

**PESTICIDE INCIDENT REPORTING AND TRACKING (PIRT)
REVIEW PANEL**

APRIL 24, 2008 MINUTES

WASHINGTON STATE DEPARTMENT OF AGRICULTURE

YAKIMA, WA

(APPROVED BY PIRT 5/15/2008)

PANEL MEMBERS IN ATTENDANCE:

Cynthia Lopez (CL), Chair	Department of Health	(360) 236-3340
Pamela Edwards (PE)	Department of Labor and Industries	(360) 902-6547
Allan Felsot (AF) (phone)	Washington State University	(509) 372-7365
William Hurley (WH)	Washington Poison Center	(206) 517-2356
Matthew Keifer (MK)	University of Washington	(206) 616-1452
Kelly McLain (KM)	Department of Ecology	(360) 407-6938
Karen Ripley (KR)	Department of Natural Resources	(360) 902-1691
Ann Wick (AW)	Department of Agriculture.	(360) 902-2051
Liesl Zappler (LZ)	Public Member	

PANEL MEMBERS ABSENT:

Steve Gilbert (SG)	Toxicologist	(206) 527-0926
Bridget Moran (BM)	Department of Fish and Wildlife	(360) 902-2589

OTHERS IN ATTENDANCE:

Gail Amos	Department of Agriculture	
Robert Arrington (RA) (alternate)	Department of Agriculture	
Jose Pares Avila	University of Washington	
Lee Barigar	Department of Agriculture	
Ofelio Borges (OB)	Department of Agriculture	
Maria Cardenas	Department of Health	
Deb Carter	Northwest Horticultural Associates	
Wayne Clifford (WC)	Department of Health	(360) 236-3181
Carol Dansereau	Farm Worker Pesticide Project	
John Furman (JF) (alternate)	Department of Labor and Industries	(360) 902-5666
Diana Garcia	Columbia Legal Services	
Sandy Halstead	Environmental Protection Agency	
Heather Hanson (HH)	Washington Friends of Farms and Forests	
Vince Hebert (VH) (alternate)	Washington State University	
Richard Fenske (RF)	University of Washington	(206) 543-0916
Gordon Kelly	Yakima Health District	
Mario Magana	Department of Health	
Sherrise Martin (SM)	Department of Health	(360) 236-3360
Keith Matthews	Yakima Valley Growers and Shippers	
Fran McBride (FM),	Department of Health	(360) 236-3367

Coordinator	
Barbara Morrissey (BFM)	Department of Health
Candelaria Murillo	Columbia Legal Services
Reuel Paradis	Labor and Industries
Juvenal Perales	Public
Doug Radach	WEA
Kevin Shoemaker	Benton County Mosquito Control District
Jennifer Sievert	Department of Health
Jorge Villasenor	
Matt West	Department of Agriculture

The meeting started at 10:05. CL announced that simultaneous interpretation into Spanish was available. FM is recording the meeting to improve accuracy of the minutes. Only the PIRT-approved minutes are the official meeting record. Panel members introduced themselves, and CL established that a quorum was present: AF (phone), WH, MK, CL, KM, KR, WR, AW, and LZ. CL announced that the Governor’s Office chose LZ to be the new PIRT public member. Alice Larson, the previous public member, served on the panel for eight years. Several PIRT alternates were present: RA, JF, VH and BFM (phone).

CL reviewed the draft **April agenda**. KR moved to accept it. (AW noticed that the WSDA update was missing; this was added.) The motion was modified. KM seconded it, all were in favor.

CL thanked SM and FM for coordinating and doing administrative tasks for PIRT meetings.

The panel reviewed the draft **March minutes**. MK asked for clarification on the first paragraph in the L&I section of the PIRT Report Review that refers to 57 handlers with at least one depression. JF explained that those 57 handlers had an initial cholinesterase depression of greater than twenty percent; they may have had additional tests that show cholinesterase depression greater than twenty percent when monitoring recovery. AW questioned the italics, FM clarified that they indicated text that was added or changed since the minutes were sent to the panel, and would be dropped in the final version. AW moved to approve the amended minutes, MK seconded, all were in favor.

