

SUMMARY OF REPORTED PESTICIDE INCIDENTS INVOLVING 2,4-D

Pesticide Incident Monitoring System

Report No. 283

by

Health Effects Branch
Hazard Evaluation Division
Office of Pesticide Programs
Environmental Protection Agency

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SYNOPSIS

The files of the Pesticide Incident Monitoring System (PIMS) were searched for reports involving 2,4-D, active ingredient 2,4-dichlorophenoxyacetic acid. It is also known as CAS 94-75-7. At the time of the search, the files contained 33,525 incident reports covering the period from 1966 to March 1980; of these, 1,001 involved 2,4-D.

Two groups of reports were distinguished in these incidents in which alleged adverse effects were reported. One group containing 600 reports cited the involvement of 2,4-D alone. The other contained 401 reports and cited 2,4-D in combination with other ingredients.

The presentation of information regarding incident exposure circumstances and effects in this synopsis is made with no reference to whether the occurrence has been confirmed to be the result of pesticide involvement or not. This is not to say that all cases reported in this summary lack confirmation. Neither should the absence of confirmation be interpreted as meaning that the reported effect was not caused by the pesticide. Rather, it may indicate only that confirmatory materials have not been submitted for incorporation into the Pesticide Incident Monitoring System. Incidents contained in this summary include only those which have been reported to PIMS. It is likely that other have occurred and remain unreported; therefore, this number should be thought of as representing a minimum.

PIMS data involving 2,4-D is presented in three tables. In each table it is shown whether the involvement of the pesticide was alone or in combination with other ingredients. Table 1 shows the number of reported incidents by entity and site, Table 2 by site and circumstance. Table 3 presents an abstract of each incident and various data related to the incident.

In the 138 incidents involving humans and 2,4-D alone, there was one fatality, 18 persons were hospitalized, 92 received medical attention, and 46 were affected but not treated. There were 3 fatalities in the 195 incidents involving 2,4-D in combination, and 25 hospitalizations; 324 persons received medical attention and 124 were affected but not treated.

Table 1
Pesticide Incidents Involving 2,4-D
By Entity and Site as Reported to PIMS (1966 to January 1979)

Entity and Site	2,4-D Alone	2,4-D In Combination	Total
<u>Human: 333</u>			
Agriculture	26	34	60
City	0	2	2
Commercial	1	3	4
Correctional facility	0	1	1
Drainage canal	1	0	1
Educational facility	2	3	5
Forestry	0	1	1
Home	74	121	195
Highway	1	1	2
Industry	4	7	11
Lake	1	0	1
Nursery/greenhouse	0	1	1
Park/recreational facility	6	2	8
Public building	0	4	4
Public grounds	0	1	1
Right of way	1	0	1
Roadside	1	0	1
Timberland	0	1	1
Transportation	2	1	3
Unspecified	18	12	30
Subtotal	138	195	333

Table 1 Contd.

Domestic Animal: 23 (7)*

Agriculture	5	3 (4) ¹	8
Home	6 (1) ²	8 (2) ²	14
Unspecified	1	0	1
Subtotal	12	11	23

Wildlife: 9 (7)*

Agriculture	0	4 (3) ¹ (1) ⁹	4
Commercial	0	0 (1) ¹⁶	0
Drainage ditch	0	1	1
Fish hatchery	1	1	2
Home	0	0 (1) ²	0
Industry	0	0 (1) ³	0
River	0	2	2
Subtotal	1	8	9

Plant Life: 574 (21)*

Agriculture	375 (3) ¹	112 (6) ¹	487
Cemetery	1	0	1
City	1	1 (1) ¹⁸	2
Drainage canal	1	0	1
Educational facility	0 (1) ¹³	0	0
Home	35 (1) ¹² (2) ²	28 (4) ²	63
Industry	1	1 (1) ³	2
Nursery/Greenhouse	2	2	4
Park/Recreational facility	2	0	2
River	0	0 (1) ⁸	0
Timberland	0	0 (1) ¹⁴	0
Transportation	1	4	5
Unspecified	4	3	7
Subtotal	423	151	574

Table 1 Contd.

