

# **July 2006- June 2007 Legislative Report**

**PESTICIDE ANALYTICAL AND RESPONSE CENTER**



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## ACRONYM DEFINITIONS

<b>CROET</b>	Center for Research on Occupational and Environmental Toxicology
<b>DEQ</b>	Department of Environmental Quality
<b>DHS</b>	Department of Human Services
<b>FIFRA</b>	Federal Insecticide, Fungicide and Rodenticide Act
<b>MSDS</b>	Material Safety Data Sheet
<b>NIOSH</b>	National Institute of Occupational Safety and Health
<b>ODA</b>	Oregon Department of Agriculture
<b>ODF</b>	Oregon Department of Forestry
<b>ODFW</b>	Oregon Department of Fish and Wildlife
<b>ODOT</b>	Oregon Department of Transportation
<b>OPHD</b>	Oregon Public Health Division, DHS
<b>OERS</b>	Oregon Emergency Response System
<b>OHSU</b>	Oregon Health and Sciences University
<b>OR-OSHA</b>	Oregon Occupational Safety and Healthy Division
<b>ORS</b>	Oregon Revised Statutes
<b>OSFM</b>	Oregon State Fire Marshal
<b>OSDP</b>	Oregon State Department of Police
<b>OSU</b>	Oregon State University
<b>PARC</b>	Pesticide Analytical and Response Center
<b>USEPA</b>	United States Environmental Protection Agency
<b>USFWS</b>	United States Fish and Wildlife Service

## Executive Summary

The Pesticide Analytical and Response Center (PARC) is mandated to coordinate the response of eight state agencies to pesticide related incidents. It also has a responsibility to collect incident information, report investigation results, and evaluate mitigation measures or trends that may affect public health. This legislative report is a description of PARC activities from July 2006 through June 2007.

The last PARC legislative report was produced for fiscal year 2005-2006. This report was released in February 2009. It is available by request from the PARC program or from the website: <http://www.oregon.gov/ODA/PEST/parc.shtml>

All calls referred to PARC that are pesticide related are identified as “incidents” and reviewed based on the PARC criteria. An incident becomes a case and is assigned a case number when investigative findings show that the incident meets the case criteria. PARC evaluates incident data using classification indices only if the incident is elevated to case status.

During fiscal year 2006-2007, 89 reported pesticide effects were evaluated based upon the PARC case definition. There were many more reports of pesticide effects that were given preliminary consideration but that did not meet basic information needs. Thirty-six of these incidents met the PARC case definition and were given certainty and severity indices by the Board. There were 30 human cases and six pet cases. One human case was not classified due to a lack of information.

Cases that involve people are divided into two occupational designations. These are:

- 1) Non-occupational, meaning that the person or persons were not working as employees when the event occurred.
- 2) Occupational, meaning that the person or persons were conducting work activities as employees when the event occurred.

There were 14 non-occupational cases and 16 occupational cases investigated from July 2006 – June 2007.

Six cases involved domestic dogs and cats. Five of these cases were identified as intentional poisonings, causing death to seven dogs and three cats. There were no environmental or wildlife cases investigated during this time period.

Cases are classified by the following certainty designations:

- **Definite:** There are measured concentrations, e.g., blood/urine samples or environmental samples, and a highly plausible exposure pathway with specific health effects, consistent with exposure to identifiable active ingredients.
- **Probable:** There is a highly probable and documented exposure pathway with health effects that are consistent with exposure to the known active ingredient(s).
- **Possible:** There is uncertainty with respect to any likelihood of exposure, the circumstances, or the consistency of the reported symptoms with relationship to the reported active ingredient(s).
- **Unlikely:** The complaint or the majority of the reported symptom(s) is not consistent with the toxicology of the active ingredient(s) OR the time between exposure and onset or duration of symptoms is not consistent with the toxicology of the active ingredient(s) OR there is no plausible exposure pathway.
- **Unrelated:** The complaint is not pesticide related.
- **Exposure, no symptoms:** There is verifiable exposure, but no symptoms exhibited.

Of the 30 cases that involved people, one could not be classified because insufficient information was available. There were no cases that were classified as definite; nine cases were classified as probable, eleven cases were classified as possible, eight cases were classified as unlikely, and one case was classified as “exposure, no symptoms”.

Cases are also classified according to the severity of the illness exhibited by individuals, the environment, wildlife, or domestic animals. Severity is determined based upon the illness or injury, regardless of the relationship of the illness to the pesticide. The following are these classification designations:

- **Death**
- **High severity illness/injury:** The illness or injury is severe enough to be considered life threatening and typically requires treatment. This level of effect commonly involves hospitalization. Signs and symptoms include, but are not limited to, coma, cardiac arrest, renal failure and/or respiratory depression. The individual sustains substantial loss of time (>5days) from regular work or normal activities. This level of severity might include the need for continued health care following the exposure event, prolonged time off of work, and limitations or modification of work or normal activities. The individual may sustain permanent functional impairment.
- **Moderate severity illness/injury:** The illness or injury is less severe and often involves systemic manifestations. Generally, treatment was provided. The individual is able to return to normal functioning without any residual disability. Usually, less time is lost from work or normal activities ( $\geq 305$  days), compared to those with severe illness or injury. No residual impairment is present (although effects may be persistent).
- **Low severity illness/injury:** The illness or injury often manifests with skin, eye or upper respiratory irritation. It may also include fever, headache, fatigue, or dizziness. Typically the illness or injury resolves without treatment. There is minimal lost time (<3 days) from work or normal activities.
- **No symptoms reported:** This is used for cases that the PARC Board or staff chooses to designate as PARC cases, even though they may not meet the PARC case definition, which requires that some kind of illness be reported/alleged. These cases may be designated as Noteworthy Cases if, by their nature, they highlight a risk or potential risk for future problematic pesticide exposure(s). It may also be used when a pesticide exposure is known to have happened but no symptoms have been observed.

One notable investigation in this report is the death of an employee while applying pesticides. Review by the PARC Board found the death to be unrelated to the pesticide he was applying.

No cases fit the definition of a high severity illness; six cases were classified as moderate severity illnesses, twenty-one cases were classified as low severity illnesses and in one case, the subject of the investigation exhibited no symptoms. One case could not be classified due to insufficient information.

A significant change to data collection in 2006-2007 was the development and deployment of the PARC information database. The database allows specific case information to remain confidential, is separate from other data collection systems, and allows aggregation of information for retrieval and report.

### **FY 2006-2007 PARC Accomplishments:**

- *Development of outreach information to first responders.*  
In August 2006, the PARC Board officially recommended that three state agencies, 1) the Oregon Department of Human Services, Public Health Division (DHS-PHD), 2) the Oregon Department of Consumer and Business Services, Occupational Safety and Health Division (OR-OSHA), and 3) the Office of the State Fire Marshal, work together to develop a strategy to present information to local emergency responders regarding entry into atmospheres where pesticides may have been applied.

This recommendation was a response to an incident in 2005, where emergency responders were affected after entering a home to help a woman. The woman, who suffered from chronic respiratory and heart issues, died after re-entering her home following an interior pesticide application to her home.

Neighbors notified first responders, police, and emergency medical personnel, that the interior of the home was possibly toxic but responders entered the home without respiratory protection. The interior atmosphere affected several of the responders. These effects were identified by PARC agencies as a "preventable respiratory hazard" associated with entering an enclosed space without proper respiratory protection.

A narrative was developed by DHS-PHD and sent to over 3,000 Oregon law enforcement list-serve subscribers and 4,000 Oregon fire-rescue subscribers. The narrative described the incident and the errors made by responders. Beginning in 2006, Power Point presentations based on this narrative have been used to train first responders.

- *Identification of deltamethrin as an active ingredient of interest.*  
This pesticide active ingredient is contained in several products commonly used in structures, including apartments and homes, to suppress or kill cockroach and silverfish infestations. PARC will continue to monitor incidents/cases involving this active ingredient.
- *Development of investigative relationships with other agencies that are not included in the membership of the PARC Board.*  
Examples of these are the Oregon Department of Transportation, Oregon Bureau of Labor and Industries, Coroners' office(s), the U.S. Fish and Wildlife Service and U.S. Environmental Protection Agency.

