claim is made within 6 months after the alleged injury.

Mr. Glaser: They have made a point in this bill AB 280: changing the words "economic poisons" to pesticides all the way through the bill, just what is the difference between economic poisons and pesticides?

Dr. Marak: I can visualize, I can't think of one right now of an economic poison that wouldn't necessarily be a pesticide. I suppose when you think of a pesticide you are thinking of agriculture.

Mr. Burge: The other states are all doing the same thing, we were only trying to bring our own laws up to date. The definition of a pesticide is defined on page 2 line 25.

Mr. Glaser: Most all agricultural sprays like DDT would be a pesticide.

Dr. Marak: Oh sure, it would go well beyond that, 1080 rodenticides I would think would, and the herbicides
Dr. Marak left the committee report on pesticides.

When they moved from HEW over to Environmental Protection Agency, they were going to broaden it to include hazardous chemicals and they got so involved in defining hazardous chemicals they decided to let it stay as pesticides, and in my opinion they haven't even clarified that yet.

AB 281:

Dr. Marak: I made three general comments on this bill Containers, Waste, and Hearings. I don't know, I think the hearings may be important in this bill. If this is clarified, then, I think this is very important, this is what I am trying to say.-- the hearings. Referring to REASONS UNDERLYING THE REGISTRATION DECISIONS CONCERNING PRODUCTS CONTAINING DDT, 2,4,5,-T, and ALDRIN AND DIELDRIN. This became very apparent when the environmental agency, it is very apparent you can get some very strong statements made without basis, but when you can back it up with information it is quite a different story. I think it might be well to put this report in the record so you will have it.

Page 3 line 9 you refer to toxic containers, specified pesticides, etc. but that brought to mind the matter of handling containers after you are through with them. It is probably one of the greatest national problems we have - that doesn't really tie in here, but I am just wondering that if this isn't something that should be taken into consideration.

This again, is in the hands of the director of agriculture. That is where it should be. I might point out that this is one of the most serious problems we have with pesticides. It is the material that is left - you may get into utter confusion. There is a chemical showing up now

on the horizon - PCB and these have been used in transformers and in paints, brick linings. You take DDT and go up the ladder on a series of related compounds, then these things over-lap. It wasn't until recently that we realized we didn't have a good chemical method to differentiate between them. This stuff, the containers are now leaking into streams etc and they are picking it up in fish and attributing it to DDT. We probably should go back and re-analyze the whole thing and it may be PCP. Some of the source is from the containers.

118

I think the Director of Agriculture may be well aware of this and we may have to put in some pretty strict regulations. PCB is not a pesticide - this is the point I'm getting at. It is used in a whole galaxy of things - plastics, paints etc. It just shows you what can happen

For example, there was a farmer in Connecticut whose milk was impounded because it had DDT in it. When they really investigated this, they found it was not DDT at all it was PCB. The analysis was wrong. But where did it come from? They found that, in his silo, he had plastics which volatilized and got into the feed. From there to the animals and into the milk. I don't know what you do about it - it's not a pesticide.

I am going to leave with you, two other things from the Secretary of Agriculture. They are brand new - review of pesticide use in California. They are wiping them out - a few pounds of PCB have been used there.

(Reading down from page 3 now) Under A, 16 - is good. On down to 22, 3-4, they are good. I would judge this would fit in on page 4, Line 36. "Any substance or mixture of substance, including any living organism, or any product derived therefrom," this would include any such things as a Polyhedrole Virus. This is a thing that is being tried out now - a living virus. There is a bacteria too, that ought to be considered. What I'm trying to say, is that the Director of Agriculture ought to have control of this kind of thing.

(Wanted to emphasize that substance, including any living organism should remain in there)

On page 5, you have under 8, specifically mentioned, arsenic. I was wondering if you would want to mention other things such as lead, mercury etc. There is a strong push to get away from any heavy, persistent metals possible. I think the logical thing is to leave it in the hands of the Director of Agriculture.

I have no comments on page 6.

I think your fees on page 7 are very modest.

The hearing I'm talking about is mentioned on ^{Page 8} line 44, I think that's important and there is flexibility which I think is good.

Dr. Marak cont's

119

On page 9 it is rather interesting you do mentioned arsenate, lead, fluoride, things of that type still don't mention mercury.

One of the things I worried about, it has been a real serious problem I don't know whether you use much of it in this state or not, are treated seeds. I think we will be out of Mercury treated seeds before long. Do you know why they treat seeds? This is to prevent when certain mold attacks even insect attacks the mercury protects the seeds until they get started. The flareup in mercury has unfortunately resulted with agriculture being the whipping boy. Agriculture has got to find something else.

Mr. Getto: Do you feel that this bill covers the above.

Dr. Marak: There may be other treatment of seeds.

Mr. Getto: The department would have the authority to do this?

Dr. Marak: The department should have the authority and if it isn't clear enough for the department to have it spelled out so they do have it.

The real danger in seeds is, you buy 5000 pounds and you probably plant 4500 pounds what do you do with the other 500 ? Some uninformed worker may take it home and feed it to his pigs and eat the pigs and then get poisoned. This is what happened in New Mexico to a family.

Mr. Getto: You can say the same thing about pesticides can't you?

Dr. Marak: Yes, this is why I mentioned the containers. I think we are tightening up on those, but the seeds look like harmless things.

AB 122:

Mr. Getto: what do you think about AB 122?

Dr. Marak: I think it is unwise for many reasons, one is, Is the legislature going to bother itself with every chemical; there may be thousands of them. I can just see this opening up. The enviornmental protection getting into these things. They are going to end up employing more lawyers and people studying this than they have ever had, for years to come. So why not follow or keep in line with the National Enviornmental Agency is doing. I am personally opposed to shutting out anything absolutely, because some day we may have a need for these things and if we do we don't have it. There may be a need for DDT for some specific purpose, let us retain the possibility, but let's have complete control. I have been working with another committee ad hoc committee of a so-called cabinet committee on pesticides.

Dr. Marak cont'd

trying to set up standards and what the government wants to do on it's own lands, that's all the departments. We are trying to categorize the various pesticides into general use. Where the sky is the limit, like pyrethrum or something like that where they are harmless, and restricted use would apply to everything where the director of agriculture presumably would have very tight controls on when and how and all this. And finally by prescription only. A very interesting thing, DDT is one that is suggested to be on the prescription list, and not necessarily because it has been shown to be harmful to humans, but because it is so persistent in the environment, there has been some evidence of harm to certain types of wildlife. But they are not wiping it out. On the other hand the other one that is suggested, this is still in the mill, the suggestion, to put on the prescription list 1080. Now this is a very toxic substance that is used for rodents, rats and the main reason for putting it on the prescription list is the possibility of secondary effects, if a dog eats a rat that's had it the dog will get it too. So we want to have it very carefully controlled in the hands of people who really know what they are doing. I will be glad to read you what the environmental agency has had to say about DDT. (it's in the report he submitted). What they are saying is that our commission report points out; That there is no evidence that there is harm to humans. When it comes to harm in wildlife they say there is harm evidence in some things but it can also be useful chemical it's use has gone down, it's dropped from a peak of 79 million pounds in 1959 to 10 million pounds in 1970, and it is still going down, it will probably go down to hardly anything. So they feel right now, that they ought to have hearings on it. Probably I can read you this; This is after very extensive studies with respect to environment; "The present scientific evidence indicates that there would be no significant hazard if only carefully limited amounts of DDT were released into the environment by virtue of restriction of DDT to the most critical uses. Achievement of this goal would require that fields be checked to assure that the infestation justified treatment and that the dosage and application methods were not wasteful. Without such assurance, experience has shown that use of excessive quantities could become routine and that the ease of availability of DDT would permit much of it to be used for nonregistered purposes."

Mr. Getto: Would you point out what would happen if we outlawed DDT.

Dr. Marak: I think we would get along, the whole thing is that probably internationally you would have the largest impact. Most of the DDT manufactured today is used overseas. It is used mostly in malaria control. The state of Nevada need not worry about that this is a Federal thing. The thing that bothers me though is that if we outlaw it and we get an emergency where we need to use it, it should be available, so I see the better course, is to restrict the daylight's out of it but if we have it, even if we don't have it, we can start manufacturing it on a limited scale if we

need it.

Mr. Glaser: You indicated in your testimony that you felt that flexibility should be given to the department of agriculture to regulate these chemicals, pesticides, etc. You indicated also that there are other things in our environment now other than agriculture pesticides that could be influencing the public opinion against some of these things we could come dependent upon in agriculture particularly DDT. To pursue the DDT question a little farther, I've heard it discussed pro and con that DDT never breaks down and it is in the environment forever, goes into the water etc. is this true?