Environment: 55 (59)*

Agriculture	3 (6) ¹ (13) ⁹ (1) ⁵	4 (7) ¹ (4) ⁹ (1) ⁵ (1) ¹⁹	7
Commercial	0	1 (1) ¹⁶	1
City	0	0 (1) ¹⁸	0
Creek	1	1	2
Educational facility	0 (1) ¹³	0	0
Fish hatchery	0 (1) ⁷	0	0
Home	6 (1) ² (2) ¹⁰	3 (1) ⁶ (3) ² (3) ¹⁰	9
Industry	2	1 (3) ³	3
Lake	0 (1) ¹⁵	2	2
Park/Recreational facility	1	0	1
Pool	0	1	1
Reservoir	1	0	1
Roadside	0 (1) ¹⁷	0	0
Timberland	0	0 (1) ¹⁴	0
Transportation	9 (1) ¹¹	13 (2) ¹¹ (1) ⁴	22
Unspecified	1	2	3
Warehouse	0	3	3
River	0	0 (2) ⁸	0

Subtotal	24	31	55
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Unspecified: 7

Agriculture	2	2	4
Home	0	1	1
Industry	0	1	1
Right-of-way	0	1	1

Subtotal	2	5	7
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TOTAL: 1,001	600	401	1,001
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Table 1 Contd.

*The numbers in parentheses have not been included in the total figures as they have been initially recorded in another category.

- ¹These incidents are initially recorded in the human-agriculture figures.
- ²These incidents are initially recorded in the human-home figures.
- ³These incidents are initially recorded in the human-industry figures.
- ⁴This incident is initially recorded in the human-transportation figures.
- ⁵These incidents are initially recorded in the domestic animal-agriculture figures.
- ⁶This incident is initially recorded in the domestic animal-home figures.
- ⁷This incident is initially recorded in the wildlife-fish hatchery figures.
- ⁸These incidents are initially recorded in the wildlife-river figures.
- ⁹These incidents are initially recorded in the plant life-agriculture figures.
- ¹⁰These incidents are initially recorded in the plant life-home figures.
- ¹¹These incidents are initially recorded in the plant life-transportation figures.
- ¹²This incident is initially recorded in the environment-home figures.
- ¹³These incidents are initially recorded in the human-educational facility figures.
- ¹⁴These incidents are initially recorded in the human-timberland figures.
- ¹⁵This incident is initially recorded in the human-lake figures.
- ¹⁶These incidents are initially recorded in the human-commercial figures.
- ¹⁷This incident is initially recorded in the human-roadside figures.
- ¹⁸These incidents are initially recorded in the human-city figures.
- ¹⁹This incident is initially recorded in the wildlife-agriculture figures.

Table 2

Pesticide Incidents Involving 2,4-D
By Site and Circumstance as Reported to PIMS (1966 to January 1979)

Site Circumstance	2,4-D Alone	2,4-D In Combination	Total
<u>Agriculture: 570 (N)*.</u>			
Aerial application	48	15	63
Aerial application right-of-way)	0	3	3
Aerial misapplication	0	1	1
Aircraft crash/emergency dump	5	3	8
Backsiphonage	1	1	2
Blowback	1	0	1
Contact with pesticide	1	1	2
Contact with treated material	0	1	1
Contaminated fertilizer	1	1	2
Contaminated pesticide	0 (N) ⁷	1	1
Contaminated tank mix/ sprayer	1	2	3
Disaster (fire)	0	3	3
Dust drift	0	1	1
Drainage/runoff	1	2 (N) ⁷	3
Equipment failure/ maintenance	3 (N) ¹	1	4
Equipment failure/ maintenance (aerial application)	1	1	2
Failure to follow label directions	1	0	1
Ground spray application	21	10	31
Hand spray application	0	1	1
Improper application procedure	7	3	10
Improper disposal	0 (N) ⁵	0	0

Table 2 Contd.