### **Trends observed by PARC include:**

- *Most employers did not comply with basic OR-OSHA requirements for employee protective equipment, health hazard control measures, and worker protection training and record keeping in cases that involved pesticide handlers or applicators.*  
PARC continues to encourage education and outreach to employers by member agency OR-OSHA to identify specific and general activities that may be hazardous to employees with respect to pesticides. These can include activities that are not necessarily part of an application but may affect the employees.
- *Insecticides with lethal properties when ingested by vertebrates are being used to illegally bait and kill domestic pets, putting wildlife (esp. raptors and canids) at risk.*  
PARC continues to coordinate investigations between U.S. Fish and Wildlife Service, Oregon Department of Fish and Wildlife, U.S. Department of Agriculture, Oregon Department of Agriculture, and local agencies to intensively investigate these cases.

- *Many occupational cases or incidents are the result of applications in or near the employee workplace and do not involve employees directly using pesticides.*  
 PARC encourages the educational training of commercial applicators include these scenarios so that they are aware of the possibilities of exposure of others during applications.
- *Many non-occupational incidents result from personal disregard of general safety measures by persons not involved in pesticide applications. An example is two people who trespassed into an orchard to look at an agricultural application and complained of drift onto them.*  
 PARC recommends as many presentations as possible to raise awareness of the general publics' personal safety when applications are occurring.
- *Members of the general public who use pesticides regularly do not read the label for more than the most basic dilution or use requirements.*  
 PARC plans several outreach projects to continue to instruct homeowners to read the complete label of any pesticide they use. One of these projects was expected to launch by January 2008.
- *Public visibility of PARC is quite low. Most calls and complaints are logged through the OPC and ODA.*  
 PARC plans to increase public awareness of the unique capabilities of this program through outreach and education using existing educational venues. Examples of these venues are Oregon Department of Human Services, PARC Coordinator talks, and public educational opportunities provided by other state agencies.

*On July 1, 2005, the primary responsibility for the administrative functions of the Pesticide Analytical and Response Center (PARC) was undertaken by the Oregon Department of Agriculture*

*This report is intended to make PARC transparent to the citizens of Oregon; how it gathers information, determines cases and identifies whether pesticides have adversely affected human beings, pets, wildlife or the environment, hopefully with the result that more reporting will help create a safer place for citizens to live. The following report meets the legislative requirement as stated in OAR 634.550.*

*This report addresses incidents and cases from July 1, 2006 to June 30, 2007.*

## **How The Pesticide Analytical and Response Center Functions**

### **AUTHORIZATION**

PARC was created by executive order in 1978. Senate Bill 740 was passed in 1991, reauthorizing the program into the Oregon Department of Agriculture (ODA) as OAR 634.550. Funds (General Funds) for operation of PARC were added to the ODA budget beginning with fiscal 2005.

### **MEMBERSHIP**

Membership of the governing board consists of representatives of eight state agencies and one citizen of the state at large appointed jointly by the Director of Agriculture and the Director of Human Services.

The eight state agencies are:

- Department of Agriculture (ODA)
- Department of Environmental Quality (DEQ)
- Department of Fish and Wildlife (ODFW)
- Department of Forestry (ODF)
- Department of Human Services, Public Health Division (DHS-PHD)
- Oregon Occupational Safety and Health Administration (OR-OSHA)
- Oregon Office of State Fire Marshal (OSFM)
- Oregon Poison Center (OPC)

Several organizations provide expertise to the PARC Board as contracted consultants:

- The Center for Research on Occupational and Environmental Toxicology (CROET)
- The Environmental and Molecular Toxicology Department from Oregon State University (OSU)
- Oregon Department of Transportation (ODOT)

Representatives from ODA and PHD alternate as PARC Board chair each calendar year, with ODA conducting chairperson activities during odd years and PHD during even years. The Board meets every other month, beginning each year with a January meeting, to discuss incidents, cases, and pesticide related topics.

## FUNDING

For fiscal year 2006 – 2007, funding for PARC came from the General Fund to the Oregon Department of Agriculture.

- A 2005 interagency agreement between ODA and DHS authorizes one-half staff person to be hired by DHS for the biennium. This staff is responsible for collecting medical records and interview people who are concerned about pesticides and/or possible pesticide illness or effects.
- One-half staff person is assigned by ODA to PARC as the program coordinator. This staff is responsible for database development, tracking incidents and cases, investigation coordination, and Board meetings and Board reports.

Details of the 2005-2007 biennium budget approved for PARC include:

ODA	<i>Personnel</i>	\$116,228	
	<i>Services/supplies</i>	<u>\$37,121</u>	
	<i>Sub-total</i>	\$153,349	
PHD			\$93,385
OSU			<u>\$50,681</u>
<b>Total</b>			<b>\$297,415</b>

## Activities and Responsibilities

### MANDATES

PARC is mandated by statute to perform the following activities when pesticide-related incidents result in suspected health or environmental effects:

- Collect incident information
- Mobilize expertise for investigations
- Identify trends and patterns of problems
- Develop policy or other recommendations for action
- Report results of investigations
- Prepare activity reports for legislative sessions

### INVESTIGATION COORDINATION

The primary statutory function of PARC is to coordinate investigations and to collect and analyze information about reported incidents of health or environmental effects from possible pesticide exposure. PARC does not have regulatory or investigative authority. PARC cases address suspected pesticide effects to humans, pets, wildlife and the general environment as incidents to be tracked and investigated for possible pesticide involvement and for necessary changes to policies or interpretations of law.

PARC member agencies conduct most of the investigations and take necessary enforcement actions (Appendix IV – Member Agencies and Consultant Jurisdictions).

Investigation coordination includes:

- Collecting information from callers and distributing the information to member or interested agencies.
- Assigning a numerical incident tracking number for possible pesticide incidents where adverse health or environmental effects are claimed.
- Requesting investigation or collaboration by member or interested agencies.
- Assigning a numerical case number if the incident meets specific case criteria.
- Coordinating health information with PHD.

- Consulting with a medical toxicologist from Oregon State University (OSU), if a case has a human impact.
- Collecting investigative reports and enforcement actions from other agencies.

Participants in incident or case investigations may include other government agencies that are not specifically mentioned in the PARC mandate. Some examples of those agencies are:

- Oregon Department of Transportation
- Oregon State University Extension Service
- United States Environmental Protection Agency
- United States Fish and Wildlife Service

Investigations by other agencies are included in PARC review and evaluation for classification.

### **CLASSIFICATION OF CASES**

When an incident is reported to PARC, an incident number is assigned. This incident number is used to track the incident from start to finish. Each incident is entered into a data management system and summarized for presentation to the PARC Board at each bimonthly meeting. All issues related to pesticide incidents are evaluated by the Board to meet the legislative mandate to identify trends, issues, and problems related to the use, handling, or application methods of pesticides.

If the incident meets specific criteria, it is issued a case number. The PARC Board classifies each case when the investigation is complete. Each case is classified based on the probability that the case was pesticide related. A set of criteria has been developed to classify each case as to causality (Appendix II).

Member agencies submit final case investigation reports to the PARC coordinator. These reports include any violations and/or enforcement actions and are routinely shared among agencies and with the PARC Board when classification of cases takes place.

The data developed from incidents and case investigations are analyzed and presented to the Oregon Legislature. Information collected by PARC is used to:

- 1) Identify the appropriate agencies to gain assistance during crisis.
- 2) Conduct training of other agencies to assure that critical information collection is accomplished.
- 3) Develop educational materials aimed at reducing exposures.
- 4) Make recommendations to state and federal agencies regarding products and application practices with the aim of reducing acute pesticide poisonings.

Education of the public and other agencies is identified as key to collecting and substantiating exposure scenarios. Reporting delay inhibits the ability of PARC and individual agencies to gather adequate information, identify rule violations, and evaluate the relationship between reported exposures or environmental impacts.

Information collected by the PARC program is available and provided to the public, other agencies, and business interests. Information is also provided to the U. S. Environmental Protection Agency and the U. S. Fish and Wildlife Service when appropriate. These federal agencies combine PARC data with information from other states to identify possible national trends regarding pesticide products or uses. Upon request, pesticide product manufacturers, industry organizations, and public interest groups are also provided the information developed by PARC agencies, and any conclusions that PARC has drawn from that information.

