

# Labor and Industries

*Washington State Department of Labor and Industries' summary of pesticide-related activity for 2006.*

## Background

Within the Department of Labor and Industries, four divisions are involved in pesticide-related activities: the Division of Occupational Safety and Health (DOSH), Specialty Compliance Services, Industrial Insurance Services, and Field Services.

- DOSH has a mandate to ensure workplace safety and health. DOSH creates workplace safety and health regulations, provides stakeholder training and outreach, holds the Annual Governor's Safety Conference and Agricultural Safety Day, inspects workplaces for safety and health, handles appeals of safety and health violations, and generates the L&I section of the PIRT report. DOSH enforces the Agriculture Worker Protection and Cholinesterase Monitoring rule and runs the Cholinesterase Monitoring program. L&I Consultation Services, a division of DOSH, provides no-cost safety consultations to employers. These consultations are confidential and will not be discussed in this report.
- The Specialty Compliance program issues farm labor contractor licenses, and enforces agricultural wages, breaks, rest periods, recordkeeping requirements, and prohibited jobs for teens.
- Insurance Services provides risk management and loss control assessments. The Safety & Health Assessment & Research for Prevention (SHARP) group researches pesticide and agricultural related safety and health issues. The Claims Program administers wage replacement and medical benefits through worker compensation to Washington workers who become ill or injured on the job.
- Field Services provides support for several of the other services in the different regions through out the state.

The pesticide-related activities of DOSH and Industrial Insurance Services are described below.

## Cholinesterase Monitoring

The Department of Labor and Industries adopted Chapter 296-307-148 WAC, Cholinesterase Monitoring, in December 2003. The cholinesterase monitoring rule became effective February 1, 2004. This rule requires agricultural employers to document the number of hours their employees spend handling toxicity category I or II organophosphate or N-methyl carbamate pesticides. A depression in cholinesterase levels can lead to a range of physical symptoms, including: blurred vision, headache, increased sweating, nausea, diarrhea, and fatigue. A severe depression can result in slowing of the heart rate, seizures, unconsciousness, respiratory failure, and death.

Employers are required to offer their employees the opportunity to participate in the cholinesterase monitoring program if their number of handling hours of target pesticides

is expected to exceed the threshold as defined by the rule. Monitoring of cholinesterase levels in the blood in both red blood cells and serum can detect cholinesterase depression before the onset of illness. Workers receive a baseline test prior to use of targeted pesticides. Cholinesterase levels are tested periodically during the application season and are compared to baseline cholinesterase levels. A decrease from baseline by 20% or more indicates a cholinesterase depression. L&I intervenes based on the level of depression.

To encourage participation in cholinesterase monitoring, L&I held numerous outreach and training workshops on the monitoring rule for grower and medical provider communities throughout the state.

### **Cholinesterase Monitoring Results**

Based on the *Scientific Advisory Committee for Cholinesterase Monitoring Final Report – Cholinesterase Monitoring of Pesticide Handlers in Agriculture, 2004 - 2006*, in 2006:

- 244 employers had their employees participate in baseline testing, a 31% decrease from 2005 and a 34% decrease from 2004. The largest number of participants from one employer was 148, the median was four per employer, and the mean was 7.7 handlers per employer. See Table XX for baseline and periodic test numbers by employer size and by year.
- 1,899 employees participated in the program, a 17% decrease from 2005 and a 29% decrease from 2004. Each enrolled worker had a baseline test.
- 471 (25%) of these workers reached the pesticide-handling hour threshold for 30 hours in 30 consecutive days and received subsequent periodic testing.
- 57 (12%) workers had depressions triggering workplace evaluations of the participants with periodic tests with at least one cholinesterase depression of more than 20 percent from baseline. Depressions in these 57 workers triggered their employers to perform a workplace evaluation and generated alerts to L&I.
- Seven of these alerts were issued to workers with cholinesterase depressions requiring removal from further exposures to cholinesterase inhibiting pesticides (depressions greater than or equal to 30 percent for RBC and 40 percent for serum). Four of these workers had depressions triggering workplace evaluations, continued to work, and had subsequent periodic tests with depressions severe enough to trigger removal from pesticide exposure.
- In 2006, L&I offered work place evaluations and consultations to employers with employees whose cholinesterase levels were depressed to the workplace evaluation or exposure removal levels. Compliance inspections were triggered by multiple depressions with the same employer.