Improper safety precautions	2	0 (1) ⁸	2
Improper storage	2	0	2
Ingestion of contaminated food, material	1	0	1
Ingestion of pesticide	1	0	1
Ingestion of treated food	0	1	1
Pesticide misuse	9	2	1
Mixing/loading operation	3 (1) ⁹	2	5
Overspray	0	0 (1) ¹	0
Pesticide application	17	7	24
Pesticide application (hand)	0	2	2
Pesticide unrelated	2	0	2
Spill/Splash	4	1	5
Spray application	4	3	7
Spray drift (aerial application)	148	46 (1) ⁵	194
Spray drift (aerial application, right-of-way)	0	1	1
Spray drift (ground application)	12 (1) ¹	5 (1) ¹	17
Spray drift (hand application)	0	1	1
Spray drift	81	30	111
Unlicensed application	0	0 (1) ²	0
Unspecified	33	7	40

Subtotal	411	159	570
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Cemetery: 1

Spray drift (ground application)	1	0	1
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Subtotal	1	0	1
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Table 2 Contd.

City: 4 (3)*

Blowback	0	1	1
Hand spray application	0	0 (1) ⁴	0
Mixing/loading operation	0	1	1
Spray drift (aerial application)	1	1	2
Spray drift (ground application)	0	0 (1) ⁴	0
Spray drift	0 (1) ⁴	0	0

Subtotal	1	3	4
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Commercial: 5

Contact with pesticide	1	0	1
Disaster (fire)	0	1	1
Equipment failure/maintenance	0	1	1
Pesticide unrelated	0	1	1
Spray drift (ground application)	0	1	1

Subtotal	1	4	5
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Pecl: 1

Snill	0	1	1
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Subtotal	0	1	1
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Correctional Facility: 1

Equipment failure/maintenance	0	1	1
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Subtotal	0	1	1
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Table 2 Contd.

Educational Facility: 5

Hand spray application	0	1	1
Pesticide misuse	1	0	1
Pesticide residue	0	1	1
Spill/splash	1	0	1
Spray drift	0	1	1

Subtotal	2	3	5
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Fish Hatchery: 2

Aerial application	0	1	1
Improper application procedure	1	0	1

Subtotal	1	1	2
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Forestry: 1

Chronic exposure	0	1	1
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Subtotal	0	1	1
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Highway: 2

Hand spray	0	1	1
Inhalation exposure	1	0	1

Subtotal	1	1	2
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Home: 282 (5)*

Aerial application	8	7	15
Backsiphonage	2	0	2
Blowback	0	1	1
Chronic exposure	0	1	1
Contact with pesticide	3	20	23

Table 2 Contd.

Improper safety precautions	2	0 (1) ⁸	2
Improper storage	2	0	2
Ingestion of contaminated food, material	1	0	1
Ingestion of pesticide	1	0	1
Ingestion of treated food	0	1	1
Pesticide misuse	9	2	1
Mixing/loading operation	3 (1) ⁹	2	5
Overspray	0	0 (1) ¹	0
Pesticide application	17	7	24
Pesticide application (hand)	0	2	2
Pesticide unrelated	2	0	2
Spill/Splash	4	1	5
Spray application	4	3	7
Spray drift (aerial application)	148	46 (1) ⁵	194
Spray drift (aerial application, right-of-way)	0	1	1
Spray drift (ground application)	12 (1) ¹	5 (1) ¹	17
Spray drift (hand application)	0	1	1
Spray drift	81	30	111
Unlicensed application	0	0 (1) ²	0
Unspecified	33	7	40

Subtotal	411	159	570
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Cemetery: 1

Spray drift (ground application)	1	0	1
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Subtotal	1	0	1
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Table 2 Contd.