Information is disseminated to targeted groups through Power Point presentations at training seminars and meetings and through pesticide safety literature. The PARC program anticipates larger scale public and professional educational efforts as the program moves forward.

# Data Analysis

## INCIDENT REPORTS

During fiscal year 2006-2007, PARC recorded and investigated eighty-nine (89) incidents that involved possible human health, pet or wildlife illnesses, or environmental damage by pesticides.

Incidents are reported to PARC in a variety of ways. These include reporting through PARC member agencies, as well as other federal, state and local agencies. Other sources for reporting incidents include persons who think they have been affected by pesticides, the general public, and the news media. PARC follows up on any allegations to confirm which agency should take the lead in the investigation and which agencies should be involved or notified.

Incident reports represent urban (indoor and outdoor) situations, agricultural and forestry pesticide applications, pesticide spills, accidents, odor complaints, homeowner applications, and neighbor complaints. Included are incidents that cannot be substantiated, anonymous calls, and odor concerns that may or may not have been associated with pesticides.

Eighty-nine (89) incidents were tracked and investigated because they were initially identified as having a relationship to pesticides. Investigation into these incidents determined which ones met the PARC criteria as a case. Generally, case criteria involve identifying one or more pesticide product(s) as the cause of concern, and observed or documented symptoms associated with those products. An exception to this criterion is when an exposure is known to have occurred but no symptoms develop.

## CASE REPORTS

Thirty-six of the 89 incidents (40%) were issued case numbers.

- Thirty cases involved people. Of these, one case could not be classified due to lack of information.
- Six cases involved pets (cats and dogs).

### Human Cases

Thirty cases (83%) were reported as human illnesses. Fifty-six people were the focus of these thirty cases. Sixteen cases (53%) were occupational, with twenty-three people involved or affected. Fourteen cases (47%) were non-occupational, with thirty-three persons involved or affected.

Two cases involved evacuations of children and adults from areas where pesticides might have affected them. One case was the accidental release of chlorine gas during routine maintenance activities at a hotel swimming pool. Emergency responders assured that gas had not affected the children and adults. The second of these cases was the suspected drift of herbicides from a railroad application into a day care center. Children and workers were transported to the Emergency room but were not found to be exhibiting symptoms of pesticide exposure.

One case could not be classified due to insufficient information regarding symptoms. This case involved one person and was non-occupational.

### Environmental Cases

None of the environmental incidents met the PARC criteria to become a case.

### Domestic Animal Cases

Six cases (17%) involved domestic animals, three cats and eight dogs. Of these cases, five were intentional poisonings illegally using lethal doses of insecticides in bait that killed the pets.

## CASE CLASSIFICATION

Case classification is a conclusion based upon investigation by authorized agencies and toxicological determinations of the correlation between known pesticides and symptoms exhibited by people or domestic animals or the wildlife/environmental effects. Classification includes two parameters:

- **Certainty index:** The certainty index is a gauge used to measure how closely symptoms and exposure scenario match the expected symptoms or effects of exposure to the known pesticide symptoms.
- **Severity index:** The severity index is a gauge for measurement of the severity reported illness or environmental effects.

Appendix II contains the incident and case criteria upon which the following classifications are based.

Cases were classified in three categories. These were occupational, non-occupational, and pets. There were sixteen (16) occupational cases, fourteen (14) non-occupational cases, and six (6) cases where pets were involved (Fig. 1).

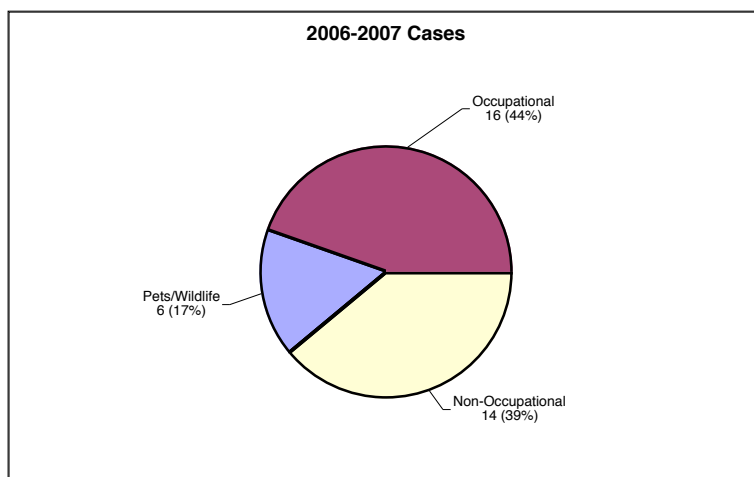


Figure 1: All Cases

There was insufficient information to classify the certainty of one (3%) of the 36 cases. Two cases (6%) were classified as exposure, no symptoms. Four (11%) were classified with a definite certainty of pesticide exposure. All four of these cases were pets affected by the unlawful use of insecticides mixed with attractants (bait) to illegally kill whatever animal ate it.

Nine cases (25%) were classified with a probable certainty of pesticide exposure leading to specific effects. Eleven cases (30%) were classified as having a possible certainty of pesticide exposure leading to specific effects. Eight cases (22%) were classified with a certainty of unlikely to have been caused by pesticides. One case (3%) was classified as unrelated to pesticides (Fig. 2).

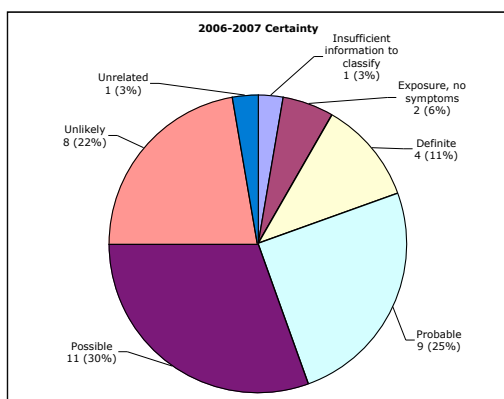


Figure 2: All Cases – Certainty Index

There were no human cases in 2006-2007 where the certainty could be assigned as definite. Nine cases (31%) were classified as probable. Eleven cases (38%) were classified as possible. Eight cases (28%) were classified as unlikely. One case (3%) was classified as an exposure, with no symptoms (Fig. 3).

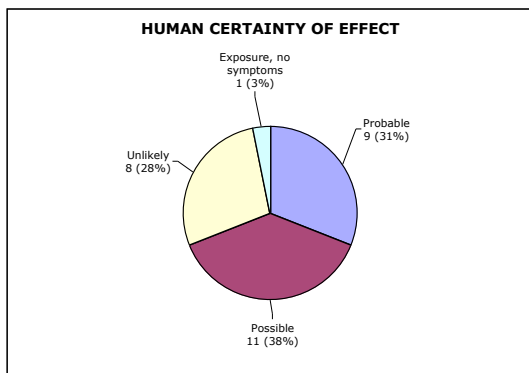


Figure 3: Human Cases – Certainty Index

One case (3%) involved the death of a man who was applying pesticides, no cases were classified as high severity illnesses, six cases (20%) were considered to be of moderate severity, twenty-one cases (71%) were of low severity and in one case (3%) there were no symptoms exhibited. One case (3%) was not classified due to insufficient information. It is important to note that the severity classification is not tied to the certainty classification, because the severity is specifically based upon the illness symptoms exhibited. For example, in a case where a person clearly exhibited moderately severe symptoms, the certainty of the symptoms being caused by a pesticide exposure might be “unlikely” if it appeared that the symptoms had some other cause (Fig. 4).

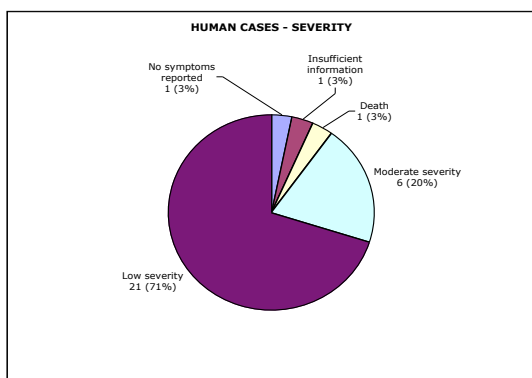


Figure 4: Human Cases – Severity Index

### COMPARISON WITH PREVIOUS YEARS

Shown below are charts comparing the previous five PARC reporting periods with the 2006-2007 data. There are some areas where it is not possible to make direct comparisons between data sets. During 1998 through 2001 years, every call was considered an exposure to pesticides and was classified according to National Institute of Occupational and Safety and Health (NIOSH) criteria. The new PARC criteria, initially used in 2005-2006, require investigation and medical records to confirm pesticide applications, type of pesticide, and symptoms.

