UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PESTICIDES AND TOXIC
SUBSTANCES

April 13, 1992

**MEMORANDUM**

SUBJECT:

FROM: Henry Jacoby, Chief
Environmental Fate and Ground Water Branch
Environmental Fate and Effects Division (H7507C)

TO: Larry Schnaubelt, Product Manager 72
Don Mackey, PM Team Reviewer
Reregistration Section #2, Reregistration Branch
Special Review & Reregistrtion Division (H7508W)

Sulfuryl fluoride has Terrestrial Nonfood and Domestic Outdoor use pattern, involving fumigation of barns, household or domestic dwellings, buses, railway cars, commercial storage facilities, warehouses, seasoned forest products and residential building materials to control existing infestation of insects and pests such as termites, beetles, old house borers, bedbugs, clothes moths, cockroaches, and rodents (rats and mice). In our review of data requirements to support the development of the Reregistration Eligibility Document (RED), EFGWB has concluded that sulfuryl fluoride is a highly volatile compound which hydrolyses readily under basic conditions, is prone to nucleophilic attack, and appears to leave no residues on treated surfaces. Also, after the treatment and aeration of the fumigated areas there are no residues of sulfuryl fluoride which would involve human exposure or impact the environment by leaching into ground water, EFGWB does not see a need for additional data to support these use patterns.

DISCUSSION

EFGWB had concerns about two uses and their impact on the environment. These were 1.) fumigation of large ocean-going vessels in ports and 2.) fumigation of houses and construction materials that involved moistening the soil with water. The issue with ocean-going vessels was the potential of pumping bilge water contaminated with sulfuryl fluoride into harbors. The issue with fumigation of construction materials was the potential of

sulfuryl fluoride to move through the soil profile. These are no longer issues of concerns. Sulfuryl fluoride hydrolyzes very slowly in water under neutral conditions. However, it does undergo hydrolysis under alkaline conditions to form fluorosulfuric acid ($HSO^3F$) and HF. These degradation products are easily removed from water by further reacting with oxides and salts of oxo acids. Sulfuryl fluoride also reacts readily with nucleophilic compounds. Because sea water is normally around pH of 8 and soil contains many nucleophilic substances, it is not expected that residues of the intact parent would remain in the environment from these uses for any significant time.