**Table XX. Baseline and Periodic Testing for Cholinesterase Monitoring Participants by # of Handlers per Employer, 2006**

Number Handlers per Employer	Number Employers Total	Base lines	Number and Percent Handlers with at Least One Periodic Test	Number and Percent Handlers with at Least One Depression
> 50	5	463	129 (28%)	11 (9%)
11 - 49	37	747	189 (25%)	32 (17%)
1 - 10	202	679	154 (23%)	14 (9%)
Total 2006	244	1,889	471 (25%)	57 (12%)
Total 2005	312	2,263	611 (27%)	59 (10%)
Total 2004	370	2,655	580 (22%)	119 (21%)

To assess declinations and numbers of eligible handlers who are opting out of participation, L&I surveyed the five health care clinics that performed about 75% of the total baseline cholinesterase tests in 2005. These health care clinics estimated the proportion of eligible handlers who were referred to the clinic but declined baseline testing. All clinics had a declination estimate less than the 15% rate declination rate in the 2003 Cholinesterase Monitoring Small Business Economic Impact Statement. The total number of participants went down each year but the rate for persons getting follow-up testing fluctuated. In an effort to determine the most likely causes for the decrease in participants from 2004 to 2006, L&I investigated about 25 percent of the employers who ceased participating in ChE monitoring between the second and third years. These investigations provided evidence for the following:

- Changes in pesticide use patterns, including eliminating the use of, or applying less, organophosphate or N-methyl Carbamate pesticides;
- Lessening handler exposure below the 30 hour time period for mandatory testing through handler rotation or an increase in the number of pesticide applicators;
- Increased handling of pesticides by those not covered under the rule, e.g. owner and family members;
- Employer non-compliance or handlers refusing to participate.

Health care providers sent the number of the 2006 pesticide-handling hours to the DOH Public Health Laboratory with each periodic test request. The laboratory forwarded the handling reports to L&I.

From 2004 through 2006, on average, serum cholinesterase was shown to be depressed by 6.8 percent among periodically tested handlers. Red blood cell (RBC) enzyme activity has shown less frequent or extensive depression. Consistent with these observations are the results from analyses of handlers with pre-baseline testing exposures to insecticides (i.e., working baselines). That subset of handlers also tends to have lower ChE levels in their baseline tests than handlers without pre-baseline exposures.

Regardless of the lack of a strong correlation between hours worked and serum ChE depression, the consistency of observations for average population depressions suggest that exposures sufficient to depress at least serum ChE activity had occurred in a number of handlers. A small but significant relationship was found for serum (plasma) cholinesterase with hours worked. On average, a 0.053 percent serum cholinesterase depression could be expected for every hour spent handling category I or II

organophosphate or N-methyl carbamate pesticides. This equates to an approximate 1.5 percent serum cholinesterase depression for every 30 hours spent handling in the 30 days prior to testing; a small decrease.

If L&I finds that a worker experienced symptoms that could be associated with cholinesterase depression, the case is referred to DOH for investigation. L&I referred two cases to DOH during 2005. After investigation, DOH determined that neither of these illnesses was associated with organophosphate or N-methyl Carbamate exposure.

During 2004, and 2006, L&I conducted confidential consultations with employers to evaluate workplaces where employees had cholinesterase depressions compared to their baseline tests. Because of the confidential nature of these consultations, they are not included in this report. During 2005, L&I also conducted research investigations with employers to evaluate workplaces where employees had cholinesterase depressions compared to their baseline tests.

Preliminary results of cholinesterase monitoring for 2005 and 2006 were compared to the results from 2004. Improvements in the cholinesterase monitoring program from 2005 that were maintained in 2006 included: 1) faster laboratory turnaround of baselines test (from 24 days to one or two days); 2) L&I notifications of depressions (from seven days to three days); and 3) decreased amount of time between notice of depression and initiation of an investigation (from 35 days to nine days).

More information on the cholinesterase monitoring rule is available at the L&I cholinesterase monitoring Web site:

<http://www.lni.wa.gov/Safety/Topics/AtoZ/Cholinesterase/default.asp>.

The Science Advisory Committee's Final Report and recommendations based on 2004 – 2006 data is available online at:

<http://www.lni.wa.gov/Safety/Topics/AtoZ/Cholinesterase/file/2004-06ChESAreport.pdf>.