Table 1. Calls to PARC

Calls	1998	1999	2000	2001	2002-June 05	July 05 – July 06	July 06 – July 07
<b>Total suspected incidents reported</b>		118	200	213	PARC activities not funded	186	189
<b>Incidents reviewed</b>	60	46	95	73		84	89
<b>Cases</b>	60	46	95	73		35	36
<b>No. people involved</b>	93	110	172	128		62	35
<b>Children (&lt; 18)</b>				23			19
<b>Animals</b>	1	3	11	2		6	11
<b>Environment</b>	3	4				2	0

Some differences in data collection between years are apparent in Tables 1 and 2. However, the data is essentially the same for incident reporting by agencies. Starting in 2005, all claims are reviewed to identify whether there was enough information to evaluate them based on PARC criterion.

Table 2 is an account of calls that allege pesticide-related illness or effects. Many are not evaluated, as the individuals do not consent to PARC investigation and some are not pesticide related.

Table 2. Claims of Pesticide Related Illnesses/Wildlife Effects/Pets

Agency	1998	1999	2000	2001	2002- June 05	July 05 – June 06	July 06 – June 07
OPC	16	12	39	25	PARC activities not funded	152	136
PARC	6	6	12	21		9	5
ODA	11	8	24	11		40	80
OERS	3	2	7	4		3	3
Worker's comp.		2	3	3			
ODF				2		1	3
ODFW						1	
Local health dept.	2	2	1	2			
Health care provider	9	9	5	2			
OR-OSHA	3		2	1		4	5
DEQ	1	2	1			3	2
Medical examiner							
NPIC	3						
WA state health							
PHD						6	2
USFWS						8	3
State police						1	
Other	6	3	1	2		2	1
<b>Total</b>	<b>60</b>	<b>46</b>	<b>95</b>	<b>73</b>		<b>230</b>	<b>240</b>

Table 3 documents the information captured during reporting years. The information collected in 2005-06 did not regularly include the type of health care obtained.

Table 3. Type of Health Care Sought

Type	1998	1999	2000	2001	2002 – June 05	July 05 – June 06	July 06 – June 07
None	11	52	41	54	PARC not funded	11	8
Consult	2	1	12	12			9
Office	44	25	13	29		7	10
ER	31	15	16	29			17
Hospital		3	6	4		1	6
Onsite care		1	8			4	4
Unknown	1	3	4			8	2
Other	4						

Table 4 shows that the number of people reported to have been affected in occupational cases were evenly split between conducting routine work and work related to application of pesticides.

Table 4. Occupational by Activity/Number of Individuals

Activity	1999-00	2001	2002 – June 05	July 05 – June 06	July 06 – June 07
<b>Routine work</b>	77 (78%)	19 (68%)	PARC not funded	44 (98%)	11(48%)
<b>Related to application</b>	18 (18%)	9 (32%)			12(52%)
<b>Emergency response</b>	3 (3%)				
<b>Other</b>				1 (2%)	
<b>TOTAL</b>	98	28		45	23

For 2006-2007, seven individuals were reported to be affected conducting business that was not associated with pesticide application. Also, seven individuals were reported to be at an agricultural site. Unlike the reported cases in 2005-2006, many of the individuals who were subjects of investigations at the farm/nursery sites were involved in applying, mixing, and loading pesticides. The number of individuals reporting being affected by pesticides was equal for businesses (regular work activities not associated with applying pesticides) and for farm/nursery sites.

Table 5. Occupational by Site/Number of Individuals

Site	1999-00	2001	2002 – June 05	July 05 – June 06	July 06 – June 07
<b>Business</b>	49 (51%)	7 (25%)	PARC not funded	3(7%)	7(30%)
<b>School</b>	8 (8%)	4 (14%)		1 (2%)	2(9%)
<b>Construction</b>	15 (15%)	4 (14%)			3(13%)
<b>Road</b>	6 (6%)	3 (11%)			
<b>Golf</b>		1 (4%)			
<b>Farm/nursery</b>	18 (18%)	9 (32%)		30 (67%)	7(30%)
<b>Institution</b>	2 (2%)			6 (13%)	1(4.5%)
<b>Industrial</b>				2 (4%)	1(4.5%)
<b>Forestry</b>					
<b>Other</b>				3 (7%)	2(9%)
<b>TOTAL</b>	98	28		45	23

Table 6 shows that the greatest number of people reported to have been affected in non-occupational cases were associated with one case. That case, reported in spill/dispose, was an accidental release of chlorine gas at a swimming pool. The second highest number of people is associated with several cases reported as having to do with the application of pesticides.

Table 6. Non-Occupational by Activity/Number of Individuals

Activity	1999-00	2001	2002 – June 05	July 05 – June 06	July 06 – June 07
<b>Intentional</b>	2 (1%)	1 (1%)	PARC not funded	1 (1%)	
<b>Application</b>	24 (13%)	10 (10%)			9(28%)
<b>Outdoors</b>	68 (37%)	24 (24%)		12 (70%)	5(15%)
<b>Indoor</b>	86 (47%)	64 (64%)		4 (23%)	6(18%)
<b>Spill/dispose</b>	4 (2%)	1 (1%)		1 (6%)	13(39%)
<b>TOTAL</b>	184	100		18	33

Table 7 shows that in this period the largest number of persons reporting being affected in non-occupational cases was affected in a hotel, all at one time. One site was a school/day care center where six persons were seen by emergency responders.

Table 7. Non-Occupational by Site/Number of Individuals

Sites	1999-00	2001	2002 – June 05	2005-06	2006-2007
Residence	128 (70%)	84 (84%)	PARC not funded	15 (88%)	9(28%)
Road/trail	13 (7%)	6 (6%)		1 (6%)	
School	28 (15%)	2 (2%)		1 (6%)	6(18%)
Service		2 (2%)			
Farm	2 (1%)	1 (1%)			5(15%)
Forest	2 (1%)	1 (1%)			
Institution					
Hotel/motel					13(39%)
Other	11 (6%)	4 (4%)			
<b>TOTAL</b>	184	100		17	33

Table 8 shows that Marion and Multnomah are the counties with the largest number of cases in 2006 – 2007, with Clackamas, Lane, and Washington counties tied at four cases each for this reporting period.

Table 8. Counties Where Cases Originated

County	2006-2007	Total
Marion	7	18%
Multnomah	6	16%
Clackamas	4	11%
Lane	4	11%
Washington	4	11%
Benton	2	6%
Umatilla	2	6%
Yamhill	2	6%
Douglas	1	3%
Polk	1	3%
Deschutes	1	3%
Klamath	1	3%
Malheur	1	3%
<b>Total cases</b>	36	100%

It is difficult to draw direct comparisons between years, because criteria have been added or deleted that may not have been tracked. However, some generalizations can be made based upon the available data.

- Occupational exposures often occur to employees that are affected **indirectly** by a pesticide application. An example of this is an office where an application was made and the office workers smell an odor or exhibit symptoms they feel are associated with a pesticide application in their vicinity.
- This reporting period, in contrast to the last, applicators and mixer/loaders were affected as often as other employees.
- Non-occupational exposures most often occur in or near the residence of a person, and reportedly result from an application on other property(ies).

- Although pet exposures often occur due to poor application techniques of rodenticides, this reporting period most of the exposures and deaths were due to intentional baiting.

