

December 6, 1977

**FISH AND WILDLIFE SECTION RESPONSE TO FLORIDA
24C SPECIAL LOCAL NEED REGISTRATION FOR
DIBROM AERIAL THERMAL FOGGING
Fish and Wildlife Section, EEEB**

Jack E. Housenger, Special Registrations

The following information was presented by Chevron Chemical Company in a letter dated October 3, 1977, to support Florida's 24C registration for the application of DIBROM as an aerial thermal fog:

NONTARGET ORGANISM AFFECT

- A. DIBROM's safety to nontarget organisms is well documented. Although approved up to 0.1 lb A/A as a ULV concentrate application, aerial thermal fogging utilizes only .08 lb A/A. Even applied at the higher rate of 0.1 lb A/A, as a concentrate, impact on nontarget organisms has not been a problem. Therefore, exposure to a dilute solution of DIBROM and fuel oil applied as a thermal fog should not pose any greater hazard.
- B. Because the application is visible and can be controlled, exposure of nontarget organisms is held to a strict minimum.

DISCUSSION

Probable hazards associated with DIBROM thermal fogging were discussed in a review by Fred Betz (6/10/77). Briefly, these hazards included increased exposure of aquatic fauna due to increased susceptibility to drift and increased avian and mammalian exposure.

Chevron has not directly addressed any of the above hazards and has not provided any documentation to support their statements that (1) DIBROM is safe, (2) that aerial thermal fogging should not pose any greater hazard, and, (3) that application can be controlled so that exposure of nontarget organisms is held to a strict minimum.

Chevron's letter and photographs raise some additional concerns as follows:

1. Chevron states that in the area of application (Florida Keys), there is a "more or less" constant breeze and that any treatment would have to be done in a breeze. Previously, Chevron revised their label to prohibit use in winds greater than 5 mph. This label restriction appears to be in conflict with the prevalent wind conditions in the Florida Keys.

2. Chevron stated that a thermal fog would better penetrate the dense mangrove vegetation. Increased penetration of vegetation would also increase the likelihood of exposure of avian, mammalian and aquatic species. Furthermore, DIBROM application to mangroves also constitutes a direct application to water since mangroves are halophytic trees which grow between the high water penetration of spring tides and mean low tide.

The significance of mangrove swamps may be summarized as follows (taken from Teas, 1976):

"They occur (mangroves) along tropical and subtropical shores where the wave energy is low and are found in the estuarine portions of rivers. The importance of coastal areas and estuaries has been recognized increasingly in recent years, for example in volumes edited by Thomas (1956), Lauf (1967), and Ketchum (1972). It has been estimated that as much as 98.5 percent of all commercial fish and shellfish species caught in the Gulf of Mexico off Florida spend part of their lives in estuarine environments (Glooschenko, 1968). Mangrove estuaries play an important role in the life cycles of shrimp in southern Florida (Idyll et al., 1968). Odum and Heald (1972) have made detailed studies of the role played by mangrove detritus in the food chains of estuaries in Everglades National Park in Florida. Mangrove estuaries clearly have great significance in food production of coastal areas."

Therefore, treatment of mangroves is in violation of the label statement that prohibits direct application to water and results in contamination of a highly productive habitat.

3. The photographs provided by Chevron clearly document that mosquito adulticide treatment in the Florida Keys results in direct contamination of open water and water in mangrove swamps.
4. DIBROM is apparently applied with DC-3 aircraft. The high speed, limited maneuverability and relatively high application altitude of this aircraft would seem to lessen the likelihood of accurate pesticide placement.

CONCLUSIONS

1. Chevron has provided no evidence to show that aerial thermal fog applications can be accurately controlled or that aerial thermal

fogging would not increase hazards to nontarget organisms (compared to ULV application).

Therefore, the conclusions drawn in the initial review (F. Betz, 6/10/77) remain unchanged.

2. The use of this product as proposed appears to be in violation of its label because:
 - (a) direct application to water would result; and
 - (b) application when wind speed is > 5 mph is probably unavoidable if the product is to be used in the Florida Keys.

