



Department of Pesticide Regulation



Mary-Ann Warmerdam
Director

MEMORANDUM

Arnold Schwarzenegger
Governor

TO: Susan Edmiston, Chief
Worker Health and Safety Branch **HSM-07003**

FROM: Bernie Hernandez, Associate Environmental Research Scientist
Worker Health and Safety Branch *(original signed by B. Hernandez)*
(916) 445-4203

DATE: September 10, 2007

SUBJECT: PROJECT 0704 - WORKER HEALTH AND SAFETY INVOLVEMENT IN
PRIORITY INVESTIGATION 41-TUL-07: CHLORPYRIFOS DRIFT INCIDENT,
TULARE COUNTY

Incident Chronology

On July 23, 2007, at 0935 hours, the Tulare County Agricultural Commissioner's (CAC) office notified Worker Health and Safety (WHS) Branch of a pesticide drift incident which had taken place on Saturday, July 21. I, Bernie Hernandez was dispatched to the incident site and met with Deputy Commissioner Bill Deavours at 1445 hours. Bill provided a map of the incident site and a brief summary of the events (See Appendices 2 & 3; maps 1 & 2 show a general and close up view of the area). David Case (Agricultural Standards Inspector IV) was currently at the Delano Regional Medical Center collecting the work clothing worn by the ill field workers.

At 1130 hours on July 21, Bakhtawar Brar completed a ground application of Nufos[®] 4E (44.9% chlorpyrifos, EPA Reg. No. 67760-28) to approximately 73 acres of almonds, using a ground rig equipped with an air blast sprayer (See Appendix 1, Pesticide Use Report). Two work crews, employed by vineyard owner Frank Martin, were pulling leaves and turning cane in two blocks of grapes approximately 60 feet west (Crew 1, 13 workers) and 600 feet southwest (Crew 2, fifteen workers), respectively, from the almond orchard. During the application to almonds, the prevailing wind had been at approximately 3.3 mph from the east.

At approximately 1000 hours, Crew 1 complained of a pesticide odor and the crew boss removed them from the field. Mr. Martin and his son took the crew to the Delano Regional Medical Center, where eleven workers complained of headache, eye irritation and nausea. Two workers reported vomiting at the west end of their rows after exiting the vineyard. Three workers reported contact with spray mist after exiting their row when the ground rig air blast sprayer exited the almond orchard row adjacent to them. The eleven were decontaminated, evaluated and treated, then released from the hospital.

Crew 2 was also taken to the hospital as a precaution. Two workers from this group felt ill, were decontaminated and received treatment. Just prior to Crew 1 being taken to the hospital, two Crew 1 workers were moved to Crew 2. The CAC hoped to determine via interview whether the two ill workers in Crew 2 had previously been working with Crew 1, closer to the Nufos[®] 4E



application. The other eleven workers in Crew 2 reported no symptoms and were evaluated and released.

Sampling and Results

I arrived at the incident site about 1530 hours and located the two vineyard blocks at the northwest corner of County Line road and Road 148. Each block was 52 acres and the vines were about six feet high. I collected twelve dislodgeable foliar residue (DFR) samples from the incident site, eight samples from the block closest to the almonds, where Crew 1 had been working, and four samples from the block where Crew 2 had been working. I collected samples from the central third of each vineyard block, the location where the crews had been working in each block. DFR sampling was conducted according to HS-1600, Guidance for Determination of Dislodgeable Foliar Residue (Edmiston et al. 2002). DFR samples were collected using precision leaf samplers equipped with a 1-inch diameter cutting die and fitted to a four-ounce glass jar. Each sample consisted of 40 1-inch leaf disks, for a total foliar area of 400 cm² per sample. Table 1 provides sample numbers, vineyard locations and the results of the DFR sampling. (See Appendices 2 – 4 for maps and a schematic diagram of the sampled areas).

Table 1. Project 0704, Chlorpyrifos Dislodgeable Foliar Residue (DFR) Sampling in Grapes

Sample No.	Row	µg/cm ² chlorpyrifos
Block 1, 60 feet W of almonds: Crew 1 location		
FM07-001	Row 09	None Detected ¹
FM07-002	Row 11	None Detected
FM07-003	Row 13	None Detected
FM07-004	Row 15	None Detected
FM07-005	Row 17	None Detected
FM07-006	Row 19	None Detected
FM07-007	Row 21	None Detected
FM07-008	Row 23	None Detected
Block 2, 600 feet SW of almonds: Crew 2 location		
FM07-009	Row 05	None Detected
FM07-010	Row 08	None Detected
FM07-011	Row 12	None Detected
FM07-012	Row 15	None Detected

¹ None detected: Residues were below the limit of quantification of 1 µg chlorpyrifos/sample

Project documentation, sample collection, labeling and handling, and chain of custody were conducted in accordance with the following WHS standard operating procedures (SOPs):

- WHS-FO03, Dislodgeable Foliar Residue Sampling
- WHS-FO04, Identification and Labeling of Samples
- WHS-FO05, Sample Tracking, Shipping and Receiving
- WHS-FO07, Records and Notebooks (Field Data), and
- WHS-FO08, Project Documentation and Numbering

On July 24, 2007, at approximately 0820 hours, I delivered the chilled samples to Vincent Quan of the California Department Food and Agriculture, Center for Analytical Chemistry, in Sacramento, for analysis of chlorpyrifos residues. The samples were extracted on July 24 and analyzed on July 26. Results for all twelve samples were below the limit of detection for chlorpyrifos (1 µg/sample) and were reported as “none detected”.