## Accomplishments

1. PARC recommended that the DHS-PHD, OR-OSHA and the Office of the State Fire Marshal develop a strategy to disseminate information to emergency responders at the local level about personal protective equipment needs after indoor pesticide applications. This resulted in the creation of a training narrative that was sent to over 7,000 emergency responders and emergency medical technicians. Physicians were also given presentations about the mistakes made by first responders and emergency personnel at sites where pesticides had been applied.
2. PARC placed the active ingredient deltamethrin into a tracking system due to the multiple respiratory and eye irritation incidents and cases that have been collected.
3. PARC conducted a search for a new coordinator in 2006. From September to January 2007 the coordinator position was empty. In January 2007, a new coordinator was hired and began training in the position.
4. PARC continued/ongoing development of the PARC website.
5. PARC developed and made public presentations about PARC to member agencies at trainings for pesticide users licensed by ODA.
6. PARC developed and implemented a specific PARC database to standardize information across agencies. Design included standardizing information gathered and provided to PARC by member agencies.
7. PARC continued to function as a multi-agency forum for environmental and public pesticide issues, providing technical information on pesticides and the regulation of these materials. Special activities conducted were:
  - Coordination of outreach to Lane County residents regarding the use of pesticides in forestry.
  - Coordination of health information to two emergency evacuations involving children who may have been exposed to pesticides.
8. PARC made improvements to the processes used to work with member agencies, including developing methods to identify trends in:
  - Pesticide use changes.
  - Multiple complaints that may identify areas of concern for health.
  - Pesticides involved in multiple cases.

## Issues and Recommendations

The PARC Board has requested that the coordinator continue to follow issues developed during incidents and case review. These include problems related to pesticide uses and use changes or concerns that have a potential to cause issues in the future. Additionally, PARC may make recommendations or propose policy changes to Board member agencies.

1. **Issue: *Increase health care provider reporting of pesticide incidents.***

This trend continued from the 2005-2006 reporting year. Identification of this as an issue and tracking it showed continued low reporting of pesticide related injuries by health care providers.

**Recommendation:** PARC is tracking plan development by DHS-PHD to increase health care provider education about pesticides, support training in existing venues about pesticide illness reporting, and use current resources through DHS-PHD to remind health care providers of the responsibility to report.

2. **Issue: *Increase compliance with pesticide labels.***

Pesticide products are designed, registered, and labeled to affect target organisms and may have negative effects when used incorrectly. PARC has found that most users of pesticides do not realize that the entire label is important to read and understand.

**Recommendation:** PARC and PARC member agencies, through continual outreach and education, persist in encouraging all persons, whether contracting a pesticide application to their home or business or applying a pesticide themselves, read and understand the entire label of any pesticide being applied.

3. **Issue: *Increase reporting of pesticide related illnesses by the public.***

Many people do not yet know that in Oregon there is a unique relationship between the government and themselves. There is a gap between their knowledge and what is available.

**Recommendation:** PARC increase its program profile through education and outreach conducted by member agencies, as well as develop new outreach avenues for education.

# Appendices

## APPENDIX I - WHAT IS A PESTICIDE?

A pesticide is any substance or mixture of substances intended for

- preventing.
- destroying,
- repelling, or
- mitigating any pest.

Though often misunderstood to refer only to insecticides, the term pesticide also applies to herbicides, fungicides, and various other substances used to control pests.

Under United States law, a pesticide is also any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant (from US EPA definition found online).

Table 9. Types of Pesticides

<b>Algaecides</b>	Control algae in lakes, canals, swimming pools, water tanks, and other sites
<b>Antifouling agents</b>	Kill or repel organisms that attach to underwater surfaces, such as boat bottoms
<b>Antimicrobials</b>	Kill microorganisms (such as bacteria and viruses)
<b>Attractants</b>	Attract pests for example, to lure an insect or rodent to a trap; food is not considered a pesticide when used as an attractant
<b>Biopesticides</b>	Derived from natural materials such as animals, plants, bacteria, and certain minerals
<b>Biocides</b>	Kill microorganisms
<b>Disinfectants/sanitizers</b>	Kill or inactivate disease-producing microorganisms on inanimate objects
<b>Fungicides</b>	Kill fungi (including blights, mildews, molds, and rusts)
<b>Fumigants</b>	Produce gas or vapor intended to destroy pests in buildings or soil
<b>Herbicides</b>	Kill weeds and other plants that grow where they are not wanted
<b>Insecticides</b>	Kill insects and other arthropods
<b>Miticides</b>	Kill mites that feed on plants and animals
<b>Molluscicides</b>	Kill snails and slugs
<b>Nematicides</b>	Kill nematodes
<b>Ovicides</b>	Kill eggs of insects and mites
<b>Pheromones</b>	Biochemicals used to disrupt the mating behavior of insects
<b>Repellents</b>	Repel pests, including insects (such as mosquitoes) and birds
<b>Rodenticides</b>	Control mice and other rodents
<b>Defoliants</b>	Cause leaves or other foliage to drop from a plant, usually to facilitate harvest
<b>Desiccants</b>	Promote drying of living tissues, such as unwanted plant tops
<b>Insect growth regulators</b>	Disrupt the molting and maturity from pupal stage to adult, or other life processes of insects
<b>Plant growth regulators</b>	Alter the expected growth, flowering, or reproduction rate of plants (excludes fertilizers or other plant nutrients)

## APPENDIX II - INCIDENT AND CASE CRITERIA

In order for PARC to coordinate the investigation of a pesticide related incident, it must meet one of the following criteria and sufficient information for coordination of investigations must be available:

### Human Health Complaint:

- 1) A suspected or confirmed pesticide poisoning reported by a health care provider
- OR
- 2) An illness related to a recent pesticide exposure reported by an individual, where sufficient information is provided to suspect pesticides as a possible cause.

**Animal Health Complaint (Includes companion animals and wildlife):**

- 1) A suspected or confirmed pesticide poisoning reported by a health care provider
- OR
- 2) A recent pesticide exposure event reported by an individual, where veterinary assistance was sought and sufficient information is supplied to suspect pesticides as a possible cause
- OR
- 3) Multiple animal deaths where pesticides are a suspected cause.

**Environmental Contamination:**

- 1) Documented or potential environmental damage from a pesticide fire, spill, or incident, of sufficient magnitude to cause animal effects, or potential public health impacts.

When PARC is not provided with sufficient information to coordinate an investigation, the information is tracked as an incident report. Incidents are tracked if any allegations are made that a pesticide may be involved in the illness of a human or pet, causing harm to the environment, or spilled or released into the environment. This includes odor complaints, concerns about the environment in general, container issues or any time it is initially felt that pesticides are causing harm.

Additionally, when PARC acts as a consultant for public agencies or the public, the call may be tracked as an incident. This is done when, in the opinion of the PARC Coordinator, it may be an issue the Board might want to consider.

Each pesticide related incident that meets the criteria for investigation coordination is assigned an incident number AND a case number.

A case number may be issued to an incident that, upon further investigation, does not meet case criteria. These cases may be classified with the designation "Insufficient information to classify".

The PARC Coordinator and appropriate state department(s) investigate all incidents to determine if they meet PARC Case criteria. When an incident does not meet case criteria, the findings are logged and the incident closed. Important incident findings are tracked and reviewed for valuable information on trends or patterns of problems associated with pesticide use.

**Case Classification Criteria**

Every case is subject to review and classification by the PARC Board. Two indices are used during this classification review: Certainty and Severity.

**Certainty Index (CI):** A human or domestic animal case requires a reported pesticide active ingredient and a reported exposure or possible exposure. The facts of the case must answer the question "Were the reported impacts caused by the reported exposure to pesticides?"

Definitions of the certainty indices for **humans and domestic animals** (companion animals, pets) are below.

**CI = 1 Definite:** Measured concentration(s), with a highly plausible exposure pathway and specific health effects that are consistent with exposure to the active ingredient(s).

**CI = 2 Probable:** A clearly documented and highly plausible exposure pathway with health effects that is consistent with exposure to the active ingredient(s). A single, non-specific symptom (headache, nausea) is generally insufficient to classify with this certainty index.

**CI = 3 Possible:** There is uncertainty with respect to the likelihood of exposure, the circumstances surrounding the exposure, or the consistency of the reported symptoms based upon the reported active ingredient(s). Inconsistent symptoms with the known toxicology of the active ingredient are sufficient to move a classification to CI 4.

**CI = 4 Unlikely:** The primary complaint or the majority of the reported symptom(s) are not consistent with the toxicology of the active ingredient(s) or the time between exposure and onset or duration of symptoms is not consistent with the toxicology of the active ingredient(s) or there is no plausible exposure pathway.