Dr. Marak: No, not entirely, it is yes and no, sure it breaks down eventually, but I might point out to you that in our commission report we recommended phasing out DDT in two years and this was based on its relative persistence.

It is estimated that one power plant in Detroit burning coal, puts into the air in one year 25 hundred of mercury.

Mr. Glaser: Is there any way we, the legislation, could tie into industrial

Mr. Marak: I don't know, but I will say that if a thing does become involved in agricultural products, if the director of agriculture couldn't be involved in it even though it is not a pesticide.

Mr. Getto: What you are saying is that chemical that is not defined as a pesticide shows up in an agricultural product that the director of the department of agriculture should be able to have some control over it?

Dr. Marak: Without knowing all the ramifications, it seems to me he should be able to have some kind of say or input into it.

You could very well be having individual chemicals come up; this report deals with DDT, 2,4,5,-T Aldrin and Dieldrin and I would guess that 2,4,5,-T is very important in Nevada at least as brush control, is that true.

Mr. Burge: That correct.

Dr. Marak: I have felt myself, being on the sidelines, and being accidentally privily to some of the things that went on, that the handling of that was actually immoral, I feel the way that was handled was pushing a panic button if there ever was one. In reading the report of the environmental protection agency on 2,4,5,-T, I would say it is very reasonable.

NEXT PERSON TO TESTIFY: Peter Tang; Owner of Nevada Pest Control Service,

Mr. Tang cont'd

I would like to comment on two and make some requests on two sections on AB 280 AB 122; I suppose being a pest control operator I should make my request on DDT first. I would point out that there is a very restricted need for DDT in the extermination and pest control business. Until such time it is banned nationwide. The need for this use and comments on the slight amount of contamination are as follows: In the extermination business, it is necessary to exterminate certain small rodents, which have a certain public health aspect, house mice, field mice are serious food contaminators and they are transmitters of some very serious fatal human diseases. In our business we use 50% DDT dust in very minute quantities as tracking powder indoors to exterminate mice. We have hospitals, resturants, gambling casinos, this DDT is in areas in the open, any other chemical substitution could be harmful to humans. DDT is only used in amounts of 2 ozs. in the large areas, used only by qualified exterminators.

Mr. Getto: The use of DDT in this respect is not consumed by the rodent.

Mr. Tang: Technically I believe it is, it gets on the rodents feet and eventually it gets in the mouth and within 24 to 72 hours they will die.

Mr. Tang felt it was better to use DDT rather than Aldrin because of the fact that Aldrin is much more toxic.

Dr. Mārak agreed with Mr. Tang.

Mr. Tang: I would like to comment on AB 280; page 3 line 26; regarding the gardners applying pesticides without being examined or licensed; My comments would be that I realize, that for years gardners have applied pesticides and insecticide in a dry form in fertilizers spreaders without being licensed in pest control operations. Although this AB 281 would legalize this operation, which is fine, but it allows them to get into liquid spray form pesticides which is far more harder to use carefully, and require considerable more knowledge. I would further suggest that to let a group of people unqualified, is in direct opposition to the present trend to prevent environmental contamination. My own feeling is, that the bill should stay as it is with a amendment, I feel that with such a small operation as gardners have, that perhaps they should be required to take some kind of orientation courses, perhaps from the agriculture department which would give them the safety features and some knowledge in applying these pesticides.

Mr. Swackhamer: What would you do to make sure these people attended the classes.

Mr. Tang: Yes I suppose that would be true.

NEXT TO TESTIFY: HOWARD SIMON: OWNER BUGS LIMITED PEST CONTROL LAS VEGAS, PRESIDENT OF THE NEVADA PEST CONTROL ASSN.

Mr. Simon cont'd

Continuing on with the comment on gardners, In conversation with all Pest Control operators in Southern Nevada, we have concluded that section 2 should be eleminated;(sub-section 2 of Section 22) from the bill. If anybody wants to apply pesticides they should apply for a license. We don't believe that if you are going to restrict the intire industry you should leave a loophole for anybody to go out and apply pesticides. There are all kinds of back-pocket operations going on where a fellow has a job with one business, he has a couple of days off and he goes out and takes care of lawns, he has absolutely no idea of the ill-effects pesticides could have. As professionals we are trained in safety, and this is one thing we would like everyone to continue with. I would just like to make one comment on the bills before you, and that is that the urban pest control operators are differentiated from farmers and from flyers, and this is taken care of through the department of agriculture. We believe the chemical should be applied by professionals.

Mr. Getto: Did you agree with the comments earlier?

Mr. Simon: the vast majority of them, yes, especially on AB 122. With the elemination of DDT, we have several uses of DDT that are extremely important. I don't believe that all the chemicals we use as a pest control industry could really infect the main intersection of any large city. Anything we use in a month's time couldn't really do to much damage to it. If it is used properly. We are in the business of keeping you homes completely pest free, because without the pest control industry you would be run out of town. If you didn't have pest control in such places as Los Angeles or any seaport you would be overrun by the rodents. There is one other point I would like to make, Dr. Marak brought it up before, and that is in Section 22 paragraph (c) of sub-sectio 1.; farmers applying pesticides for himself or for his neighbors this could go into many different facets, like if you own a motel and you have pest control equipment and then the guy with the motel next door sprays his place; these bills are very well put together and we don't object to any part of them except to what I am talking about right now. Just making sure the right people handle the chemicals at the right time.

NEXT TO TESTIFY: IVAN SMITH: EXECUTIVE DIRECTOR OF THE WESTERN AGRICULTURE CHEMICALS ASSN. SACRAMENTO, CALIF.

The Assn. policies, first we would definitely oppose AB 122, without any further comments.

Second on AB 280 and AB 281 we support the principle concepts we feel that if the authority is vested in the director of agriculture to regulate pesticide usage in the state, and this is where it belongs. We feel that these bills are accomplishing this and we want to lend out support on them. There has been some comment on pesticide disposal, which is a very serious problem, we just participated in a project in California to clean up all the empty pesticide containers that have accumulated over the 1969-1970 season. We have come up with completion last Friday so we don't have all the problem areas analyzed, but we do have some early recommendatinnns that have come out of this, I would like to make them part of the record here as possibly somthing to think about in future regulations from the department. We feel that when a pesticide container is empty during the spray process, that the container at that time should be rinsed out as thoroughly as possible with water, and this water put into the spray rig and used as water to go onto the crop which would be the safest place for this residue, thus it would make the container much safer. We found that we can remove as high as 97% of residue in these containers by doing this and it would be a simple process for the farmer or the licensed pest control operator to perform the rinse at the time the container was emptied and while he is spraying.

NEXT TO TESTIFY: JIM WOOD, MOSQUITO ABATEMENT CHURCHILL COUNTY, PRESIDENT OF THE NEVADA MOSQUITO CONTROL ASSN.

One little part here that has; before I go any further I am also opposed to AB 122: I won't go into it on the same grounds everone else has spoken about.

Section 21 of AB 280; I am very much in favor of both of these bills, we have seen the need for this and I am very happy to see that agriculture has taken the lead in this too. Now on Section 21, all state agencies, municipal corporation and public utilities or any other governmental agencies shall be subject to the provisions of the legislative acts; and any public operators in charge of any equipment by any state agency shall be subject to the provisions. The executive director shall issue a limited license without fee to such public operators which shall be valid when such public operators are active as operators on such equipment used by such entities, I would like to pose a question to Mr. Burge at this time; Would this mean a director would be licensed or every man in the department would be required to take this license?

Mr. Burge; One licensed man on the job.

Mr. Wood: Now what I'm wondering on this, When we come under state agencies or any political sub-division doing desticide application work, how is this going to effect a janitor or custodian of a hospital or a school ground? Inasmuch as he might

Mr. Wood cont'd

do some spider control. Now this is a pretty touchy area too,

Mr. Galloway: We realize that this would be a problem area and would have to be covered by rules and regulations of clarification of what personnel could be public operators.

Mr. Wood: What can we expect in the way of followup after the licensing has taken place, we are engaged in spraying vast acerages, in mosquito control, we get a complaint immediately afterwards about a dead animal, or we poisoned a bunch of fish will the department of agriculture have the tools, will the legislature supply them with the tools to have men who will go into the fields and do some of this followup work?

Mr. Galloway: The answer is staffing and money.

Mr. Wood: This is one of the things we want to see, so we do get more help.

That is about all I had to say of that subject, except the pesticide container disposal thing, and we do want to see something in the way of ordinance or state law that will cover this problem.

NEXT TO TESTIFY: DR. HARRY SMITH: UNIVERSITY OF NEVADA, PESTICIDES EXTENTION:

I would like to ask a question about AB 122: The way it is worded does it mean that the public health authorities would not be able to pick up DDT in the case of an encephalitis outbreak. The world health organization still contends that DDT is the material that can be used for mosquito control.