Benton County Mosquito Control District

Kevin Shoemaker presented information on the Benton County Mosquito Control District (see <http://www.doh.wa.gov/ehp/Pirt/ppmosquito.pdf> for presentation). The district was formed by RCW 17.28. The district answers to several state agencies, a board of trustees, and residents. Mr. Shoemaker gave an overview of mosquito biology and life cycle. Only female mosquitoes bite, because they need a protein found in human blood for egg development. The district uses integrated pest management (IPM) for mosquito control; this includes education on watering practices, mosquito activity, protective clothing, and effective repellents. (CDC recommends DEET, picaridin and oil of lemon eucalyptus.) For larviciding, biological controls include the use of *Gambusia affinis*, a fish that eats mosquito larvae; and *Bacillus thuringiensis israelensis* and *Bacillus sphaericus*, bacteria that contain proteins that are toxic specifically to mosquitoes when ingested. Synthetic controls include methoprene, which acts as an insect hormone to inhibit proper growth; and surfactants, which create a physical barrier on the water surface and make it difficult for larvae to hang there and breathe. Ultra low volume fogging with extremely small droplets of pyrethrins or pyrethroids is used to kill adult mosquitoes.

Monitoring includes dipping and trapping for population count and species identification, and surveillance of mosquito-borne illness. Historically, the Yakima Valley and Columbia Basin have had mosquito-borne outbreaks of Western Equine Encephalitis and St. Louis Encephalitis. West Nile Virus (WNV) was first recognized in 1937 in Uganda and in the United States in 1999. Horses and birds appear to be vulnerable to WNV. In Washington, 2006 was the only year for human WNV cases; none of these resulted in death. The mortality rate for infected horses is 33 percent, and less than one percent for infected humans. Three hundred-seventeen bird species have tested positive for WNV, with high mortality in corvids, raptors and jays. Crows are the indicator bird for WNV. CDC and other agencies have identified Dengue and Chikungunya as potential future mosquito-borne illnesses in the US.

Discussion: CL asked about whether the 17 micron sized droplets dispersed when fogging for adult mosquitoes were respirable. MK commented that droplets of this size would be respirable within the mucous membranes of the mouth, and would likely be swallowed. Benton County Mosquito Control District uses larviciding for mosquito control about 85 to 90 percent of the time. Most adulticiding takes place in non-residential areas. Since controlling for WNV, there have been three human pesticide exposures in the district, resulting from drift when an applicator's view was obstructed by a house. The district lists areas to be fogged on their website. There is also a call before list that people can sign on to for notification prior to fogging in their area. When spraying around organic farms, the district sets up a 600 foot no-fog zone on the perimeter. There are no native bats or bird species that are effective for mosquito control. The district started a WNV surveillance program in 1999. Benton County is able to do more monitoring than many other mosquito control districts because it is well-funded.

Air Monitoring for MITC in Franklin County

Dr. Vince Hebert from Washington State University (WSU) presented information on his research on air monitoring for methyl isothiocyanate (MITC) in south Franklin County (see <http://www.doh.wa.gov/ehp/Pirt/080424hebert.pdf>). Metam sodium is a fumigant used to control soil-borne pathogens in potatoes; about eleven million pounds are used in Washington per year. It is applied as a salt and is transformed in the soil into a volatile gas, MITC, that can move off target; thus the importance of monitoring in residential communities. The air monitoring study was initiated. WSU, along with University of Washington (UW), received funding from the legislature for 2007 to 2009. Department of Health (DOH) administers the funding. The study attempts to answer the following questions: Do MITC emissions during the active fumigation season pose health concerns for nearby residential communities? If so, can changes to current application practices reduce the hazard to nearby communities? The technical review panel oversees the study, holds public meetings, and works closely with the grower and residential communities. Information on the study and all available data are available to the public on the DOH website at <http://www.doh.wa.gov/ehp/Pest/drift.htm>.