**CI = 5 Unrelated:** Not pesticide related – requires corroboration of “Unrelated” classification from a qualified health care professional involved in the case.

**CI = 0 Exposure, No symptoms:** There is verifiable exposure, but no symptoms.

An environmental PARC Case requires reported active ingredients and reported exposure or possible exposure. Definitions of the certainty indices for **wildlife and other non-target organisms** (bees, fish, invertebrates, etc) are below.

**CI = 1 Definite:** Pesticide was confirmed as the cause through residue analysis or other reliable evidence, or the circumstances of the incident along with knowledge of the pesticide’s toxicity or history of previous incidents give strong indication that this pesticide was the cause.

**CI = 2 Probable:** Circumstances of the incident and properties of the pesticide indicate that this pesticide was the cause, but confirming evidence is lacking.

**CI = 3 Possible:** The pesticide possibly could have caused the incident, but there are possible explanations that are at least as plausible. Often used when organisms may have been exposed to more than one pesticide.

**CI = 4 Unlikely:** Evidence exists that a stressor other than exposure to a pesticide caused the incident, but that evidence is not conclusive.

**CI = 5 Unrelated:** Conclusive evidence exists that a stressor other than exposure to a pesticide caused the incident.

**CI = 0 Exposure, no symptoms:** A potentially significant exposure was documented, though no symptoms were reported due to mitigating circumstances, efficient clean up or rescue.

Detection indices for **groundwater, surface water, and drinking water** are below.

**CI = Major:** A pesticide is detected at levels greater than the maximum contaminant level (MCL), health advisory level (HAL), or another applicable criterion for ambient water quality.

**CI = Moderate:** A pesticide is detected at levels greater than 10 percent but does not exceed the MCL, HAL, or another established criterion for ambient water quality.

**CI = Minor:** A pesticide is detected at levels less than 10 percent of the MCL, HAL, or another established criterion OR a pesticide is detected but there is no established level of concern.

**Severity Index (SI):** The severity index was designed only for humans, though PARC applies this index to domestic animals and wildlife as well. For domestic animals and wildlife the symptoms indicated in the definitions guide the selection of the severity index for each case.

This index provides standardized criteria to ensure uniformity, with the recognition that it cannot address all situations. It is a flexible standard needing the user to employ judgment and experience when assigning severity.

**SI =1 Death:** This category describes a human fatality resulting from exposure to one or more pesticides.

**SI = 2 High severity illness or injury:** The illness or injury is severe enough to be considered life threatening and typically requires treatment. This level of effect commonly involves hospitalization to prevent death. Signs and symptoms include, but are not limited to, coma, cardiac arrest, renal failure and/or respiratory depression. The individual sustains substantial loss of time (greater than five days) from regular work or normal activities. This level of severity may include the need for continued health care following the exposure event, prolonged time off of work, and the limitations or modification of work or normal activities.

**SI = 3 Moderate severity illness or injury:** This category includes cases of less severe illness or injury often involving systemic manifestations. Generally, treatment is provided. The individual is unable to return to normal functioning without any residual disability. Usually, less time is lost from work or normal activities (greater than three and less than five days). Effects may persist but no residual impairment is present.

**SI = 4 Low severity illness or injury:** This is the category of lowest severity. It is often manifested by skin, eye or upper respiratory irritation. It may also include fever, headache, fatigue or dizziness. Typically the illness or injury resolves without treatment. There is minimal lost time (less than three days) from work or normal activities.

**SI = 5 No symptoms reported:** This category is used for cases that the PARC Board or staff chooses to designate as a case for tracking purposes. They may highlight a risk or potential risk for future review.

In 2006-2007, the PARC Classification criteria were in transition. Having been approved but unused during 2006, incidents were evaluated to identify whether they fit the criteria. Incidents that fit the case criteria were assigned a case number and researched to collect all investigative findings. These investigative findings were then used to assign a set of indices for each case, or to determine that there was insufficient illness information to classify it.

### **APPENDIX III - CASE SUMMARIES BY COUNTY**

*Classification of the Certainty Index and the Severity Index are completed as separate evaluations. The evaluations are based on medical records, if available, personal communication with affected parties, symptoms, investigative findings, application records, and technical information on the pesticides applied. All verifiable information is used to come to a sustainable conclusion for each classification index.*

#### **Benton County**

**Case #070012**

**Non-Occupational**

**One person**

**Type of Care:** None

**Certainty Index:** 3 (Possible)

**Severity Index:** 4 (Low severity illness or injury)

**Pesticide Type:** Insecticide

**Pesticide:** Chlorpyrifos

A commercial application to a neighboring property reportedly caused a neighbor to exhibit illness symptoms. Drift could not be documented by ODA.

**Case # 070021**

**Non-Occupational**

**Two people**

**Type of Care:** None

**Certainty Index:** 2 (Probable)

**Severity Index:** 4 (Low severity)

**Pesticide Type:** Insecticide

**Pesticide:** Chlorpyrifos

A homeowner was using a ready-to-use pesticide outdoors when the wind blew the pesticide back into his and his son's faces causing illness symptoms.

**Clackamas County**

**Case # 060022**

**Occupational - spill**

**One person**

**Type of Care:** Health care provider (doctor's office)

**Certainty Index:** 2 (Probable)

**Severity Index:** 3 (Moderate)

**Pesticide Type:** Insecticide

**Pesticide:** Chlorpyrifos

An employee in a pesticide storage unit dropped and spilled chlorpyrifos onto their clothing and skin. Although they took a shower within 15 minutes, symptoms were exhibited within a half hour. Multiple employer and storage violations were found by OR-OSHA and DEQ. This case is associated with case 070004.

**Case # 060023**

**Non-Occupational**

**One person**

**Type of Care:** None

Insufficient information to classify.

**Case # 060025**

**Occupational**

**One person**

**Type of Care:** Health care provider (doctor's office)

**Certainty index:** 4 (Unlikely)

**Severity index:** 3 (Moderate)

**Pesticide Type:** Disinfectant/antimicrobial

**Pesticide:** O-phenyl phenol/ethyl alcohol

An employee had complained about the odor in the cab of his commercial truck. There was mold inside the "sleeper" area; so another employee of the trucking company applied an antimicrobial. The employee driving the truck later exhibited illness symptoms after driving for several hours. OR-OSHA issued citations to the company for lack of training and ODA has requested U.S. EPA to conduct labeling review of these types of antimicrobials used in enclosed areas.

**Case # 070024**

**Occupational**

**One person**

**Type of Care:** Emergency medical care

**Certainty Index:** 4 (Unlikely)

**Severity Index:** 4 (Low severity)

**Pesticide Type:** Herbicide

**Pesticide:** 2,4-d, trichlopyr

An employee of a landscaping company reported illness symptoms occurring 24 hours after he applied an herbicide. OR-OSHA found and cited violations for lack of a safety committee, lack of adequate eye protection, lack of protective equipment, and lack of adequate training.

**Deschutes County**

**Case # 070011**

**Occupational**

**Two people**

**Type of Care:** Emergency medical care

**Certainty Index:** 3 (Possible)

**Severity Index:** 4 (Low severity illness or injury)

**Pesticide Type:** Insecticide

**Pesticide:** Boron sodium oxide

Two employees worked for two days in the crawl space of an unoccupied residence. The employer took them to the emergency room of a local hospital where they were evaluated and released. OR-OSHA cited the employer for violations of respirator requirements, as the employer had required respirators without the proper training.

**Jackson County**

**Case # 070005**

**Occupational**

**One person**

**Type of Care:** Emergency medical care

**Certainty Index:** 4 (Unlikely)

**Severity Index:** 1 (Death)

**Pesticide Type:** Herbicide

**Pesticide:** Triclopyr

The employee of a metal fabrication company was conducting pesticide application activities at his employers' home when he suffered a fatal heart attack. Investigation found no direct link to pesticides as the cause of this fatality.