References

Edmiston S, Powell S, Spencer J, Curtis C. 2002. Guidance for Determination of Dislodgeable Foliar Residue, HS-1600. California Department of Pesticide Regulation, Worker Health and Safety Branch. Available on-line at:
<http://www.cdpr.ca.gov/docs/whs/pdf/hs1600.pdf>

cc: Al Lomeli, Pesticide Enforcement Branch, Central Regional Office
Janet Spencer, Sr. Environmental Research Scientist, WHS Branch, DPR
Jim Shattuck, DPR Agricultural Commissioner Liaison
David Case, Tulare CAC
Bill Deavours, Agricultural Commissioner, Tulare County

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APPENDIX 1. PROJECT 0704, PESTICIDE USE REPORT FOR NUFOS 4E APPLICATION ON ALMONDS, July 21, 2007

PESTICIDE USE REPORT Page: 1

State of California
 Department of Pesticide Regulation 5669257

County	Sec	Twp	Rng	B&M	App. Method	Commodity treated	Application ID and Name
54	35	248	205	0	B	ALMOND	

Operator ID	App. Date	Time	Amount	Operator Name, transcribed & reference
5400337	107/21/2007	1130	73.74 A	BRAR, BAKHTAWAR S.

Site ID	Plant Act	Applied/dispensed by	Pi Sq & Yr
01-101		GROWER APPLIED	@ @

RPTL Chem#	Product Name	EPA Registration Number	Total Prod. Used
0	NUFOS 4E	57750-28-AA-0	294.96 PT

Reference Epa Pesticide Name: NUFOS 4E

Environmental Changes/Comments (AGRIAN 152490) Batch # 1496:2696

Submitted by	Date	Time	PCA Name
GROWER APPLIED	07/21/2007	1214	

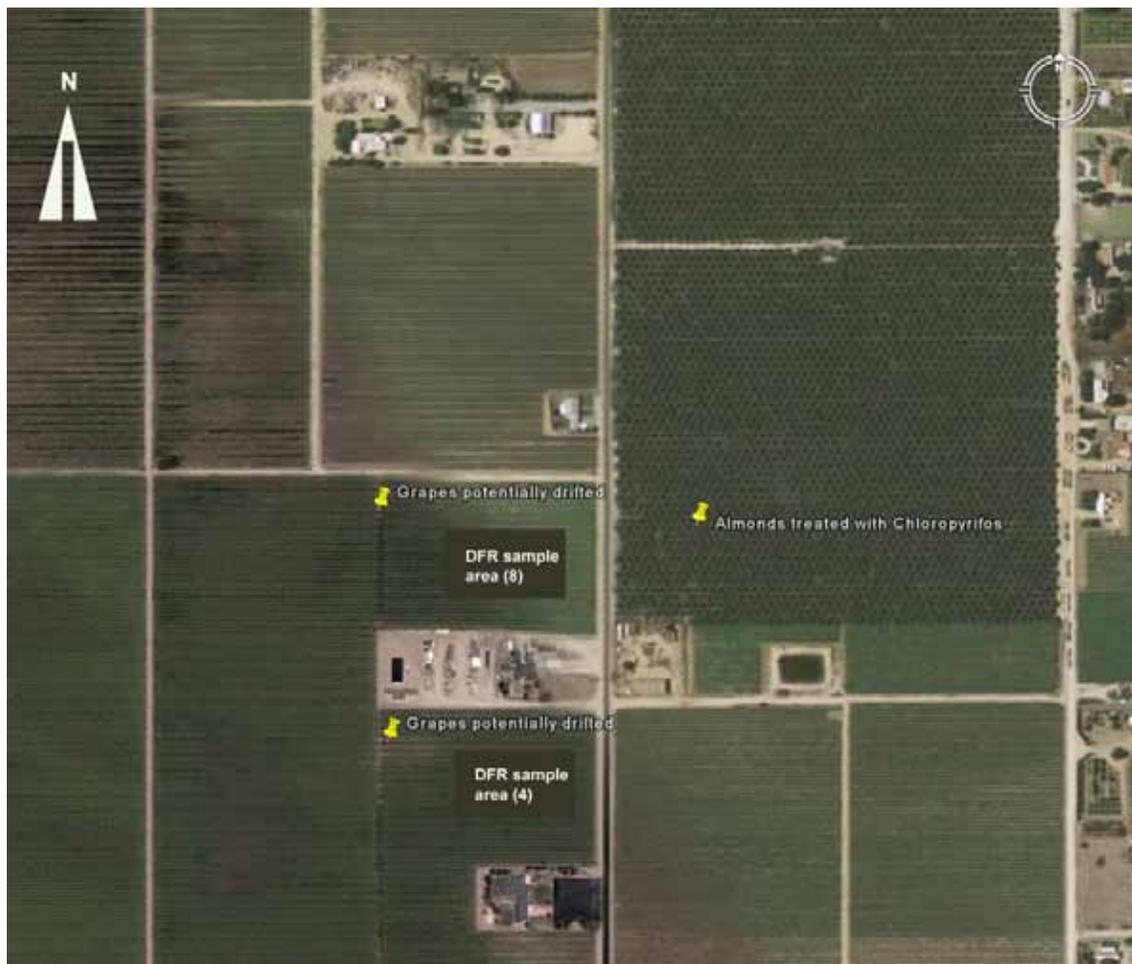
Received by	Date	Time	[] Approved
CEDTS - MOHAM DATA TRANSMISSION	107/21/2007	1526	[] Denied