The L&I Reports to the legislature are also available online. The report on the first year of cholinesterase monitoring can be found at:

<http://www.lni.wa.gov/Safety/Topics/AtoZ/Cholinesterase/files/ChELegRpt2004Final.pdf>.

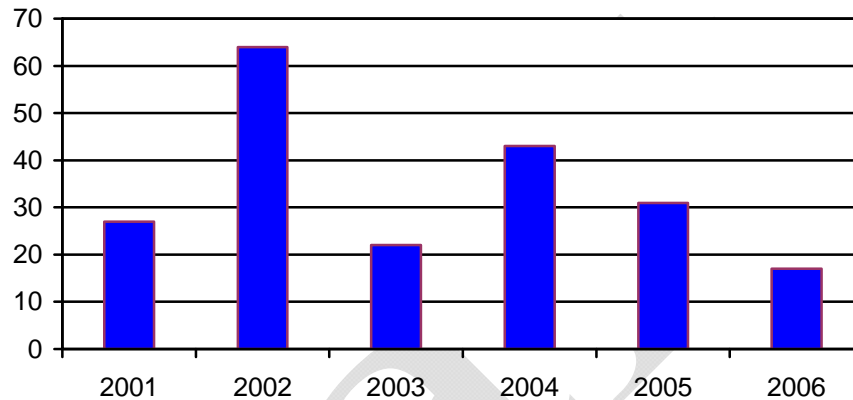
## **Division of Occupational Safety and Health (DOSH) (resume here)**

To enforce safety and health in the workplace, L&I DOSH staff members may issue citations requiring employers to implement changes in the workplace. Washington Industrial Safety and Health Act (WISHA) citations can be categorized as “serious” or “general.” A serious violation presents a “substantial probability that death or serious physical harm could result from a condition which exists, or from one or more practices, means, methods, operations or processes which have been adopted or are in use, in the workplace . . .” A general violation is a situation where the “most serious injury, illness or disease that would likely result from a hazardous condition cannot be reasonably predicted to cause death or serious physical harm to exposed employees, but does have a direct and immediate relationship to their safety and health.” Both categories of citations require employers to implement changes in the workplace. Serious violations have penalties assigned and follow-up inspections may be performed to assure compliance. If required changes in workplace safety and health have not been made, these citations are reissued as “failure to abate” the hazard with additional monetary

penalties. Inspection conducted by DOSH can result in several violations and include both serious and general citations.

This section summarizes the results of pesticide-related safety and health inspections conducted by L&I DOSH. A description of each of the inspections is provided in Appendix X. The number of pesticide-related inspections decreased in 2006 (Figure XX). The decrease in the number of DOSH pesticide-related inspections in 2006 was from the result of having fewer investigators due to retention and recruiting issues.

**Figure XX. WISHA Workplace Safety and Health Inspections, 2001 - 2006**

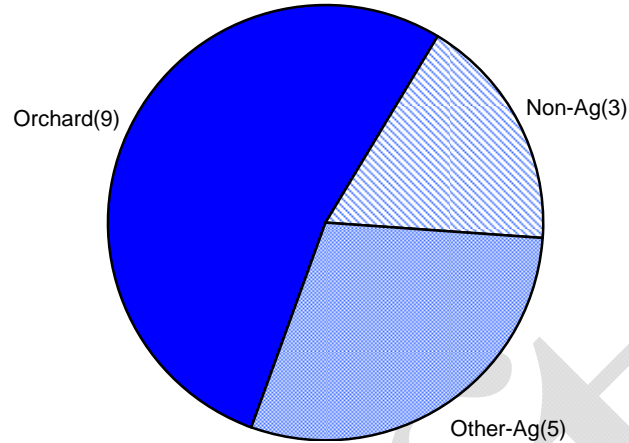


### DOSH Inspections

Of the 17 inspections conducted in Washington involving pesticide related issues, 11 (65%) were located in eastern Washington and 6 (35%) were located in western Washington. Of the 17 pesticide-related DOSH inspections in 2006, nine were referrals from state agencies, health care providers, and others. Three inspections were initiated in response to employee or employee representative complaints. Three were planned inspections, one inspection was due an accident, and one was a follow-up from 2005.