Also getting back to what Jim just said about this DDT resistance As far as Nevada is concerned, and this is what we are talking about right now, I don't believe, in my opinion, we haven't put the pressure on these mosquitos with DDT to build up resistance to this material. Another thing, another gentleman spoke about tracking powder, does this pose a health problem, these rodents he was speaking of, any time you have a wild type of mice moving into the area you have danger of pleague coming in with them. I believe that using DDT as a tracking powder is another point for retention of this thing. We at the University feel that DDT should be regulated, very definately. But it should not be made unlawful.

Mr. Getto: Could you give us an example correlating the amount of use of DDT in a casino compared to how much would be used on a thousand acres of cotton for boll worm?

Dr. Smith: a pound to two pounds per acre, compared to 1 oz. in the casinos. They do not apply the maximum poundage to the cotton. it is uaually 6-12 ozs. depending on the phase of be worms life.

We at the University do endorse AB 280 and AB 281.

the parts have already been brought up that we had questions on.

NEXT TO TESTIFY: MR. LEE BURGE, DIRECTOR OF AGRICULTURE, HARRY GALLOWAY OF THE SAME DEPARTMENT:

Mr. Burge: Mr. Chairman, just a brief statement about how these two bills we are concentrating on AB 280 and 281, happen to come about. There was a long period of study went into the material in the bill. Beginning with the Marak report, and you will notice that all the way through those bills the recommendations of that report are pretty well followed.

Then came the environmental EQ study last spring and not only our department, but other agencies spent a lot of time on what is the environmental EQ. and it was all developed and put into the Governor's Resources Counsel Report, in the final analysis. So then the EPA material is also considered in both the bills, as well as the proposed uniform pesticide laws from the counsel of state governments. Basically the Nevada laws were taken and amended to use the better part of all the other material. As a department we would suggest two actions on AB 280; page 3 subsection 2 of section 22; delete.

On AB 281: We would suggest a new section; stating, The Executive Director may issue a special use permit authorizing the use of a pesticide for a purpose other than that for which it is registered. The special use permit shall set forth.

- a. The name and dosage rate of the pesticide or pesticides or other material to be used.
- b. The pest or pests to be controlled.
- c. The crops or property to be treated.

The special use permit may limit the time, quantity, area and manner of application.

The insertion of this section is optional.

Mr. Galloway: I would like to comment on Mr. Burges' suggestion of this new section. At the present time under our registration of a label is basically regional or national in nature, the manufacturers don't prepare labels specifically for the state of Nevada, quite often and the University could run into this position, that we have a breakout of some exotic insect breakout in the state of Nevada requiring such use of material (malathion) however, there is no registered label in the use of this material for the use of ex-pest, under this special use permit phase the department then, under the criteria of state use = proper management etc. could grant a special use permit for that material to control that pest.

Mr. Glaser: suggested that the new section could be inserted around Sections 11, 12 or 13 dealing with special permits.

Mr. Burge: Mr. Chairman, you asked the question about the use

in a gambling house verses cotton field, this should be on the record, our use of DDT on cotton in Nevada, is practically down to zero. In fact the use of DDT this past year was down to 5% of what it was 10 years ago and this is not because of the fear from the administration end, that it is dangerous, but because of Food and Drug balances in milk etc. they have gone to substitute materials, but there is that fear that in the future you might need this kind of a material.

Mr. Swackhamer: Before the department people get away, I think we have a little problem between the two bills, 280 and 281, 281, there is a provision in it where the executive director is authorized after an opportunity for a hearing to defer these materials, unusual on 280 to examine the case of the applicant or the person who is doing this work. you've got the right to suspend him pending the inquiry. Do you think the words pending inquiry are going to give you any trouble

Mr. Galloway: I don't believe have, so far the suspension authority has been to, for instance, to suspend an airplane operator's license for 24 hour period while he repairs his equipment and puts it in a safe manner. Some phase like this uses made of that suspension thing.

Mr. Swackhamer: Do you think this should be strengthened in some way.

Mr. Burge: Let's give it some thought.

A gentleman from the audience, Las Vegas, stated, there is one thing in section 29 AB 280, I was wondering in the pest control operations in southern Nevada we have a lot of requirements and regulations placed in here, one thing I would like to see added is simply the compliance of all state and local ordinances.

Mr. Galloway: Mr. Chairman we have had this suggestion under consideration and the problem we have run in to is the authority of a state agency to enforce a public city ordinance business licensing requirement. For that reason in the past, we have not seen fit to adopt it by regulations. There may be some way by legislation that it could be done.

Mr. Simon: I believe in part what Harold is mentioning on the licensing the cities is that a lot of people, for example apply for a pest control license with a city and not have their state pest control license and they shouldn't be allowed those other licenses without the state license. If you could somehow refer to the city and make sure.

NEXT TO TESTIFY: WILLIAM BIXLEY: LAHONTON AUDUBON SOCIETY:
RENO, NEVADA,

We have voted to support AB 122, and we urge it's passage in this session of the legislature.

MR. BIXLEY: Cont'd

128

the evil effects of this pesticide on the environment and especially wildlife has been proven and publicized. Just one example, it came to my attention during the past year is that the brown pelicans off in the nesting place off the coast of California, the year before they had 1000 nestlings this year two. This is also the position of the National Audubon Society we can see no exceptable reason to delay it's prohibition any longer. The U.S. Department of Interior has recently banned it use on all public lands under the BLM and Forest service. In addition the states of Wisconsin and New York has outlawed it and several others are considering outright banning the severe restriction on it's usage. We are aware that the companion bills 280 and 281 give the director of the department of agriculture power to regulate and control the use of these chlorinated hydrocarbons and other dangerous pesticides, however, the language is too weak. The director is directed to endeavor to eliminate from use in this state of dangerous pesticides and by inference can prohibit their use only by areas and not state wide. Consequently we feel that outright prohibition of the most dangerous chlorinated hydrocarbons such as DDT should be a matter of separate statute like AB 122 and urge it's passage.

Now speaking as an individual, perhaps it might not be wise to pass AB 122, but if that is the case I would urge that the director of agriculture be given greater power as is indicated in the present language as to what he is supposed to do.

Meeting adjourned, 12:10.

b.smithers

Environmental Protection Agency

REGISTRATION DECISIONS
CONCERNING PRODUCTS CONTAINING
DDT, 2,4,5-T, ALDRIN, AND DIELDRIN

March 18, 1977

INTRODUCTION

Reorganization Plan No. 3 of 1970 transferred to the Environmental Protection Agency the principal responsibility for federal regulation of "economic poisons" -- a term which includes those chemicals which are commonly called pesticides. This regulation is contained in (1) the Federal Insecticide, Fungicide and Rodenticide Act (16 U.S.C. §§ 135-137) ("FIFRA") which requires registration of all pesticides introduced into interstate commerce, and (2) § 301 of Title 21 of the Food, Drug and Cosmetic Act (21 U.S.C. §§ 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318), which provides for the establishment of maximum allowable residues of such economic poisons in or on food.

Under these provisions, this Agency is required initially to pass on requests from pesticide users for registration of new economic poisons to determine whether they meet a variety of statutory requirements concerning safety and efficacy. The Agency must also review continuously previously registered economic poisons in order to insure continued compliance with these requirements in the light of the developing scientific data and concern for the public health. If the continuing review raises any substantial questions of safety, notices of cancellation must be issued which initiate the administrative process of review. If the threat is so immediate that it cannot await the resolution of this administrative process, registration of the pesticide must be suspended. At the conclusion of the administrative process, a final order with respect to registration is issued. In addition, a vigorous research and monitoring program is contemporaneously required to review the knowledge necessary to set meaningful tolerances.

This statement of reasons deals with particularity with the extent to which the registration should be continued for the following presently registered economic poisons: products containing DDT, 2,4,5-T, Aldrin or dieldrin.

The economic poison DDT (Dichloro-diphenyl-trichloroethane) was the subject of a decision announced by the United States Court of Appeals for the District of Columbia Circuit on January 7, 1971 (Environmental Defense Fund, Inc. v. Ruckelshaus, 499 F.2d 101 (D.C. Cir., January 7, 1971)). This decision required this Agency to take two steps: (1) to commence the administrative process for cancelling the registrations of all products containing DDT; and (2) to consider whether to

Environmental Protection Agency

REASONS UNDERLYING THE
REGISTRATION DECISIONS
CONCERNING PRODUCTS CONTAINING
DDT, 2,4,5-T, ALDRIN AND DIELDRIN

March 18, 1971

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Under these provisions, this Agency is required initially to pass upon requests from manufacturers for registration of new economic poisons to determine whether they meet a variety of statutory requirements concerning safety and efficacy. The Agency must also review continuously previously registered economic poisons in order to insure continued compliance with these requirements in light of the developing scientific data and concern for the public health. If this continuing review raises any substantial questions of safety, notices of cancellation must be issued which initiate the administrative process of review. If the threat is so immediate that it cannot await the resolution of this administrative process, registration of the pesticide must be suspended. At the conclusion of the administrative process, a final order with respect to registration is issued. In addition, a vigorous research and monitoring program is contemporaneously required to review the knowledge necessary to set meaningful tolerances.