Contact with treated material	0	1	1
Contaminated pesticide	0	1	1
Contaminated sprayer/tank mix	0	2	2
Dermal exposure	2	1	3
Drainage/runoff	1	1 (1) ⁶ (1) ¹⁶	2
Equipment failure/maintenance	1	0	1
Failure to follow label directions	0	1	1
Ground spray application	8	10 (1) ³	18
Ground spray application (right-of-way)	0	1	1
Hand application	1	0	1
Hand spray application	5	15	20
Improper application procedure	1	2	3
Improper disposal	0	2	2
Improper safety precautions	2	1 (1) ⁸	3
Improper storage	2	1	3
Ingestion of contaminated material/food	3	6 (1) ¹⁶	9
Ingestion of pesticide	15	29	44
Ingestion of treated material food	5	2	7
Intentional poisoning	0	1	1
Lack of protective equipment	0	1	1
Pesticide application	3	5	8
Pesticide application (hand)	1	8	9
Pesticide drift	0	1	1
Pesticide unrelated	0	2	2
Smoke drift	0	1	1
Spill/splash	7	4	11
Spray application	1	1	2
Spray application (railroad right-of-way)	0	1	1

Table 2 Contd.

Spray drift (aerial application)	13	5	18
Spray drift (ground application)	2	1	3
Spray drift (hand application)	0	1	1
Spray drift	5	9	14
Suicide attempt	0	2	2
Suicide	2	1	3
Unspecified	28	12	40

Subtotal	121	161	282
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Industry: 17 (2)*

Blowback	1	0	1
Contact with pesticide	2	0 (1) ¹⁰	2
Disaster (fire)	0	4	4
Equipment failure/maintenance	1	0	1
Ground spray application	0	1	1
Ground spray application (right-of-way)	0	0 (1) ¹⁵	0
Hand spray application	0	1	1
Mixing/loading operation	0	1	1
Spill	1	0	1
Spray application	0	1	1
Spray drift	2	0	2
Unspecified	0	2	2

Subtotal	7	10	17
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Nursery/Greenhouse: 5

Contact with pesticide	0	1	1
Contaminated fertilizer	0	2	2

Table 2 Contd.

Pesticide application (hand)	1	0	1
Spray drift	1	0	1

Subtotal	2	3	5
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Park/Recreational Facility: 11

Blowback	1	0	1
Equipment failure/ maintenance	1	0	1
Ground spray application	0	1	1
Hand spray application	1	1	2
Improper application procedure	1	0	1
Improper disposal	1	0	1
Pesticide application	1	0	1
Spray drift (aerial application)	1	0	1
Spray drift (hand application)	1	0	1
Unspecified	1	0	1

Subtotal	9	2	11
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Public Building: 4

Contact with pesticide	0	1	1
Inadequate training	0	1	1
Spray drift (ground application)	0	1	1
Spray drift (hand application)	0	1	1

Table 2 Contd.

Subtotal	0	4	4
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Right-of-Way: 2

Ground spray application	0	1	1
Spray drift (aerial application)	1	0	1

Subtotal	1	1	2
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Transportation: 30 (2)*

Aircraft crash/emergency dump	1	1	2
Container failure/damage	5	0	5
Damage by other freight	0 (1) ¹¹	0	0
Spill/Splash	3	2 (1) ¹²	5
Unloading operation	1	0	1
Unspecified	2	3	5
Vehicle accident	0	12	12

Subtotal	12	18	30
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Roadside: 1

Drainage/Runoff	1	0	1
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Subtotal	1	0	1
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Public Grounds: 1

Ground spray application	0	1	1
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Subtotal	0	1	1
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Table 2 Contd.