Fifteen of the 2006 inspections occurred in agricultural environments. Two were in non-agricultural settings. Figure XX shows the inspections by type of work place. Nine (53%) of the inspections involved orchards. The "Other Agricultural" workplace classification included one berry farm, one potato farm, one tree farm, one plant nursery, one vegetable and melon producer, and one apple/pear storage facility. Of the two non-agricultural inspections, one involved raspberry research, and one occurred at a fruit packing and storage plant.

**Figure XX DOSH Inspections by Type of Workplace, 2006**



### **DOSH Inspections Involving Violations**

In 2006, L&I conducted seventeen inspections involving pesticides with 14 of those employers receiving citations. Several inspections resulted in both serious and general citations, and two inspections generated six “failure to abate” citations.

Monetary penalties totaling \$13,050 were assessed for seven “failure to abate” and 10 serious pesticide-related citations from seven of the 17 total inspections. There were 27 general pesticide-related citations, with no penalties assessed for 14 of the 17 inspections. No citations were issued to the employer in three of the 17 total inspections.

In six of the seven “failure to abate” citations the monetary penalty totaled \$5,750, with an average penalty of \$958. One general citation was issued as “failure to abate” for \$100. It was considered an outlier and not averaged with other “failure to abate” citations. The ten serious citations resulted in a total monetary penalty of \$7,200 with an average penalty of \$720.

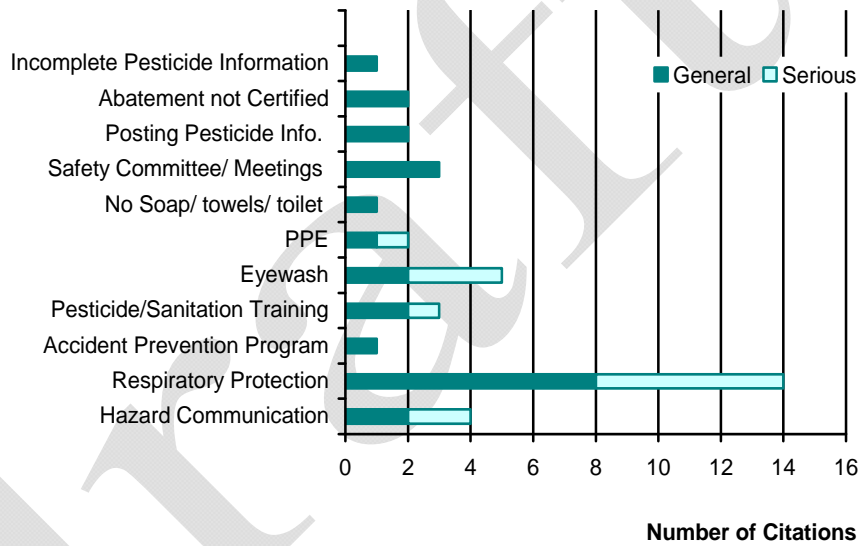
The most frequent type of serious (16) and general (28) WISHA violations cited in 2006 were:

- Respirator deficiencies, including no respirator program, improper storage or cleaning of respirators, no medical evaluations of worker's ability to wear a respirator, or no respirator fit-testing.
- Hazard communication deficiencies in safety programs, including: missing written programs, chemical inventories, or MSDS; no employee training; or insufficient chemical labeling.
- Accident prevention program deficiencies.
- Employees not trained about pesticides, their hazards, or field sanitation.
- No emergency eyewash provided.
- Deficiencies in appropriate personal protective equipment.

- No hand-washing facilities or toilet.
- No required safety committee or safety meetings.
- Not posting safety, emergency, or pesticide spray information as required.
- Abatement of previously cited hazards not certified.
- Incomplete pesticide inventory.

General and serious violations involving pesticides are categorized by type of violation in Figure XX

**Figure XX. WISHA General and Serious Violations Involving Pesticides, 2006**



### L&I Claims Insurance Services Division, Claims Administration Program

The Insurances Services Division, Claims Administration Program processes workers' compensation claims initiated by on-the-job injuries and illnesses. In 2006, the Claims Administration Program received 110 claims where the injury or illness initially appeared

to be related to pesticide exposure (Table 36). The number of pesticide-related claims increased in 2006 by 15% from 2005.