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information available to this Agency warrants suspending the registration of these products immediately. Pursuant to this order of the court, notices of cancellation were issued January 15 of this year. (PR Notice 71-1).

The economic poison 2,4,5-T (2,4,5-trichlorophenoxyacetic acid) was the subject of a separate decision of the same court also announced on January 7, 1971. (Wellford v. Ruckelshaus, _____ F.2d _____ (D.C. Cir. January 7, 1971).) Under this latter decision, this Agency is required to consider further the earlier decisions of the Government regarding registration of this economic poison for use on food crops, and to articulate the factors considered by this Agency in arriving at such decision.

The economic poisons */ dieldrin and **/ aldrin have been the subjects of particular administrative investigation in the last year. This review has resulted in cancellation of the registrations for some uses of these products as well as an ongoing analysis at both the state and local level. In addition, a petition addressed to the Administrator of this Agency was filed on December 2, 1970, by the Environmental Defense Fund, Incorporated. This petition requested both suspension and cancellation of all products containing these two economic poisons.

In order to comply both with the orders of the court referred to above, and in order to articulate more fully the legal, scientific, and policy considerations on which our decisions are based, we have prepared the following statement.

I

THE STATUTORY MANDATE

Prior to the transfer of the responsibility to administer the FIFRA to this Agency, such duty was the responsibility of the Secretary of Agriculture. ***/ In the administration of the statute before 1964, the Secretary of Agriculture was compelled to register any economic poison upon the demand of any applicant for registration. In the case of a registered product which did not appear to comply with the provisions

*/ 1,2,3,4,10,10-hexachloro-6,7 epoxy-1,4,4a,5,6,7,8,8a-octahydro-exo-1,4-endo-5,8-dimethanonaphthalene.

**/ 1,2,3,4,10,10-hexachloro-6,7 epoxy-1,4,4a,5,8,8a-hexa-hydro-exo-1,4-endo-5,8-dimethanonaphthalene.

***/ The responsibility for the establishment of tolerances under the Food, Drug and Cosmetic Act was previously assigned to the Department of Health, Education and Welfare. Part of the rationale in establishing the Environmental Protection Agency was to consolidate these functions.

of the FIFRA, the Secretary was authorized to cancel the registration, but was required to issue a registration under protest, and to pursue any actual withdrawal of the chemical in a judicial forum.

In response to increased concern about the hazards of pesticides, the FIFRA was amended in 1964 by striking the requirement to register under protest and by providing instead mechanisms whereby the Secretary could initially refuse to register an economic poison, or could cancel or suspend an existing registration. The amendments provided administrative procedures by which an applicant or registrant could challenge the determination of the Secretary. The legislative purpose in enacting these amendments was to grant to the administrative officer charged with enforcement of the Act more effective procedures by which to protect the public by removing from the channels of interstate commerce any economic poison whose safety or effectiveness was open to substantial doubt (H.R. Rep. No. 1125, 88th Cong., 2d Sess. (1964)).

Statutory Tests

The statutory scheme pertaining to registration is complex. The thrust of the present FIFRA is to prohibit^{*}

- . those economic poisons which do not contain directions for use which are necessary and adequate for the protection of the public;
- . those economic poisons which do not contain a warning or caution statement which is adequate to prevent injury to man, vertebrate animals, vegetation and useful invertebrate animals; and
- . those insecticides or herbicides which, when used as directed or in accordance with commonly recognized practice, are injurious to man, vertebrate animals or vegetation (except weeds).^{**}

In applying these statutory tests, the final decision with respect to whether a particular product should be registered initially or should continue to be registered depends on the intricate balance struck between the benefits and dangers to the public health and welfare resulting from its use. The concept of the safety of the product is an evolving one which is constantly being further refined in light of our increasing knowledge. These considerations formed the basis of the Administrator's first final cancellation order issued after completion of the administrative procedures set forth in the statute. In re Stearns Electric Paste Company, I.F.&R. Dkt. 13, entered January 4, 1971.

^{*} Section 4c of the amended FIFRA authorizes the Administrator to refuse to register an economic poison if the data presented is insufficient to support the claims made for it, or if its proposed label does not comply with the various provisions of the Act.

^{**} The Act provides that products which do not conform with these provisions are "misbranded" and may not be registered pursuant to the Statute.

Burden of Proof

A product which has previously been registered may either be cancelled or suspended if the Administrator determines that the product does not comply with these same provisions. It is clear from the statute, the legislative history, and judicial construction that the burden of establishing the safety and effectiveness of a product remains with the registrant from the time of initial application through continued registration of the product.*

Cancellation

Recognition of the burden of proof is crucial to an understanding of the cancellation process. Judicial interpretations have emphasized that this initial step in the administrative process of deregistration is triggered whenever the Administrator determines from all the data before him that there is a substantial question as to the safety of a product. Issuance of a notice of cancellation is appropriate whenever it is decided that it appears that the registrant has failed to discharge his continuing burden of proof that the product meets the statutory standards including those pertaining to safety and efficiency. Environmental Defense Fund, Inc. v. Ruckelshaus, supra, Slip op. at 14.**/ Recognizing the various considerations which must necessarily underlie final decisions as to a particular product, the Court also stated that the

"cancellation decision does not turn on a scientific assessment of hazard alone. The statute leaves room to balance the benefits of a pesticide against its risks." Slip op., p. 15. See also S. Rep. No. 1379, 89th Cong., 2d Sess. 13, 27, 52, 64-65 (1966).

The cancellation decision is effective thirty days from the receipt of notice of cancellation by the registrant unless challenged by the registrant. Extensive administrative procedures are available to a registrant who chooses to challenge the notice of cancellation of

*/ See, e.g., S. Rep. No. 573, 88th Cong., 1st Sess. 5 (1963); H.R. Rep. No. 1125, 88th Cong., 2d Sess. 4 (1964); 11th Rep. of the Commission on Government Operations, H.R. Rep. No. 91-637, 91st Cong., 1st Sess. (1969); Environmental Defense Fund, Inc. v. Ruckelshaus, supra; Wellford v. Ruckelshaus, supra; In Re Stearns Electric Paste Company, supra; 7 C.F.R. 2764.1, et seq., formerly 364.1, et seq.

**/ Acting pursuant to this standard and as directed by the court, the Administrator has issued notices of cancellation for all registered domestic uses of DDT.

registration of his product (as well as for an applicant who challenges a refusal to register). He may exercise his statutory right to have a scientific advisory committee convened, or to have a public hearing held, or both.

Scientific Advisory Committee

When a statutory scientific advisory committee is convened, it is charged to receive and consider all scientific evidence concerning the registration of the economic poison in question. After consideration of all such data, the advisory committee presents its report and recommendations as to the scientific questions posed by the registration to the Administrator. The Administrator then makes a final policy judgment based on the scientific assessment and "all other data before him" as to whether to affirm the initial refusal to register or notice of cancellation or suspension. The registrant has the further option of requesting that the question be examined at a public hearing. At the conclusion of these administrative proceedings, judicial review is available to a registrant or applicant. (Section 4d.)*/ Pending the issuance of a final cancellation order at the conclusion of the administrative process, the economic poison may still be shipped in interstate commerce.

Suspension

The FIFRA also provides that the Administrator may suspend the registration of an economic poison immediately if he determines that such action is necessary to prevent an "imminent hazard to the public." This provision permits the Administrator to protect the public by prohibiting further interstate shipments of an economic poison so dangerous that its continued use should not be tolerated during the pendency of the administrative process.

The articulation of the criteria employed in applying the legal standard for suspension first adopted by the Seventh Circuit Court of Appeals**/is now well established. It was drawn from the legislative history of the 1962 amendments to the Food, Drug, and Cosmetic Act, which inserted a similar phrase in that statute,***/ since the

*/ However, section 4d provides that a final cancellation order may be stayed only by court order.

**/ Nor-Am Agricultural Products, Inc. v. Hardin, ___ F.2d ___ (July 15, 1970), vacated on other grounds en banc, ___ F.2d ___ (7th Cir. Nov. 9, 1970).