Unspecified: 41

Aerial application	0	2	2
Blowback	1	0	1
Contact with pesticide	1	3	4
Contact with treated material	0	1	1
Container failure/damage	0	2	2
Hand application	1	0	1
Hand spray application	0	1	1
Improper safety precautions	0	1	1
Improper application procedure	0	1	1
Improper disposal	1	0	1
Ingestion of pesticide	1	1	2
Ingestion of contaminated material/food	1	0	1
Pesticide misuse	0	1	1
Pesticide application (hand)	0	1	1
Spill	0	1	1
Spray application	1	0	1
Spray drift (aerial application)	1	0	1
Spray drift (ground application)	0	1	1
Spray drift	1	0	1
Unspecified	15	1	16

Subtotal	24	17	41
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Warehouse: 3

Disaster (fire)	0	3	3
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Subtotal	0	3	3
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Table 2 Contd.

Creek: 2 (1)*

Improper application procedure	0	1	1
Spill	0 (1) ¹³	0	0
Vehicle accident	1	0	1

Subtotal	1	1	2
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Timberland: 1 (1)*

Spray drift (aerial application)	0	1	1
Unposted warnings	0	0 (1) ¹⁴	0

Subtotal	0	1	1
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Drainage Ditch/Canal: 3

Ground spray application	0	1	1
Spray application	1	0	1
Spray drift	1	0	1

Subtotal	2	1	3
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Lake: 3

Contact with pesticide	1	0	1
Pesticide application	0	1	1
Spill	0	1	1

Subtotal	1	2	3
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Table 2 Contd.

Reservoir: 1

Vehicle accident	1	0	1
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Subtotal	1	0	1
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River: 2

Aerial application	0	1	1
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Mixing/loading	0	1	1
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Subtotal	0	2	2
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TOTAL: 1,001	600	401	1,001
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NOTE: This report has a considerable number of crop incidents: cotton, soybeans, grapes and alfalfa.

Table 2 Contd.

*The numbers in parentheses have not been included in the total figures as they have been initially recorded in another category.

- ¹These incidents are initially recorded in the agriculture-spray drift (aerial application) figures.
- ²This incident is initially recorded in the agriculture-spray drift figures.
- ³This incident is initially recorded in the home-aerial application figures.
- ⁴These incidents are initially recorded in the city-spray drift (aerial application) figures.
- ⁵These incidents are initially recorded in the agriculture-improper application procedure figures.
- ⁶This incident is initially recorded in the home-spray drift figures.
- ⁷These incidents are initially recorded in the agriculture-aerial application (right-of-way) figures.
- ⁸These incidents are initially recorded in the agriculture-spray drift (hand application) figures.
- ⁹This incident is initially recorded in the agriculture-splash figures.
- ¹⁰This incident is initially recorded in the industry-spray application figures.
- ¹¹This incident is initially recorded in the transportation-container damage figures.
- ¹²This incident is initially recorded in the transportation-vehicle accident figures.
- ¹³This incident is initially recorded in the creek-vehicle accident figures.
- ¹⁴This incident is initially recorded in the timberland-spray drift (aerial application) figures.
- ¹⁵This incident is initially recorded in the industry-mixing/loading figures.
- ¹⁶These incidents are initially recorded in the home-ground spray application (right-of-way) figures.

Table 3

Abstracts of Pesticide Incidents
Involving 2,4-D as Reported to PIMS (1954 to March 1980)

Date of Incident	State	Impact	Active Ingredients Involved
00/00/54	LA	Crop damaged (cotton)	2,4-D
		Remarks:	On 9/1/66, a legislator requested an investigation of damage to cotton crops by herbicide drift which occurred in 1954. The spraying operation was carried out along a river by the Army Corps of Engineers. Damage occurred in five parishes and resulted in several claims for compensation.
05/25/66	UT	Crops damaged (3,000 acres; wheat, alfalfa), rangeland damaged/killed (8,000 acres; grasses, range plants, trees)	2,4-D 2,4,5-T Fuel oil
			Twenty-two 55-gallon drums of 2,4-D and two 55-gallon drums of 2,4,5-T (diesel oil #2 as carrier) were applied at the rate of 2 lb herbicide/2 gal oil/acre in an aerial application to control sage brush and other brush on privately owned sheep and cattle rangeland. The rangeland was adjacent to two small towns and in fairly high and steep rolling hills south and east of the towns. The crop and range damage occurred at the south end of a valley which narrows considerably with several canyons and ravines leading from the treated area to the crop and rangeland surrounding the towns. After the applicator spent the greater part of the day spraying, farmers and property owners claimed that the daily canyon breezes carried "considerable" chemical drift down to the valley. Damage was evident in the wheat and alfalfa; the wheat (watered by sprinkle irrigation) had twisted growth and died in patches. Grass was stunted, had streaks of

