Department of Pesticide Regulation

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MEMORANDUM

TO: John Sanders, Branch Chief
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**HSM-98004**

FROM: Harvard Fong, Associate Industrial Hygienist
Worker Health and Safety [original signed by Harvard Fong]

DATE: July 17, 1998

SUBJECT: Results from Irvine Tarpaulin Removal Crew Monitoring for Methyl Bromide Exposure During June 10th to 13th. (Orange County) Study 9802-02

From June 10th to June 13th , 1998, both Dennis Gibbons and I conducted a methyl bromide exposure monitoring of a tarpaulin removal crew engaged in removing both standard and "virtually impermeable film (VIF)" tarpaulins. In conjunction with the Environmental Monitoring/Pest Management Branch (EM/PM), who were monitoring the effectiveness of the tarpaulin in terms of its environmental mitigation efficiency, Worker Health and Safety was present to monitor the exposure of the workers engaged in the two-day tarpaulin removal procedure. Two separate plots each consisting of 4 one-acre subplots were monitored. The total monitoring period was 4 days.

Tarpaulin removal for field applications of methyl bromide is a two-stage process. In stage one, the tarpaulin is sliced, allowing for escape of methyl bromide trapped between the tarpaulin and the soil. After 24 hours have elapsed, the second stage of tarpaulin removal (actual pulling off) is performed. In this particular case, a disc-equipped ATV was used to slice the tarpaulin and a tractor with a "gathering fork" (funnels tarpaulin under the tractor tire, where water is squeezed out and the tarpaulin becomes compressed for easier removal) was used to remove the tarpaulin. For slicing, only one worker is involved ("cutter") whereas three workers are involved in removal (tractor driver and two "pullers" who feed the tarpaulin into the forks and also hook the squeezed tarpaulins onto the back of the tractor so that the tarpaulins may be dragged off the field). However, all three members of the removal crew appear to have equal

likelihood of airborne methyl bromide exposure. Standard methyl bromide air monitoring procedure was followed (two-part charcoal tubes, less than 10 liters of air collected per sample).

The exposure data are presented in two separate tables: Table One corresponds to the tarpaulins that were sliced ("cutter") on June 10th and removed ("tractor" and "puller") on June 11th; Table Two is corresponds to tarpaulins that were sliced on June 12th and removed on June 13th . Only methyl bromide data is presented, since, other than one cutter sample value of 0.006 ppm on June 12th and one puller sample of 0.002 ppm on June 13th, all other chloropicrin samples were non-detectable (<0.OOlppm). Time for completion of each monitored task is given in parenthesis by each result.

## Table One

### Worker Methyl Bromide Airborne Levels **(PPM)**

### Plot One, Subplots 1-4 **(Sliced 6/10/98, Removed 6/11/98)**

**Time elapsed per subplot (minutes)**

**Tarpaulin Type***

| Activity | STD | VIF | STD | VIF |
|---|---|---|---|---|
| Cutter | 0.018(7) | 0.016(8) | 0.016(8) | 0.035(8) |
| Tractor | 0.022(20) | 0.015(40) | 0.013(45) | 0.017(40) |
| Puller | 0.021(20) | 0.016(40) | 0.013(45) | 0.017(40) |

*STD = Standard high Barrier Tarpaulin VIF = Virtually Impermeable Film

## Table Two

### Worker Methyl Bromide Airborne Levels (PPM)

### Plot Two, Subplots 5-8 (Sliced 6/12/98, Removed 6/13/98)

**Time elapsed per subplot (minutes)**

**Tarpaulin Type***

| Activity | STD | VIF | STD | VIF |
|---|---|---|---|---|
| Cutter | 0.009(14) | 0.011(12) | 0.013(10) | 0.013(10) |
| Tractor | 0.075(35) | 0.084(50) | 0.024(40) | 0.022(35) |
| Puller | 0.065(35) | 0.029(50) | 0.052(40) | 0.040(35) |

*STD = Standard high Barrier Tarpaulin VIF = Virtually Impermeable Film

For the cutter, the average methyl bromide levels measured were 0.014 ppm, slicing the standard tarpaulin, and 0.019 ppm, slicing the VIF tarpaulin. The maximum exposure level for the cutter was 0.035 ppm., slicing a VIF tarpaulin. The exposure for both tarpaulin types, for the tractor driver and the puller had an average range of between 0.035 and 0.039 ppm. The maximum value measured in this exposure monitoring was 0.084 ppm for the tractor driver, removing a VIF tarpaulin.

These data indicate that exposure to these workers was far below the DPR target 24 hour exposure value of 210 PPB, and below the DPR target 8 hour exposure value of 630 PPB. These results are too low to draw any specific conclusions about the effect of removing a VIF tarpaulin compared to removing a standard, high barrier tarpaulin.

cc: R. Rutz
D. Gibbons