***/ On December 7, 1970, the Food and Drug Administration published in the Federal Register a definition of "imminent hazard to the public health" which invited public comment thereon. Both the FDA proposal and the comments have been reviewed by this Agency.

legislative history of the FIFRA amendments is silent on the point. These criteria received tacit judicial acquiescence in Wellford v. Ruckelshaus, supra, Slip op., at p. 5.

Based upon these legal guidelines, this Agency will find that an imminent hazard to the public exists when the evidence is sufficient to show that continued registration of an economic poison poses a significant threat of danger to health, or otherwise creates a hazardous situation to the public, that should be corrected immediately to prevent serious injury, and which cannot be permitted to continue during the pendency of administrative proceedings. An "imminent hazard" may be declared at any point in a chain of events which may ultimately result in harm to the public. It is not necessary that the final anticipated injury actually have occurred prior to a determination that an "imminent hazard" exists. In this connection, significant injury or potential injury to plants or animals alone could justify a finding of imminent hazard to the public from the use of an economic poison. The type, extent, probability and duration of potential or actual injury to man, plants and animals will be measured in light of the positive benefits accruing from, for example, use of the responsible economic poison in human or animal disease control or food production.

This Agency's responsibility for the setting of tolerances for economic poison residues in or on foodstuffs compliments the registration program. Safety from the perspective of the remote consumer is, of course, the primary and most pervasive criterion. Review must be continuous to reflect constantly changing knowledge upon which to base a determination of safe residues. As the Court of Appeals for the District of Columbia Circuit recognized, if there is no scientific basis for a reasonable estimate of safe dosage level "it would obviously be impossible to meet the congressionally imposed burden of establishing the safety of a residue of such a pesticide." Environmental Defense Fund, Inc. v. Dept. of Health, Education, and Welfare, 428 F.2d 1083, at 1092 (1970). Thus the tolerance mechanism functions to prevent unwanted residues from entering the human food chain and to reinforce the restrictions placed on a registered pesticide.

II

FORMULATION OF STANDARDS

The Court directed in Environmental Defense Fund, Inc. v. Ruckelshaus, that the "formulation of standards" applicable to the translation of the statutory standards to given factual situations be entrusted to the

Administrator, who "has an obligation to articulate the criteria that he develops in making each individual decision." Slip op., pp. 19, 20. The Court directed that consideration be given to the question of whether general standards could be promulgated that will determine whether cancellation or suspension was warranted in specific cases. However, the Court further recognized that such general standards might not be feasible. As an alternative, the Administrator was directed to articulate in each case the criteria applied. After intensive review of this issue, the Administrator has determined that it is not at this time feasible to articulate meaningful general standards which can be dispositive of all cases of cancellation or suspension. Rather, the Administrator has determined that the criteria applied to particular products be articulated on a case-by-case basis.

The problem of universally applicable criteria is also acute when facing the question of determining tolerances for pesticide residues on foodstuffs. In Environmental Defense Fund, Inc. v. Department of Health, Education, and Welfare, 428 F.2d 1083 (D.C. Cir. 1970), the Court articulated the concerns which bear upon the determination of tolerances for DDT on foodstuffs and ordered that the Administrator consider the feasibility of adopting zero tolerances for that economic poison. The Food and Drug Administration, the predecessor of this Agency in administering the Act, proposed reduced tolerances for DDT on December 5, 1970 (35 F.R. 18,531), prior to the issuances of notices of cancellation as to all registrations of DDT.*

After balancing the desirability of giving general guidance and the magnitude of the variables intrinsic in particular decisions, the Administrator has determined that the standards and criteria necessary for setting pesticide tolerances on foodstuffs must also be developed on a case-by-case basis.

Despite the impossibility of articulating meaningful criteria that can provide a formula for the decision of the particular case, as discussed above, certain general factual and policy variables can be stated. For example, any discussion of the term "safety" in the context of chemical economic poisons must recognize that each of these substances is by design toxic to some form of life. It is designed to kill or otherwise adversely affect a particular pest. Modern technology has not yet developed to the point where such toxic

*/ On January 4, 1971, the Environmental Defense Fund and the other parties to that litigation filed comments opposing this proposal.

substances can be designed with scalpel-like precision -- that is, toxic only to one discrete pest. Thus, economic poisons are to some degree ecologically crude because they have some undesired effect on various non-target species or strains of vegetation.

These unwanted side effects -- danger to non-target species -- are acceptable only to the extent that the benefits accruing from use of a particular economic poison outweigh these adverse results. For example, certain classes of economic poisons are particularly effective against disease-bearing insects. This class of economic poisons has permitted the dramatic steps in disease control which have been realized on a worldwide scale in the last two decades. Certain economic poisons have been vital to the general well-being of mankind by permitting vast increases in the amount and quality of produce available. The dramatic increases in yields per acre in the agricultural sector achieved in the last generation are to some degree due to use of various economic poisons. The chronic problem of world hunger has thus, to some extent, been ameliorated by use of these chemical substances. In addition, the persistent economic poisons -- those whose chemical characteristics permit their continued toxicity to pests over a relatively long period of time -- have the added economic benefit of reducing the number of applications of the chemical needed, and thereby lowering labor costs, and additionally lowering initial application rates.

Nonetheless, this Agency will not permit the triumphs of public health achieved in the past to be a continuing justification for use of a particular substance in the future. To this extent, the requirements for use of economic poisons in a relatively developed country such as the United States may force a divergence from what is permitted in the developing countries where the public health impetus for control of such diseases as malaria may require continuing use of pesticides whose side effects would no longer be tolerable here.*/ This Agency is fully aware of its statutory directive and duty to the public to place the dictates of health and safety over economic considerations in its scale of values. But health narrowly defined must be distinguished from the broader concern of environmental quality -- the synthesis of all of the variables in the ecosystem.**/

*/ As the Surgeon General pointed out in a letter to this Agency dated February 3, 1971, DDT is presently being used in foreign countries to protect some 350,000,000 people from the scourge of malaria. Ninety percent of this DDT is produced in the United States, and is distributed through AID and UNICEF. This cardinal role in world health is unaffected by our decisions as to domestic use. We do not presume to regulate the felt necessities of other countries.

**/ See Report of the Secretary's Commission on Pesticides and Their Relationship to Environmental Health, p. 261. (Hereinafter cited as Mrak Commission Report.)

Present use of the economic poisons in the United States is, of course, widespread. These substances are applied to approximately five percent of the total land area of the continental United States. At the present time, hundreds of chemical substances are used against over 2,000 particular insect and plant pests. There are presently nearly 45,000 individual registrations.

The particular products registered vary tremendously as to initial toxicity, persistence in the environment, and effect on non-target species. One of the reasons why the governmental decisions as to registrations and tolerances are most critical is that once certain economic poisons are introduced into the environment remote from the consumer, the individual has no choice as to whether or not to accept substances contaminated thereby. For example, in the Mrak Commission Report, the observation is made that "the hazards to health that stem from environmental exposure to chemical agents are usually beyond the capacity of the individual to control." This is particularly true for the persistent pesticides, such as DDT, the residues of which are now found in many foodstuffs and especially animal products available in the United States and in the adipose tissue of humans and other biota. Certain classes of health threats deserve particular searching. Positive results on laboratory animals from tests for carcinogenicity, teratogenicity and mutagenicity are particularly disturbing because effects are generally irreversible when discovered.

Yet it is not merely the chemical characteristics of a given economic poison which control its dispersion in the environment, since the means of application of the particular economic poison are also of cardinal importance. Introduction of a particular product by air or directly into the water will usually cause a much wider and faster dispersal than that of the same substance inserted into the ground.

In general the presently used insecticides vary in toxicity as one moves up the biological chain to more complicated animal life. Due to the persistence of certain substances and their accumulation in the food chain, some higher life forms may receive dosages of a particular substance manyfold more concentrated than is found in the ambient environment. Certain predatory animals are particularly vulnerable to a buildup of a particular substance.

As with any generalizations of this magnitude, the foregoing analysis is not dispositive in the particular since the number of variables underlying each assumption is so vast. For example, both dispersal of a particular pesticide and its effect on the life chain of other vertebrate non-target

species vary with climatic and geographic factors, and a host of other considerations not susceptible to generalization. The concentration in a single food source for an omnivorous species does not determine the total intake of that pesticide for individuals of that species. In addition, generalizations drawn from the accumulation in food chains of the persistent economic poisons must take into account both world-wide uses which contribute to the maintenance of a low level background accumulation, and changing domestic use patterns. Use in this country of herbicide economic poisons exceeded that for insecticides for the first time in 1967.