black, and had not produced seed; mustard, burdock, yarrow, sunflower, dock, stinging nettles and other plants also had twisted stems. Boxelder and maple trees, choke cherry and service berry shrubs were burned or killed. The burning of the trees and shrubs in many instances occurred only on the east or mountain side of the area. In leaf regrowth the petiole was twisted, the leaf distorted. Fishermen who used a small fishing stream located in the area affected by spray drift had not complained of stream damage. During investigation, samples of the two herbicides were collected from barrels left by the aerial applicator.

06/16/66

NC

Crop damaged
(1 3/4 acre
tobacco)

2,4-D (amine)

In 1965, leftover 2,4-D was placed in a used maleic hydrazide container and not relabeled. On approximately 6/16/66, the improperly stored 2,4-D was mistakenly ground-applied for tobacco sucker control at a rate of 4 lb/acre. The herbicide was applied to the well-drained, 1 3/4-acre field by a tenant farmer in calm, dry weather. The extent of damage was not specified; some of the tobacco was later salvaged. Similar incidents were reported to have occurred previously in the same vicinity.

04/01/67

CT

1 human
fatality

2,4-D (ester)
2,4,5-T

A 48-year-old truck driver ingested one cup of herbicide in a successful suicide attempt. According to his son with whom he lived, he had been despondent due to marital problems. The 50-gallon drum from which the pesticide was taken had been sealed. The drum was stored in a garage at the driver's place of employment; whether he ingested the herbicide at the garage or took it home before ingestion was undetermined. Ingestion was between 6:30 a.m. and 7 a.m. At home shortly thereafter, he became nauseated and vomited, for which he took aspirin and a glass of milk at that time. He was found sitting in a chair in a dazed condition at 7:30 a.m., and admitted drinking the pesticide. An ambulance was called; he was admitted to the hospital at 9 a.m. (4/1/67), still conscious. He died at 5

a.m. on 4/3/67. Laboratory analysis of liver, stomach and intestines confirmed the presence of 2,4,5-T and 2,4-D.

10/17/67

M O •

1 dog dead,
soil contaminated

2,4-D (ester)
2,4,5-T (ester)

A veterinarian stated the dog's death was due to contact with the pesticides. An electric company used herbicides for weed control under power lines. Some of the product was sprayed within the fenced area of a private residence, approximately 36 feet from the house. Approximately 15 minutes after the application, the resident's pet dog (Blue Tick hound) roamed over the sprayed area within the fence. The dog's paws were washed immediately. Several days later, the dog was observed licking his paws; all four paws were found to be swollen. A secondary infection developed in the injured paw area (the herbicide allegedly "had eaten" into the flesh between the cushion and toes). During the next year, the dog's owner consulted two veterinarians in efforts to successfully treat the animal. Approximately two weeks prior to the dog's death the problems seemed to be alleviated. On 10/17/68 internal bleeding occurred, followed by death. The owner was told by the second veterinarian, who had been treating the dog for several months, that the herbicide had been introduced internally through the dog's licking his paws. Blood was discharged from his mouth, anus and was in the dog's urine. No post-mortem examination was performed. The owner was making an attempt to stop the sale of the product in his state. A local sales representative reportedly had stated that the product used was from "a bad lot." The applicator's insurance company made a payment for damages to the dog's owner; label directions were not followed and the application reached an area other than the target area. One of the manufacturer's chemists responding to the owner's complaint stated that the product was nontoxic and harmless to humans and animals. The product label advised against contaminating water for irrigation or domestic purposes: "Harmful if swallowed. Avoid contact with skin, eyes or clothing."