**Case # 070029**

**Non-Occupational**

**One person**

**Type of Care:** None

**Certainty Index:** 0 (Exposure, no symptoms)

**Severity Index:** 5 (No symptoms reported)

**Pesticide Type:** Rodenticide

**Pesticide:** Bromadiolone

A two-year-old child was found with a mouth full of rodenticide pellets after the homeowner had put out rodenticide in the garage. The parents called OPC, deciding, after consultation, not to take their child to the doctor. Later, after a fall, the parents took the child for an MRI to determine if there was any internal bleeding and found none.

## Klamath County

### Case # 070020

**Occupational  
One Person**

**Type of Care:** Health care provider (doctor's office)

**Certainty Index:** 3 (Possible)

**Severity Index:** 3 (Moderate severity)

**Pesticide Type:** Fungicide

**Pesticide:** Copper 8 quinolinolate

An employee using a backpack sprayer inside a potato truck exhibited symptoms. OR-OSHA cited numerous employee protection violations. ODA found labeling violations.

## Lane County

### Case # 070009

**Occupational  
One person**

**Type of Care:** Health care provider (doctor's office)

**Certainty Index:** 2 (Probable)

**Severity Index:** 3 (Moderate severity)

**Pesticide Type:** Insecticide

**Pesticide:** Deltamethrin (spray), cypermethrin, pyrethrins, piperonyl butoxide

The employee of a janitorial supply company exhibited symptoms after entering one of the customer facilities, a commercial business. It was later found that several applications of ready-to-use pesticides and a commercial application of pesticides had been made in the facility. General cleaning activities may have increased the likelihood of a plausible exposure pathway.

### Case # 070010

**Non-Occupational  
Two people**

**Type of Care:** Health care provider (doctor's office)

**Certainty Index:** 4 (Unlikely)

**Severity Index:** 4 (Low severity illness or injury)

**Pesticide Type:** Insecticide

**Pesticide:** Dimethoate

The neighbor to a Christmas tree farm thought that trees that had been sprayed were then piled and burned, causing illness symptoms. Investigation by ODA found that the burning trees had not been treated during the current year. The application was found to have been in violation of labeling requirements. Enforcement action was taken by ODA.

## Malheur County

### Case # 060024

**Pet – Dog (1)**

**Certainty Index:** 1 (Definite)

**Severity Index:** 1 (Death)

**Pesticide Type:** Insecticide

**Pesticide:** Aldicarb

A pet dog was intentionally poisoned and killed by baiting meat with an insecticide. ODA, ODFW and the USFWS all conducted investigations into the source of the pesticide without finding a responsible party. USFWS found other animals to have been affected by the baiting as well.

## Marion County

### Case # 070001

#### **Pet – Dogs (4)**

**Certainty Index:** 1 (Definite)  
**Severity Index:** 1 (Death)  
**Pesticide Type:** Rodenticide  
**Pesticide:** Strychnine

Necropsy of at least one of the dogs found strychnine and meat in the dogs' stomach. No source could be found for the strychnine. Intentional poisoning is suspected to be the cause of death.

### Case # 070014

#### **Occupational**

#### **One person**

**Type of Care:** Health care provider  
**Certainty Index:** 4 (Unlikely)  
**Severity Index:** 4 (Low severity illness or injury)  
**Pesticide Type:** None  
**Pesticide:** None

This employee worked in a plant where pesticides were packaged, however he never worked with pesticides, only with fertilizers. No connection to pesticides was found, however since he worked in the same plant, this case was classified.

### Case # 070015

#### **Non-Occupational**

#### **Two people**

**Type of Care:** None  
**Certainty Index:** 3 (Possible)  
**Severity Index:** 4 (Low severity illness)  
**Pesticide Type:** Insecticide  
**Pesticide:** Chlorpyrifos

An application of chlorpyrifos to an orchard reportedly caused neighbors to exhibit illness symptoms. No drift was found to have occurred.

### Case # 070025

#### **Occupational**

#### **One person**

**Type of Care:** None  
**Certainty Index:** 3 (Possible)  
**Severity Index:** 4 (Low severity illness symptoms)  
**Pesticide Type:** Insecticide  
**Pesticide:** Imidiclopid, cyfluthrin

An employee moving bagged lawn care products that contained pesticides had material spill onto his hands and forearms after a bag ripped. He reportedly soon exhibited a rash. He called Oregon Poison Center for help but did not go to a medical professional. OR-OSHA wrote a warning letter to the employer. ODA conducted follow-up on disposal of pesticide product by the company.

**Case #070039**

**Pet – Dog (1)**

**Certainty Index:** 6 (Unrelated to pesticides)

**Severity Index:** 1 (Death)

**Pesticide Type:** Insecticide

**Pesticide:** Bifenthrin

A dog died in the evening after a perimeter application had been made to the home where it lived. Although the dog was not present during the day of the application, the homeowner thought the death might have been associated with the application. Necropsy found that the dog had a ruptured heart valve. No connection between the pesticide used and the death was found.

**Multnomah County**

**Case # 070002**

**Non-Occupational**

**One person**

**Type of Care:** None

**Certainty Index:** 2 (Probable)

**Severity Index:** 4 (Low severity)

**Pesticide Type:** Insecticide

**Pesticide:** Deltamethrin

An application by a landlord to control cockroaches in an apartment caused the tenant to exhibit illness symptoms.

**Case # 070004**

**Occupational – pesticide storage unit**

**One person**

**Type of Care:** Health care provider (doctor's office)

**Certainty Index:** 2 (Probable)

**Severity Index:** 4 (Low severity)

**Pesticide Type:** Various

**Pesticide:** Various

An investigator for DEQ complained of illness symptoms after entering the storage area based upon the complaint in case 060022, above. Multiple citations and violations were found. The company was ordered to complete a hazardous waste clean up and to pay thousands of dollars in fines.

**Case # 070006**

**Non-Occupational**

**Six people**

**Type of Care:** Emergency medical care

**Certainty Index:** 4 (Unlikely)

**Severity Index:** 4 (Low severity)

**Pesticide Type:** Herbicide

**Pesticide:** Diuron, sulfometuron methyl, chlorsulfuron, glyphosate, 2,4-d

The application of herbicides to a rail bed (railroad tracks) next to a day care center caused the evacuation of some children from the center. The children were taken to local emergency care facilities in the area. Violations of pesticide use requirements were found from sample analysis. Enforcement action was taken by ODA.

**Case # 070007**

**Pet – Dog (1)**

**Certainty Index:** 0 (Exposure, no symptoms)

**Severity Index:** 5 (No symptoms reported)

**Pesticide Type:** Rodenticide

**Pesticide:** Brodifacoum

A puppy allowed into the back yard of a home ingested a package of rodenticide. Because of immediate intervention by a veterinarian, the puppy suffered no harm.

**Case # 070008**

**Non-Occupational**

**13 People**

**Type of Care:** Emergency medical care

**Certainty Index:** 2 (Probable)

**Severity Index:** 4 (Low severity)

**Pesticide Type:** Pool chlorine

**Pesticide:** Sodium hypochlorite

Children and parents in a hotel swimming pool area were affected when sodium hypochlorite was accidentally poured into muriatic acid in the equipment room of the pool. Citations of various employee-training requirements were made by OR-OSHA. ODA found that the pesticide dealer improperly delivered the sodium hypochlorite to the hotel.

**Case # 070016**

**Occupational**

**One person**

**Type of Care:** None

**Certainty Index:** 3 (Possible)

**Severity Index:** 4 (Low severity illness)

**Pesticide Type:** Insecticide

**Pesticide:** Bifenthrin

A commercial application to the outside perimeter of a home was claimed as the cause of illness symptoms by the homeowner. No violations were found.

**Case # 070017**

**Non-Occupational**

**One person**

**Type of Care:** None

**Certainty Index:** 3 (Possible)

**Severity Index:** 4 (Low severity)

**Pesticide Type:** Insecticide

**Pesticide:** Deltamethrin, acetamiprid, baygon

The application of insecticides to the interior of an apartment was questioned as the possible cause of ongoing seizures and hospitalization of a man who lived in the apartment. The person had a history of seizures prior to the application taking place and continued to have seizures after he stopped living in the apartment.

## Polk County

### Case # 060020

**Occupational**

**One person**

**Type of Care:** Hospitalization

**Certainty Index:** 4 (Unlikely)

**Severity Index:** 3 (Moderate severity illness or injury)

**Pesticide Type:** Insecticide

**Pesticide:** Tralometrin, d-trans allethrin

An indoor application of an outdoor wasp spray. Several citations were issued by OR-OSHA after investigation of this case.