+++++ THIS PUR PASSED ALL INTEGRITY CHECKS AND WILL BE APPENDED TO PERMANENT DATABASE +++++

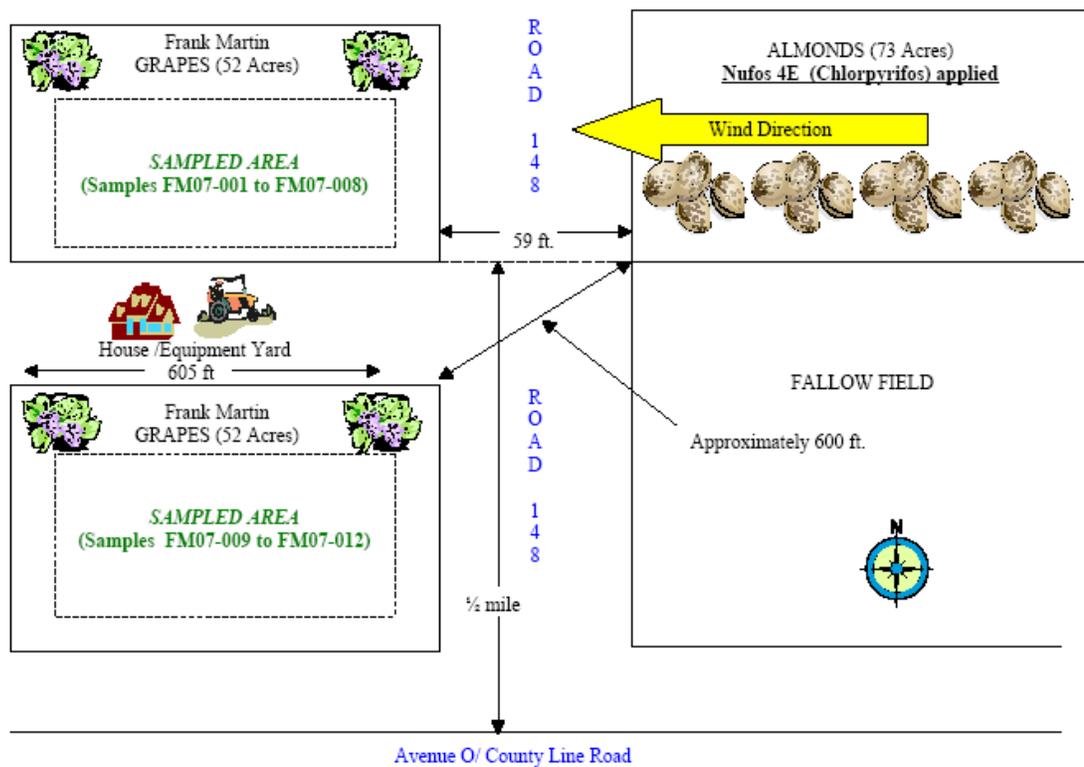
APPENDIX 2. PROJECT 0704, MAP PROVIDED BY TULARE COUNTY AGRICULTURAL COMMISSIONER'S OFFICE. SITE OF APPARENT DRIFT ENCIRCLED.



APPENDIX 3. PROJECT 0704, MAP SHOWING TREATED AND DRIFTED FIELDS AND SAMPLING LOCATIONS



APPENDIX 4. PROJECT 0704, SCHEMATIC DIAGRAM OF TREATED AND DRIFTED FIELDS AND SAMPLING LOCATIONS



Note: 1) Rows of grapes and rows of almond trees are oriented in an east to west direction, 2) grape rows are spaced 12 feet apart, 3) distance from southwest corner of almond field to northeast corner of second grape block is approximately 600 feet, 4) distance of southern edge of almond orchard and first grape block from County Line Road is 1/4 mile, and 5) diagram is not to scale.