References:

1. Glooschenko, W. 1968. Statement before U.S. Senate Hearing on Thermal Pollution, Part 2, Miami, Florida, pp. 751-760.
2. Idyll, C. P., D. C. Tabb, and B. Yokel. 1968. The value of estuaries to shrimp. Proc. Marsh and Estuary Management Sympos., Louisiana State Univ. pp. 83-90.
3. Ketchum, B. H. 1972. The water's edge: critical problems of the coastal zone. MIT Press, Cambridge, Massachusetts. pp. 1-393.
4. Lauf, G. H. (Ed.). 1967. Estuaries. AAAS Publication No. 83. Washington, D.C. 757 pp.
5. Odum, W. E. and E. J. Heald. 1972. Trophic analyses of an estuarine mangrove community. Bull. Mar. Sci. 22:671-738.
6. Teas, M. J. 1976. Herbicide Toxicity in Mangroves. U.S.E.P.A. Ecological Research Series No. 600/3-76-004.
7. Thomas, W. L. 1956. Man's role in changing the face of the earth. Univ. Chicago Press, Chicago. 1193 pp.

Additional Notes

1. Human Effects Monitoring Branch reports that there are no reported episodes with respect to adverse effects on fish and wildlife.

2. Phone conversations with John Bruech (N.J. Office of Pesticide Control) and Dr. D. Sutherland (Rutgers U.) revealed that the New Jersey fish kill reported during summer 1977 could not be positively linked to the aerial application of DIBROM.

FBS
Fred Betz
December 8, 1977
Fish and Wildlife Section
EEEB *[Signature]*

Calls made in reference to Florida 24(c) aerial thermal fog.

REPORT OF TELEPHONE CALL OR VISITOR		NOTE: Complete this form. Write "N/A" where not applicable.
INFORMING CALL	VISITOR	DATE DEC. 6, 1977
☒ OUTGOING CALL	CONGRESSIONAL	TIME OF CALL 1:30
NAME AND ADDRESS OF CALLER OR VISITOR JOHN BRUECK OFFICE of PESTICIDE CONTROL, N.J. Dept. Env. Protection		PHONE NO. (Include Area Code or IDS No.) 3 FTS - 477-5890
		REGISTRATION, ID NO. OR FILE SYMBOL
		DATE OF LATEST SUBMISSION
BRIEF SUMMARY OF CONVERSATION		
According to Brueck, Dibrom was never conclusively conclusively linked to the reported fish kills in Cape May County. Apparently, the fish kill kill occurred outside the application site.		
ACTION TAKEN OR RECOMMENDED		
Recorded by: <i>fred Betz</i>		
REFERRED TO (Name)		

REPORT OF TELEPHONE CALL OR VISITOR			NOTE: Complete this form. Write "N/A" where not applicable.
INCOMING CALL		VISITOR	DATE Dec 6, 1977
OUTGOING CALL		CONGRESSIONAL	TIME OF CALL 201-932-9565
NAME AND ADDRESS OF CALLER OR VISITOR Dr. D.L. Sutherland Rutgers University			PHONE NO. (Include Area Code or IDS No.) 2:30
			REGISTRATION, ID NO. OR FILE SYMBOL
			DATE OF LATEST SUBMISSION

BRIEF SUMMARY OF CONVERSATION

ACTION TAKEN OR RECOMMENDED

Sutherland claimed there have been annual fish kills in small creeks (Cape May County) consisting primarily of Menhaden. He attributed the cause to oxygen depletion.

According to Sutherland - the fish kill occurred 9 days post application at a site 3/4 - 1 mile from the area of application.

With respect to dibrom he said -

- ① is very corrosive
- ② thermal fog will penetrate better than ULO
- ③ Pesticide - oil mixture = heavier + will cause to sink
- ④ Both ULO + thermal fog are highly ~~sub~~ subject to drift.

RECORDED BY (Name)

Ined Betz

REFERRED TO (Name)