Although the drafting of detailed criteria has been found to be a practical impossibility, the following general considerations are among those which will be weighed in determining the need for initial or continued registrations of particular economic poisons:

(1) The nature and magnitude of the foreseeable hazards associated with use of a particular product. Such hazards may apply directly to human health, or to domestic plants and animals, or to wildlife, or to the environment generally. It is relevant to consider also whether the hazard is inherent in the normal use of the product or whether it results solely from misuse. The fact that danger results solely from misuse does not determine that such danger is to be ignored but that this consideration has a possible bearing on the magnitude and possibility of occurrence of the risk.

The consideration of human health hazards underlines dramatically the impossibility of setting up value weighted general criteria. It is possible to determine with some degree of scientific precision the acute oral, dermal and respiratory toxicities of particular economic poisons. However, quantification of the damage from possible subtle health effects resulting from long term low level effects, in particular, carcinogenicity, mutagenicity, and teratogenicity (proclivity of the chemical to cause cancer, mutations or birth defects, respectively) are often beyond the present scientific state of the art. In projecting the magnitude of risk from these sources, two extremes must thus be avoided: insistence on final hard scientific evidence of occurrence of the injury in humans, which may only occur when the process leading to this result is irreversible; and action based only on anxiety, which may deprive mankind of a badly needed control mechanism.

Attention has also been directed to long term genetic, behavioral or synergistic effects of certain economic poisons alone or in concert. However, scientific analysis of these possibilities is still in a primitive state and the extensive testing necessary has not been undertaken.

Rectification of this omission in the available data is a matter of utmost concern to this Agency. Development of adequate testing protocols and facilities is a priority undertaking. But in the short term, extrapolation from small scale laboratory analysis must err on the side of safety.

Because it is easier to test plants and animals in a laboratory setting than in the biosystem, most of the available data are generalizations and projections based on such experimentation. The question of the gross effects of introduction of these artificial controls into the environment is still largely a matter of controversy. Furthermore, there is much debate over how to relate laboratory results on small numbers of test animals at high dosage levels to low-level long term human exposure.

(2) Concurrently, the nature of the benefit conferred by use of a given product must be weighed. Pesticides are used for a variety of purposes in a multitude of situations. Some uses are obviously more important to the public health and well being than others. It is necessary in each instance to detail with particularity the nature of the benefit. Some pesticides play a major role in the control of important disease vectors. Others play important roles in the production and protection of adequate supplies of essential food products. These two uses are probably the most important benefits man has gained from pesticide use. There are also important uses in the production and protection of forest resources and fiber crops. Other uses are directed toward what may be called nuisances, such as insects or weeds that annoy or inconvenience man.

Not only the nature of the benefit must be weighed. The other side of the coin is to assess the magnitude of the social cost of foregoing the use of a given economic poison. Thus, an estimation must be made of the effect of absence of the economic poison: whether it would merely cause some inconvenience to would-be users, or would cause serious risk to public health, or disruption of important social needs.

A further consideration in this regard is the alternative, if any, to use of a given economic poison and any problems associated with such substitution. Such alternatives may be other toxic chemicals, which may themselves cause greater or lesser problems, biological control of insects, or physical removal of plants in place of herbicide usage. Another factor is the desirability and feasibility of increased use of manual labor as an alternative to technological control.

In summary, each question of initial registration, or cancellation or suspension of an existing registration must be individually addressed. The range of variables in the chemical formulation, pattern of use, risk and benefit is too broad to permit responsible general criteria. This Agency will discharge its duty to coordinate the various indicia of environmental quality -- both positive and negative -- that flow from a particular registration decision mindful of the requirement to set forth the rationale upon which its action is based. From such decisions, forged in the administrative forum provided by statute, should evolve the standards for rational use of the products which will permit maximizing overall environmental quality.

III

DDT

After applying the foregoing analysis and the criteria of risk and benefit to the products containing DDT, this Agency has determined that no suspension of such products is warranted pending completion of the administrative process of cancellation which has been commenced. For the reasons stated herein, the hazard to the public is not found to be imminent so as to require suspension during the pendency of the administrative determinations.

In January, 1971, this Agency issued notices of cancellation with respect to all registrants of products containing DDT. Many of these registrants have filed objections and requested a public hearing as provided in the FIFRA. Answers and motions are presently being prepared by the Agency and every effort will be made to ensure that these cases are brought to public hearing as soon as possible. Section 4c sets forth a complex procedure culminating in a final order by the Administrator. We anticipate that, in the absence of unforeseen delays, these administrative procedures may be concluded within one year. Unless the registrants can discharge their burden of proof regarding the safety and efficacy of such products, all registrations will be cancelled at the conclusion of the administrative process.

Such a procedure, despite the time required, offers the opportunity for a full presentation of the conflicting views of all concerned parties with relevant data to be made part of the record, and for an orderly consideration of all the evidence which has been amassed concerning DDT. Because suspension may be ordered at any time, our present decision does not foreclose the possibility of such an action in the event that evidence adduced during the administrative process meets the test for suspension.

The question presented now is whether the continued use of products containing DDT constitutes an "imminent hazard to the public," which requires immediate suspension prior to conclusion of the administrative proceedings. After review of all relevant data bearing on the nature of DDT and its effect on man and the biota, this Agency has determined that the uses which will be permitted to continue do not present such an imminent hazard to the public.*

Environmental Data

This determination is supported by the nature of the present effects of DDT. DDT is a hazard by virtue of its potential toxicity at prolonged low levels of exposure. This hazard is made acute by the persistence, mobility, and biomagnification of DDT in the environment. Recognizing these characteristics, the four governmental committees which have studied the DDT problem in depth between 1963 and 1969 have all recommended that its use be phased out over a period of time.** None have recommended an immediate ban. However, the time has come for resolution of the DDT issue in light of the standards set out in the FIFRA. This is now being done through the orderly administrative forum provided by the statute in the cancellation proceedings.

DDT has been a topic of special concern as an environmental contaminant because it has been the most widely used pesticide and is thus presently the most ubiquitous in the environment. Like other broad spectrum pesticides, it is ecologically crude in that it is not wholly specific to insect pests, but has a variety of effects on many non-target organisms as well. Although its initial use was mainly for disease vector control during and immediately after World War II, it is presently used in the United States for a variety of uses including the control of a variety of insect pests on various agricultural crops. Domestic use of DDT has declined notably in recent years. From a peak of 79 million pounds in 1959, domestic use dropped to approximately 10 million pounds in 1970. Correspondingly, there has been a drastic

*/ In contemplation of this decision, this Agency published in the Federal Register a request for comment as to the imminence of the hazard. With respect to DDT, over 500 responses have been received from individuals, civic organizations, manufacturers, universities, and state and local government agencies. Review and analysis of these responses has proved useful in arriving at our present decision.

**/ "Use of Pesticides," A Report of the President's Science Advisory Committee (May, 1963); "Restoring the Quality of our Environment," Report of the Environmental Pollution Panel, President's Science Advisory Committee (November, 1965); Report of the Committee on Persistent Pesticides, Division of Biology and Agriculture, National Research Council, to U.S. Department of Agriculture (May, 1969); Mrak Commission Report (December, 1969).

reduction in the number of registered uses for DDT as a result of cancellation actions which have already taken effect.*

The two most common allegations concerning the hazards resulting from use of DDT are that it has detrimental effects on many non-target organisms, especially birds, fish, and crustaceans, and that it is possibly a carcinogen to man.

A substantial question has been raised that DDT and its metabolites (such as DDE) are "highly injurious to some non-target species and threaten other species and biological systems."^{**} DDT has apparently contributed to reproductive failure in many raptorial birds, such as the bald eagle, the peregrine falcon and in the brown pelican. In addition, it has either potential or actual deleterious effects upon many species of fish fry and other aquatic organisms.

It is more difficult to draw hard conclusions as to the allegations concerning human health effects of DDT use. There is scientific support for the proposition that DDT poses no significant hazard to human health.^{***} The most widely accepted scientific assessment of the carcinogenic threat from DDT is the one which concluded the report on that subject by the Mrak Commission:

"Accordingly, with the evidence now in, DDT can be regarded neither as a proven danger as a carcinogen for man nor as an assuredly safe pesticide; suspicion has been aroused and it should be confirmed or dispelled." Mrak Commission Report, p. 471.

^{*} See, e.g., PR Notice 69-17, November 20, 1969, which cancelled all DDT products for use on tobacco and shade trees, for use in or around the home, and all uses in aquatic environments, except those essential for the control of disease vectors as determined by Public Health officials; PR Notice 70-19, August 18, 1970, which cancelled the registration of DDT products for certain uses on a wide variety of crops, animals, and products.

^{**} Mrak Commission Report at p. 9; see also p. 180.