### Case # 060021

**Pets – Cats (3)**

**Certainty Index:** 1 (Definite)

**Severity Index:** 1 (Death)

**Pesticide Type:** Insecticide

**Pesticide:** Carbofuran

Three cats died and necropsy found pesticides were used to kill them.

## Umatilla County

### Case 070027

**Occupational**

**One person**

**Type of Care:** Emergency medical care (observation)

**Certainty Index:** 2 (Probable)

**Severity Index:** 4 (Low severity illness or injury)

**Pesticide Type:** Herbicide

**Pesticide:** 2,4-d, Crossbow

OR-OSHA cited violations of personal protective equipment requirements, inadequate training, lack of decontamination equipment, lack of health hazard control measures, and lack of a written safety and health program.

## Washington County

### Case # 070003

**Occupational**

**One person**

**Type of Care:** Health care provider (doctor's office)

**Certainty Index:** 2 (Probable)

**Severity Index:** 3 (Moderate)

**Pesticide Type:** Fungicide

**Pesticide:** Chromated copper arsenate

Wood treated with chromated copper arsenate was still wet when an employee applied stickers to the wood, splashing material onto hands and arms. OR-OSHA found multiple employer violations.

**Case # 070013**

**Occupational**

**Two people**

**Type of Care:** None

**Certainty Index:** 3 (Possible)

**Severity Index:** 4 (Low severity illness or injury)

**Pesticide Type:** Insecticide exempt from registration

**Pesticide:** Clove oil, citronella oil, lemon grass oil, wintergreen oil

A home inspector and two others entered a home to inspect it. The inspector and one other person exhibited symptoms after being in the home for a while. The products applied were exempt from registration as pesticides.

**Case # 070018**

**Non- Occupational**

**One person**

**Type of Care:** Health care provider (doctor's office)

**Certainty Index:** 4 (Unlikely)

**Severity Index:** 4 (Low severity illness or injury)

**Pesticide Type:** Insecticide/antimicrobial

**Pesticide:** Bifenthrin, pyrethrins, microban

A commercial application of pesticides was made to a home where the homeowner felt she was affected by the application. No violations of labeling or application requirements were found.

**Case # 070019**

**Occupational**

**One person**

**Type of Care:** None

**Certainty Index:** 4 (Unlikely)

**Severity Index:** 4 (Low severity)

**Pesticide Type:** Antibacterial

**Pesticide:** Hydrogen dioxide

An employee working with a root sterilant at a nursery exhibited illness symptoms after using an antibacterial. OR-OSHA cited the nursery over employee protective equipment requirements, health hazard control measures, training and worker protection standard training.

**Yamhill County**

**Case # 070022**

**Occupational**

**One person**

**Type of Care:** Emergency medical care (hospital)

**Certainty Index:** 2 (Probable)

**Severity Index:** 3 (Moderate severity)

**Pesticide Type:** Herbicide

**Pesticide:** Glyphosate

While mixing glyphosate with water, a temporary employee splashed the material out of the container onto his face and eyes. The next day a family member transported him to the emergency room at the hospital. OR-OSHA found and cited multiple employer violations.

**Case # 070023**

**Non-Occupational**

**Two people**

**Type of Care:** None  
**Certainty Index:** 3 (Possible)  
**Severity Index:** 4 (Low severity illness)  
**Pesticide Type:** Fungicide  
**Pesticide:** Trifloxystrobin

Two people were watching an application to a nearby orchard. When the wind shifted they reported feeling a mist and later exhibiting symptoms that soon resolved. ODA sent a "Letter of Advisement" to the orchard owner.

**Case # 070026**

**Pet – Dog (1)**

**Certainty Index:** 1 (Definite)  
**Severity Index:** 1 (Death)  
**Pesticide Type:** Rodenticide  
**Pesticide:** Strychnine

Necropsy found strychnine mixed with meat in the puppy's stomach, leading investigators to conclude that this was an intentional poisoning.

**Case # 070028**

**Non-Occupational**

**Two people**

**Type of Care:** None  
**Certainty Index:** 3 (Possible)  
**Severity Index:** 4 (Low severity illness symptoms)  
**Pesticide Type:** Insecticide  
**Pesticide:** Esfenvalerate, ETOC (prallethrin)

A homeowner had an aerosol container of ant, roach and spider spray fail and burst in the home. Two of the family members may have been affected.

## **APPENDIX IV - MEMBER AGENCIES AND CONSULTANT JURISDICTIONS**

### **Pesticide Analytical & Response Center (PARC)**

Resources/Programs: By referral and coordination, PARC requests investigations or resources from each of its member agencies.

### **Oregon Department of Agriculture (ODA) -PESTICIDES DIVISION**

Resources/Programs: ODA has field staff positioned around the state with experience in pesticide application technology and regulation. As part of an investigation, ODA has access to laboratory services. ODA maintains a label for each pesticide registered in Oregon and a database of information about those products. ODA also maintains a database of information about pesticide-related licenses and licensees.

### **Oregon Public Health Division, Department of Human Services - OFFICE OF ENVIRONMENTAL PUBLIC HEALTH (OEPH), TOXICOLOGY, ASSESSMENT, AND TRACKING SERVICES (TATS)**

Resources/Programs: OEPH includes two epidemiologists with expertise in occupational and environmental public health, as well as a toxicologist. TATS employs a toxicologist with expertise in pesticide-related issues as well as a Pesticide Program Coordinator. Additional potential resources at the Department of Human Services include the Drinking Water Section and the Emergency Preparedness Planning Staff.

**Oregon Department of Fish & Wildlife (ODFW)**

Resources/Programs: ODFW district biologists handle issues with pesticide poisoning or spills that affect fish and wildlife. ODFW biologists assist to identify potential fish and wildlife receptors and resources that are at risk; assess extent of damage to the resource(s); collect samples for analysis and to identify laboratories for analysis.

**Oregon Department of Forestry (ODF)**

Resources/Programs: ODF has field offices across the state. ODF field foresters administer forest practice pesticide rules, which deal with natural resource protection. ODF investigates incidents that may involve violations of the forest practices rules. ODF maintains a database of information on planned forest pesticide applications.

**Oregon Department of Environmental Quality (DEQ)**

Resources/Programs: DEQ has field staff available in district offices and a dedicated laboratory facility. DEQ regulates water quality, air quality, and environmental quality.

**Oregon Occupational Safety & Health Administration (OR-OSHA)**

Resources/Programs: OR-OSHA has field staff available to investigate occupational incidents, and a library of educational materials relevant to pesticide handling, storage, and application in agriculture.

**Office of the State Fire Marshal (OSFM)**

Resources/Programs: The OSFM offers information about hazardous materials that are stored at facilities around the state. This can include pesticide storage, location, quantities, and hazard type. Expertise is also available regarding application of the Oregon fire code to pesticide storage.

**Oregon Poison Center (OPC)**

Resources/Programs: OPC staff is available for emergency consultation and advice regarding clinical toxicology issues 24 hours a day.

**Center for Research on Occupational & Environmental Toxicology (CROET)**

Resources/Programs: The Toxicology Information Center houses a special-use library with access to a variety of occupational safety and health and environmental information resources, including those related to the use of pesticides. CROET also has on staff a toxicologist, epidemiologist, and industrial hygienist who are prepared to answer questions related to the use of chemicals (including pesticides) in the home and workplace. Additionally, CROET can address animal-poisoning issues.

**Oregon State University - ENVIRONMENTAL & MOLECULAR TOXICOLOGY DEPARTMENT (OSU)**

Resources/Programs: OSU medical and environmental toxicologists evaluate case information using investigations and reports from member agencies, illness symptoms, and pesticides identified during investigations. The Board uses these evaluations to classify the likelihood of pesticide effects using the PARC Classification Criteria.

**APPENDIX V - MEMORANDA OF UNDERSTANDING AND CONSULTANT CONTRACTS**

These documents are available in hard copy or electronic form from the Oregon Department of Agriculture at [parc@oda.state.or.us](mailto:parc@oda.state.or.us) or 503-986-6470. Each document specifies the duties and responsibilities of each contractor.