Residential summary data for 2007:

- MITC concentrations were uniformly distributed among the various air sampling locations.
- Maximum 12-hour time weighted MITC concentrations were equivalent to the 22 parts per billion acute Human Equivalent Concentration Regulatory Level.

- Four-hour time weighted air sampling indicates that MITC concentrations exceed the acute regulatory level of concern and were greatest during evening and early morning hours.

MITC emissions from shank injected circles were considerably lower than for chemigated circles. For details, see Dr. Hebert's presentation (link is above). Dr. Hebert will continue residential air monitoring during 2008 through 2009.

Collaboration in Training Applicators

Ofelio Borges from the Department of Agriculture (WSDA) Farmworker Education Program presented on "Collaboration in Providing Pesticide Safety Trainings for the Agricultural Industry" (see <http://www.doh.wa.gov/ehp/Pirt/pp080424.pdf>). He focused on two programs for the 2008 training season: the Worker Protection Standard Train the Trainer (TtT) Programs for farm owners, managers and supervisors, and anyone who wants to become a trainer, and the Hands On Pesticide Safety Trainings for pesticide handlers. Five TtT workshops were held with 137 farm/orchard supervisors, growers, safety officers, managers and government employees. Each of these included training on the cholinesterase monitoring program from L&I staff. Participants gave good feedback on the trainings, and felt it would be beneficial to make them longer. The Hands On trainings are directed at pesticide handlers who speak Spanish. Eighteen of these were done for the tree fruit industry, one for the potato industry and one for handlers working in berries, tulips, greenhouses and nurseries. A total of 819 pesticide handlers were trained. Evaluation results were similar to the TtT workshops. WSDA took the lead and worked in collaboration with Labor and Industries, DOH, grower organizations, and other private and public organizations. Nine additional training requests for about 360 handlers were turned down due to lack of time.

Discussion: Next year, WSDA will give priority to those who have not received training. Without collaboration with DOH, L&I and other partners, they would not be able to train as many workers. The demand for these trainings is growing. It would be helpful to have additional staff to conduct these trainings in the short window of time between growing seasons.

Public Comment

Sandy Halstead from the Environmental Protection Agency (EPA) informed the panel that the agency is reviewing acrolein, a biocide used in irrigation systems, as there are some health concerns with the chemical. The EPA published the revised risk assessments in early April, and hosted a scientific review team in Idaho. The agency is concerned with human health risk to bystanders; there is plenty of data on the human endpoint for acrolein, since it is found in tobacco smoke. The public comment period ends on June 2. Ms. Halstead distributed a summary page with docket and details on how to respond with the timeline.

KM mentioned that Ecology is also working on acrolein issues with irrigation districts.

Agenda: The panel will discuss acrolein at the May or June meeting.

Lunch at 12:06, Return at 12:30

AF left the meeting. VH is the alternate.

Recognized Long Term Health Effects of Pesticides

Dr. Matthew Keifer, occupational medicine physician from UW, spoke about long term effects of pesticide exposure. (See <http://www.doh.wa.gov/ehp/Pirt/pp080424.pdf>.) There are a number of reasons why more is not known about this topic. Acute poisonings are relatively uncommon, and persons who have been poisoned are not always easy to find for follow up. There are about 900 registered pesticides in the EPA database. Exposure assessment needs to be done ahead of the health event; it is hard to go back in time to obtain complete exposure information. In the literature, there is a positive publication bias, as investigators who publish papers are more likely to publish those that show a positive effect than those showing no effect. Biological monitoring can give valuable information, but setting this up and waiting 20 years for long term effects is not practical. Factors such as smoking and environmental factors that influence the manifestation of disease may be hard to quantify. Recruiting volunteers for a pesticide study related to a particular disease can introduce bias into the study. Disease registries do not always exist for the endpoint being studied.