L&I either accepts or rejects claims based on whether a work-related injury or illness is diagnosed. Compensation is determined in accordance with the following definitions:

- **Medical Only/Non-Compensable Claim:** A worker experienced symptoms that he/she believes occurred from exposure on-the-job and seeks medical evaluation. The physician finds the symptoms related to the exposure and there is objective evidence of injury. Therefore, the claim is allowed and medical evaluation and any follow-up medical care/treatment costs are paid. The employee misses less than three days of work. These lost workdays are not reimbursed to the employee.
- **Time Loss/Compensable Claim:** A worker has an allowable claim and misses more than three days of work immediately following an exposure on the job. The worker is paid a portion of salary while unable to work. All related medical costs are covered.
- **Rejected Claims:** Initial diagnostic and medical evaluation costs are covered but the claim is rejected because objective evidence is lacking relating symptoms to workplace exposure. Claims may be rejected because symptoms have resolved by the time treatment is obtained, there is no objective evidence of injury, the worker may not yet have symptoms of illness from the exposure, or exposure cannot be confirmed or documented. A rejected status can be appealed and is often reevaluated. However, once final, the worker can no longer reopen a claim based on original symptoms. Illness claims may be either opened or reopened up to two years after the identification of the onset of delayed symptoms. Costs of initial medical visits are usually paid.
- **Pending:** Additional information is being collected on the claim before a determination can be made.
- **Kept on Salary:** The employer elects to pay the claimant's salary instead of L&I paying time loss payments while the employee is recovering from an injury or illness.

**Table XX. Status of L&I Claims Initially Related to Pesticides, 2001 - 2006**

	2001	2002	2003	2004	2005	2006
<b>Medical Only Non-compensable</b>	75	79	83	70	62	68
<b>Time Loss/ Compensable</b>	8	4	4	4	2	4
<b>Rejected</b>	45	26	45	26	29	36
<b>Pending/Unknown</b>	-	-	1	1	-	1
<b>Kept on Salary</b>	1	-	-	-	-	1
<b>Total</b>	<b>129</b>	<b>109</b>	<b>133</b>	<b>101</b>	<b>93</b>	<b>110</b>

Claims categorized as “Medical only” and “Time loss” are compensated as work-related injuries. Of the 110 claims in 2006, 72 (65%) were compensated by L&I as being work-related injuries. L&I paid either time loss or medical benefits for a total of \$206,860 in 2006.

As noted in the Rejected Claims definition above, most rejected claims were compensated for initial diagnostic and medical evaluations costs even if a determination could not be made to relate the symptoms to the work place.

### L&I Claims Reported to Department of Health

L&I provides claims information involving pesticides to DOH to investigate whether the illness or injury is pesticide-related. L&I referred 110 claims to DOH to investigate during 2006 (Table XX). L&I assessed 74 of 110 claims as work-related. Of the 74 claims that L&I assessed as valid work related injuries, DOH classified 60 (55%) as definitely, probably, or possibly related to pesticides (DPP). Based on the DOH criteria, 50 cases were classified as insufficient evidence to assess the link with pesticides, suspicious, or unlikely to be related to pesticide exposure. Of the 36 claims that L&I rejected, DOH classified 14 as likely to be associated with pesticide exposure (DPP).

Table XX illustrates the difference in evaluation criteria and perspective between the two agencies.

**Table XX. Comparison of L&I Claims and DOH Classification Status, 2006**

L&I Claim Determination	DOH Classification						Total
	Definite	Probable	Possible	Insuf Inf	Suspicious	Unlikely	
Medical Only/ Non-compensable	4	11	27	10	5	11	68
Time Loss/ Compensable	--	2	-	--	--	2	4
Rejected	-	4	10	9	2	11	36
Pending/Unknown	--	1	--	--	--	--	1
Kept on Salary	--	--	1	--	--	--	1
<b>Total</b>	<b>4</b>	<b>18</b>	<b>38</b>	<b>19</b>	<b>7</b>	<b>24</b>	<b>110</b>

Seventy-three (66%) of the 110 claims L&I referred to DOH for evaluation were agricultural, and 32 (44%) of these were classified as DPP related to pesticide exposure. The 37 remaining claims were non-agricultural, and 26 (70%) of these were DPP. Non-agricultural cases worked in a variety of professions including landscaping, construction, pest control, maintenance, parks, and others.

Occupational exposures are described in detail in the DOH Section under Occupational Cases of Pesticide-Related Illness.