^{***} A notable example is Dr. Wayland Hayes, Jr., formerly of the U.S. Public Health Service and now of the Vanderbilt University School of Medicine. See, e.g., Hayes, "Toxicity of Pesticides to Man: Risks from Present Levels," 167 Royal Soc. (London) Proc. Ser. B. 101 (1967). In addition, the Committee on Occupational Toxicology of the American Medical Association has recently characterized the statement that "DDT is carcinogenic to man" as a "speculation as yet unproved" and calls it merely a "general accusation and anxiety-provoking statement." J.A.M.A. 212(6); 1056 (May 11, 1970). However, for the legal and policy reasons discussed above, this Agency will not permit its administrative action to await positive scientific assurance in the face of pervasive risks to health and welfare.

The "suspicion" referred to is the result of tests with animals which indicate DDT in high dosages is a carcinogen as to particular species. See Innes, et al., "Biossay of Pesticides and Industrial Chemicals for Tumorigenicity in Mice: A Preliminary Note." 42 J. Nat. Cancer Inst. 1101 (June, 1969). Some studies have also shown DDT to be more highly concentrated in the tissue of cancer victims than in the general populace. However, the relevance of such studies to human health continues to be in debate. One of the scientists responsible for the latter study has expressly disavowed, in a letter to this Agency, the relevance of such findings to causation of cancer in human beings.*/

In addition, there are unpublished studies conducted under the auspices of the Food and Drug Administration showing a percentage increase, in comparison to a control group, in fetal mortality in rats administered large doses of DDT.**/ Allegations have also been made that some data suggests that relatively low level exposure may cause subtle behavioral changes and that DDT and its metabolites in laboratory tests have been observed to cause alterations in steroid balance.***/

DDT continues to find strong support in some segments of the scientific community. Its low direct toxicity to man and other higher forms of animal life has made it easily accessible to the mass of users without short-range hazard. Despite the large number of other chemical pesticides developed and introduced since 1945 and the strides made in research and introduction of biological control of certain discrete pests, DDT remains the only practical pesticide which is effective against certain species of insect pests.****/

*/ Letter of December 22, 1970 to Dr. Raymond Johnson, Environmental Protection Agency, from William B. Deichmann, Ph.D.

**/ Legator, "Mutagenic Effects of DDT and other Pesticides in Rodents and Cultures of Mamalian Cells" (Seminar: Brookhaven National Laboratory, 1970).

***/ Affidavit of Charles F. Wurster, Ph.D., at p. 3; Comments to Department of Health, Education and Welfare by Environmental Defense Fund, et al., dated January 4, 1971.

****/ Though numerous jurisdictions in the United States and abroad have experimented with radical restriction of the use of DDT, most have found it necessary to provide for exceptions to control particular pests. Thus, for example, Michigan permits use of DDT for the control of mice and bats, Sweden permits its use for the control of the large pine weevil and the Province of Ontario in Canada permits its use for control of the cutworm on onions.

Other Factors

Precipitous removal of DDT from interstate commerce would force widespread resort to highly toxic alternatives in pest control on certain crops. The widespread poisonings, both fatal and non-fatal, which may reasonably be projected present an ~~intolerable short-term health hazard.~~ During this period of withdrawal from the broad spectrum applications of DDT, and in anticipation of the probability that DDT will shortly become unavailable for the majority of its present mass uses by virtue of state and federal restrictions, this Agency will strongly support the continuing efforts to educate pesticide users to the dangers inherent in certain substitute economic poisons in order to reduce this danger.

Finally, the very characteristics of DDT which raise fears of its effect as an environmental contaminant -- its persistence, broad distribution and usage -- have made it the most economically attractive pesticide for a variety of uses. Its persistence permits relatively long intervals between applications, while broad usage has dramatically lowered the cost per pound. However, as in other areas of environmental pollution, if a product contributes to contamination or degradation of the ecosystem, an assessment of its true economic cost must take these adverse effects into account. Thus while economic considerations have a place in the policy-balancing functions which this Agency is charged to perform, the economic factor is much more complex than a simple estimate of unit production cost. In addition, any rational balance must recognize the clear predominance of environmental concerns over purely economic considerations. Thus the economic data regarding DDT is not the gravamen of our decision.

Complementary Actions

Our review of this question is strictured by the present statutory framework. The most logical course of action would be to restrict uses to situations of real need, thus reducing the possibility of inadvertent overuse. In addition, it would be preferable to have definite control of particular uses, rather than the present authority to act merely through labeling.

The present scientific evidence indicates that there would be no significant hazard if only carefully limited amounts of DDT were released into the environment by virtue of restriction of DDT to the most critical uses. Achievement of this goal would require that fields be checked to assure that the infestation justified treatment and that the dosage and application methods were not wasteful. Without such assurance, experience has shown that use of excessive quantities could become routine and that the ease of availability of DDT would permit much of it to be used for nonregistered purposes.

Federal authority is presently focused on controlling the entry of hazardous or ineffective products into the marketplace. A more limited control of the use of a pesticide is achieved by specific instructions on the label and the enforcement of residue limits on and in food products. Actual control of use by these methods is far from adequate. In order to remedy these imprecise administrative tools, the President recently recommended to the Congress a legislative revision which would allow this Agency to make more focused individual determinations. Under this legislation, economic poisons are assigned to various categories. The most potentially hazardous product could not be purchased without a certification by a pest control consultant that the application of that pesticide to a particular location at that particular time is appropriate. This more selective control of ultimate use will permit our society to reap the benefits of scientific advances without paying an intolerable environmental price.

Another aid to rational utilization of DDT is through enlightened control by the states. In the light of present information concerning the health hazards associated with mass uses of DDT, we hereby encourage each state to scrutinize its own needs for the substance and to reduce its use as drastically as is consistent with the health and well being of its citizens. It is recognized, however, that at present techniques of state control of use patterns are neither well enough tested nor wisely enough available to assure the protection of the environment from DDT. Since, as discussed above, the hazard to the public is not imminent, and present federal law offers no mechanism whereby the Environmental Protection Agency can effectively register pesticides for particularized restricted uses and assure compliance, we have been compelled to cancel all uses of DDT, to initiate the administrative process, and to stimulate the resourcefulness of the states, the manufacturers, and the scientific community to find acceptable substitutes.

IV

DIELDRIIN-ALDRIN

In early 1970, based on a concern to restrict aldrin and dieldrin, two chemically similar chlorinated hydrocarbon pesticides, from wide dispersal in the environment, the United States Department of Agriculture cancelled all registrations for these products in or on aquatic areas.*

*/ PR Notice 70-6.

In May of last year, USDA published in the Federal Register a request for public comment on the question of what revisionary uses should be continued. A list of possible substitutes for aldrin and dieldrin were circulated to both state and federal agencies for comment. A special review group was established within the Department to evaluate these data. Their report was forwarded to this Agency in January of this year.

In December of 1970 the Environmental Defense Fund, Inc. filed a petition with the Administrator of this Agency requesting immediate cancellation and suspension of all registrations of dieldrin and aldrin. The petitioner contends that each substance causes severe environmental damage and that each is a potential carcinogen.

The material relating to the general impact of these substances on the environment contained both in this petition and in the entire body of scientific literature which has been developed regarding these substances, raises a substantial question as to the safety of the registered products which has not been effectively countered by the registrant. This Agency has thus determined to commence the administrative process in order to resolve these questions by issuing notices of cancellation as to all registrations of the products containing aldrin and dieldrin.* Because, for the reasons set out below, this Agency has determined that the present uses do not pose an imminent threat to the public such as to require immediate action pending the outcome of the administrative process, the statutory remedy of suspension will not be ordered.

Use of dieldrin and aldrin has declined greatly in recent years. In 1956, dieldrin usage in the United States reached a peak of 3,635,000 pounds applied. By 1970, usage had declined to 714,000 pounds. Aldrin usage peaked at 19,000,000 pounds in 1966 and declined 4,500,000 pounds in 1970. Dieldrin is used primarily for termite control, as a seed treatment, on nursery stock, ornamentals and turf. Aldrin is used primarily as a soil treatment for corn and citrus, for termite control, as a seed treatment, and on nursery stock, ornamentals and turf. The largest volume of use is as an insecticide for corn (aldrin); the second largest volume is applied for termite control (both aldrin and dieldrin).

*/ The registration of a house paint containing dieldrin was cancelled on April 28, 1970. This action was challenged administratively by the registrant and a public hearing was held on November 17, 1970. A final decision with respect to this registration will be announced shortly.