Dr. Keifer included information from a summary of 12,000 studies reviewed by Canadian investigators, from Columbia University mother-child pair studies, and from the US Agricultural Health Study, a very large, ongoing study with private and commercial applicators and their spouses. Anneclaire De Roos, a key researcher in this study, will present findings at the November PIRT meeting. These studies will continue to provide useful information on long term effects.

Dr. Keifer excluded pesticide related cancer from his discussion. Pesticides were associated with a spectrum of health outcomes, among them:

- Chronic skin problems
- Respiratory effects, such as asthma, bronchitis, wheezing
- Reproductive/endocrine issues, such as longer menstrual cycles, delayed time to menopause
- Low or high birth weight, birth defects
- Neurodevelopmental issues
- Depression, suicide and emotional disorders
- Parkinson's disease

Organophosphates receive a great deal of attention because they are nervous system toxins, widely used, responsible for a relatively high percentage of poisonings, and have common origins with nerve gas. Long term effects following acute organophosphate poisoning have been reported since the 1950's.

Discussion: There are millions of different combinations of chemicals. It will never be possible to evaluate effects of all combinations for synergistic effects. Researchers try to isolate effects of compounds.

Action: FM will post all presentations from the meeting on the PIRT webpage.

PIRT Report Review

Office of Financial Management has approved the preliminary PIRT Report. This will go to the Legislature soon. The WSDA, WPC and Ecology sections are ready for the final report. DOH needs some additions, and L&I needs a few changes. SG will lead the subcommittee on the

executive summary and pull together findings and recommendations, along with KR, LZ and AF. FM sent SG relevant materials, and will help schedule a subcommittee meeting. FM sent 2007 Action Recommendations with related meeting minutes out to the panel. A sentence addressing the increase in borate cases for the WPC section is still needed.

OFM suggested renaming the preliminary report, as “preliminary” implies that the data is not finalized. The important part of the executive summary will be to identify trends, findings and recommendations and making connections between all agencies’ data.

Action: WH will add language on the increase in borate cases; DOH will assist, if needed. FM will discuss the Ecology spills data and its relevance with CL. FM will send the latest report sections to the panel.

Agency Updates

Health: DOH is moving to a system where the case investigation data will be transferred to a form that can be scanned. This will decrease data entry errors and save time. The system will have parameters that review variable ranges and flag for human review of the data. This will also be helpful in expediting the PIRT Report.

Agriculture: BFM and AW are working on changes to warnings on home fogger labels and advocating use of shut off mechanism for accidental activation. BFM is compiling DOH cases and AW will bring the information to EPA. EPA and pesticide manufacturers want documentation of pesticide incidents, rather than anecdotal data. MK suggested PIRT have a discussion on the 6(a)(2) program that allows for reporting incidents directly to pesticide manufacturers. Companies are happy to get this information, but they do not want individual manufacturers to make label changes without the support of other manufacturers.

Valoria Loveland will be retiring as director of the WSDA; Bob Gore will be interim director until a permanent director is appointed. AW handed out a summary of pesticide waste disposal activities.

The Pesticide Advisory Board (PAB) would like to form a subcommittee on pesticide use reporting and confer with the PIRT use reporting subcommittee. Agency representatives should think about how they might benefit from the data. Agricultural community members will want to know why there is pesticide use reporting before they do the work of reporting. The subcommittee will ask states with use reporting systems about the benefits and uses of their system. The PAB wants to ask Representative Campbell to speak about this at one of their meetings.

Labor and Industries: In the cholinesterase monitoring program, there were 2,000 tests and 200 follow ups received so far. There were six serum depressions to the work practices evaluation level. A cholinesterase stakeholder phone-in meeting will be held on May 19 and a regular meeting will take place in Tumwater in June. There is a new Hispanic outreach specialist who will be promoting DOSH services in Spanish.