Environmental Data

The questions raised concerning the safety of these products are similar to those encountered with DDT in that they result from the persistence of dieldrin (since aldrin residues quickly break down into dieldrin) in the environment and its potential toxicity at low levels. Some studies indicate that dieldrin alone, or in possibly synergistic combination with DDT, has an equivalent potential for adverse effect on non-target predatory wildlife resulting from its low level toxicity intensified by its mobility and concentration up certain food chains. The scientific data also indicate that dieldrin, again like DDT, has an affinity for storage in the fatty tissue of a number of animals, including humans.*/ There are also similar carcinogenic data developed in the laboratory from high dosage rates of dieldrin administered to test animals.

Dieldrin and aldrin apparently have a lower threshold of toxicity to warm-blooded animals than does DDT. In fact, instances of non-lethal human poisoning have occurred in those occupationally exposed to heavy concentrations of dieldrin for protracted periods. Recovery following removal from exposure was slow but apparently complete.**/ These potential hazards deserve a full public airing in the administrative forum provided by the cancellation proceeding.***/

But because the vast majority of the present use of these products is restricted to ground insertion, which presents little foreseeable damage from general environmental mobility, because of the pattern of continuing gross use, and because the lower historic introduction of these products into the environment has left a significantly lower environmental residue burden to be faced by man and the other biota, the delay inherent in the administrative process does not present an imminent hazard. Thus the substantial question of the safety of these registrations is primarily raised by theoretical data, while review of the evidence from the ambient environment indicates that such potential hazards are not imminent in light of the present registrations.

It is significant to note that no residues of either aldrin or dieldrin are now permitted on corn, eggs, milk, poultry, or animal fats shipped in interstate commerce. Because of the use patterns of aldrin and dieldrin, these products constitute the major sources whereby these substances would find their way into human food chains. During the pendency of the administrative process hereby initiated, this Agency

*/ Mrak Commission Report, pp. 265, et seq.

**/ Wayland J. Hayes, Jr., "Dieldrin Poisoning in Man," Public Health Report No. 72, pp. 1087-1091, Dec., 1957.

***/ See Environmental Defense Fund, Inc. v. Ruckelshaus, supra.

will take no action to grant any residue tolerances for these foodstuffs pursuant to the Food, Drug and Cosmetic Act, although initial tolerances have been requested by the manufacturer.

V

2,4,5-T

Notices of cancellation and suspension for products registered for certain uses of 2,4,5-T were issued in May of 1970.* This action has been challenged by four manufacturers of the products who have requested review pursuant to the statute by a scientific advisory committee. This advisory committee first met on February 1, 1971, and its evaluation of the scientific evidence relating to products containing 2,4,5-T is expected shortly. While these procedures were being prosecuted, certain petitioners commenced a court action which sought to broaden the suspension notices to include all registered products containing 2,4,5-T for any use. Although approving the standard for suspension applied under the FIFRA in the case of 2,4,5-T, the court remanded the case to this Agency for further consideration of that legal standard as applied to the relevant facts in this case. After careful consideration of the petitioners' allegations and of all other relevant factors, the Administrator has determined that, for the reasons detailed below, the uses of 2,4,5-T which have not been suspended pose no imminent threat to the public, and should be permitted to continue during the pendency of the administrative proceedings now in progress.

The compound 2,4,5-T** is a herbicide used for a wide variety of brush and weed control in the United States, primarily for nonagricultural purposes.

*/ Suspension was noticed for use of products containing 2,4,5-T in lakes, ponds, and ditch banks, and in liquid formulations around the home, in recreational areas, and similar sites. Cancellation was noticed for the use of such products on food crops intended for human consumption and for all granular formulations around the home, in recreational areas and similar sites. In addition, the next month the Secretary of the Interior banned all use of 2,4,5-T on lands under the control of the Department of the Interior and the Department of Defense ordered the immediate cessation of the use of 2,4,5-T in the defoliation program in Vietnam.

**/ 2,4,5-T is not a chlorinated hydrocarbon like DDT, aldrin and dieldrin. It is a phenoxy herbicide.

Environmental Data

Acting under contract to the National Cancer Institute, Bionetics Research Laboratories, Inc. undertook a large-scale screening study of 88 chemical compounds. In 1969, the results of the Bionetics studies showed 2,4,5-T to be "causing significantly more deformities than expected" to strains of mice and rats. Cleft palate and cystic kidney were the teratogenic effects shown. Subsequent studies were undertaken by both governmental and private organizations when it became known that the Bionetics 2,4,5-T samples contained 27±⁸ parts per million (ppm) of the highly toxic contaminant 2,3,7,8-tetrachlorodibenzoparadioxin (TCDD). Tests by other researchers indicated no teratogenic effects at dosage levels of 24 mg./kg. per day with TCDD levels below 1 ppm. However, the National Institutes of Environmental Health Sciences conducted tests which showed 2,4,5-T to be teratogenic to rats, though not mice, at levels of 100 mg./kg. (though not at lower levels, suggesting the existence of a "no effect" level for 2,4,5-T), with the purest commercial samples of 2,4,5-T available. Subsequent tests announced in a report issued in December, 1970 by Bionetics show no teratogenic effect from commercially pure 2,4,5-T, apparently at the lower dosage level of 10 mg./kg.*

Since 2,4,5-T is not directly toxic to man or other species of animals, and is not persistent in the environment, there are but two health issues to be considered in the controversy over 2,4,5-T: (1) whether 2,4,5-T alone or in concert with its dioxin, TCDD, is actually a teratogen, and (2) if so, what action is necessary to eliminate the hazard to human health (particularly to field workers and consumers).

The question of the teratogenicity of 2,4,5-T and TCDD is presently before the scientific advisory committee appointed pursuant to the FIFRA. Its report is due on or before May 14, 1971. Prior to this complete explication of the present scientific judgment relating to these matters, this Agency has undertaken its own review of the presently available data. A notice soliciting the views of interested parties was published in the Federal Register on January 20, 1971 (36 F.R. 948). This Agency has received voluminous comments in response which have been particularly helpful to our present analysis.

From these data the Administrator has concluded that the teratogenic threat from 2,4,5-T and its dioxin remains in sharp scientific debate. The substantial question to health raised by the cancelled registrations is being administratively prosecuted. To the extent

*/ The manufacturers of products containing 2,4,5-T were instructed by the USDA to eliminate chlorodioxins such as TCDD from such products on September 28, 1970. (PR Notice 70-22.)

that any positive evidence of teratogenicity in test animals exists, it is clearly dose-related. To the extent that the restrictions presently applicable to human exposure to products containing 2,4,5-T are based on incomplete scientific data, they err on the side of safety. The data shows that even direct accidental spraying of workers in the field would yield oral equivalent dosages hundreds of times below the levels at which the laboratory tests produced the teratogenic results. The suspension of liquid formulants for use in the home was based on restricting the possibility of direct oral ingestion of high concentrations of 2,4,5-T by pregnant women while exploration of its possible teratogenic effect was under study. The epidemiological data from the experience of extremely heavy dosages of 2,4,5-T in Vietnam on humans as a by-product of the defoliation program has shown no cause for further domestic restrictions.

Thus the restrictions now in effect, which obviate direct water contamination and virtually eliminate the threat of dangerous direct exposure to the one group who might receive adverse effects if the substance were shown to be teratogenic -- pregnant women -- provide so vast a margin of safety as to permit the benefits from use of 2,4,5-T for the control of unwanted vegetation to be continued pending resolution of the administrative proceedings.

VI

FUTURE ACTIONS BY THIS AGENCY IN REGARD TO PESTICIDES

Because of our statutory mandate to protect the public health and well-being by the rational control of economic poisons, this Agency is undertaking a comprehensive review of its administrative mechanisms in order to ensure intensive and regular review of all economic poisons that may be identified as possibly significant environmental contaminants. Active internal review is being initiated as to the registrations of products containing benzene hexachloride, lindane, chlordane, endrin, heptachlor and toxaphene, all products containing mercury, arsenic or lead, and all others deemed necessary for review.* The function of this review is not to make another study of pesticides (which function the Report of the Mrak Commission already admirably serves), but to identify which, if any, of the presently registered products present substantial questions of safety that should trigger the administrative process of cancellation.

*/ Cf. Mrak Commission Report, Recommendation 4, at pp. 9-10.

In this undertaking, this Agency welcomes additional submissions with regard to particular products from other governmental sources, manufacturers, the scientific community, or concerned citizens to assist in the task of accommodating the needs of mankind to the demands of the environment. But, if we are to do more than merely stultify the needed search for agricultural improvement in the face of the intensifying world hunger problem, and protection from insect-borne disease vectors, we must do more than subject our present chemical products to a continuing review. These same sources of information whose views we hereby solicit must be encouraged to push the search, not only for safer chemical control agents, but for bioenvironment controls^{*} and improved growing practices.

^{*} "Restoring the Quality of Our Environment," President's Science Advisory Committee, p. 230 et seq. (1965).