Other: Dr. Richard Fenske reported on the air monitoring study. Sampling has taken place over the past five to six weeks, and is not yet finished. The sampling regions are Wenatchee and the Yakima Valley. Ambient sampling sites are located away from orchards, and three receptor sites are located within 100 meters of orchards likely to be treated. These sites were selected with community input. Duplicate samples were collected for 28 days in the Yakima Valley during the

dormant spray period with chlorpyrifos. They are also doing a perimeter sample with an orchard block being sprayed surrounded by eight samplers. Frozen samples will be analyzed by the UW Trace Organics Lab; the analytical plan is being finalized. Dr. Fenske will also sample for oxone, a transformation product of chlorpyrifos. This compound was detected in similar air monitoring studies in California later in the spring, with increased temperatures.

Ecology: It is the beginning of the spray season for mosquitoes, noxious weeds and, lake treatments. Ecology is working on acrolein issues with irrigation districts on the east side, continuing WNV efforts, and examining impact of aerially applied adulticides to aquatic life. The surface water monitoring project with WSDA resumed in February. KM is working on a copper monitoring project in the Wenatchee and Columbia River systems on the sub-lethal impacts of copper on salmon, and working with oyster growers in southwest Washington on replacement of carbaryl with non-carbamate pesticides for burrowing shrimp control.

WPC: On September 24-26, WPC will sponsor “Advanced Haz-Mat Life Support,” a hazardous materials course for health care providers, which will focus on response to chemical incidents. The course will include a section on pesticides.

WPC identified a third case in which the database used at WPC was deficient in identifying the pesticide involved in the incident. They are developing a process for confirmation that goes outside the database to confirm and are working with their software vendor, because that is the standard database used by all Poison Centers. The database uses the product name to identify the active and inert ingredients. Three cases came up with information different from that received by DOH from the product container. One of these was a case where a pyrethrin exposure was mistakenly identified as an organophosphate. WPC is still concerned that there are holes in the database. Occasionally they find deficiencies in household compounds.

WPC will hold a workshop for their staff on pyrethrins, and will use the pyrethroid-related death case and the misidentified pyrethrin case as teaching tools. Pyrethrins are not generally recognized by health care providers as dangerous. MK asked WH to share the case information.

Agenda: FM will add a discussion of WPC, DOH, and UW using case information as an outreach tool for provider education to the May or June agenda.

MK suggested the panel discuss National Institute of Occupational Safety and Health (NIOSH) Sentinel Notification System for Occupational Risks (SENSOR). SENSOR is a system by which different states report their pesticide-related illness to NIOSH. MK suggested having Jeff Calvert from SENSOR call in to the June meeting.

Other Business

The May agenda will include:

- Pierce County Noxious Weed Control
- April PIRT Meeting Review
- PIRT Report Executive Summary
- NIOSH Prevention Update
- Response to Letter from Representative Campbell
- Update on Pesticide Use Reporting
- Acrolein in the Ecology agency update

FM will shift some time from the April PIRT meeting discussion to the PIRT report discussion.

The June agenda will include:

- Update of NIOSH SENSOR meeting in early June
- Requirement of pesticide registrants to report adverse effects of their products to the EPA via the 6(a)(2) program

The July agenda will include discussion of the Pesticide Program Dialogue Committee.

PE and MK moved to approve the May draft agenda, all were in favor.

Action: CL will contact Jeff Calvert from NIOSH about calling in to the June meeting.

Public Comment

There was none at this time.

Adjourn

MK moved to adjourn the meeting, PE seconded. The meeting adjourned at 2:16 pm.

Future Meetings

The next meeting will be May 15, from 9:30 am to 12:30 pm at Labor and Industries in Tukwila. The address is 12806 Gateway Drive, Tukwila, Washington. The draft agenda will be posted at <http://www.doh.wa.gov/ehp/Pirt/pirt-meetings.htm>. Meeting materials will be posted, if available prior to the posting deadline.