04/15/68

CO

Over 87 cattle
affected, 9 dead,
21 treated

2,4-D (ester)
Endrin

Extensive aerial applications of a combination of endrin and 2,4-D butyl ester to winter wheat took place in eastern Colorado during April, 1968. Similar applications of 0.25 lb/acre endrin and 0.3 - 0.5 lb/acre 2,4-D were made at two ranches on 4/15 and at a third ranch on 4/16. A herd of Angus cattle grazed on treated wheat at the first ranch on the day following spraying. That afternoon, some of the cattle developed staggering, loss of coordination, opisthotonus, and convulsions. Three of the cattle expired by 3 p.m., and 14 others were treated by a veterinarian between 3 and 5 p.m. At the second ranch, some of a herd of 35 Angus cattle grazed in a freshly-treated wheat field located just north of their pasture. Six cattle (including a calf) expired in the early morning following spraying; seven others received veterinary treatment. At the third ranch, approximately 52 hereford yearlings (heifers) were pastured between two fields treated on the afternoon of 4/16. Ten to twelve of the cattle exhibited mild excitability on the morning of 4/17; all recovered with no veterinary treatment. Some of the treated cattle received phenobarbital to control central nervous system symptoms; others were treated extensively with sodium thiosulfate by intravenous injection. Blood and milk samples were collected from affected Angus cattle at the second ranch. Tissue and rumen content samples were obtained from a dead cow. Serum endrin residues (methanol serum extract) in four cows ranged from 0.136 ppm to 0.259 ppm. A milk sample contained 0.446 ppm endrin (Burchfield vol I, II A4a 1). Rumen contents (entirely freshly-ingested wheat) contained 0.257 ppm endrin (Burchfield vol I, III A3d 1), while liver and adipose-abdominal tissue contained 2.464 ppm and 2.822 ppm endrin, respectively (Radomski method). Wheat from a treated field contained 52.718 ppm endrin (fresh weight basis). A diagnosis of endrin poisoning was strongly presumed; hypomagnesemic tetany ("grass staggers") was ruled out. Magnesium and calcium electrolyte levels were found to be in the low normal range in serum from two cows. Nitrate poisoning was ruled out on the basis of 0.19%

nitrate (dry weight) detected in sprayed wheat. Analysis of the pesticide emulsifiable concentrates demonstrated the concentrations on the product labels to be nearly correct. Application rates were determined to have been reasonable.

08/05/68

OR

2 humans affected;
1 received medical
attention,
horses affected,
trees damaged

2,4-D (amine)
Trysben

Thousands of acres of wheat fields surrounding the complainant's residence were commonly treated with herbicides each year for eradication of alfalfa and morning glories using various brands of 2,4-D as well as occasional spot applications of Trysben. On 8/5/68 the only application of 1968 was made (3 lb/acre 2,4-D amine on 200 acres). The application was approximately $\frac{1}{2}$ mile west of the home and wind was practically nil according to the aerial applicator. Affected residents described the weather as windy. A flagger was on duty during the application. The female resident noticed a spray drift through her yard and immediately experienced nausea and dizziness, followed by loss of appetite, vomiting of blood, and an inability to urinate for 2 to 3 days. Her family physician noted generalized aching and feeling of illness, chest congestion, eye inflammation, poor appetite, and extreme nervousness. Antibiotic treatment produced no response. She also was treated with sulfur tablets. A second physician was consulted, and noted chest pains, general malaise, and loss of appetite. Laboratory results of blood tests were mainly negative. A kidney infection was detected which responded to antibiotics. The doctor reported "... he couldn't positively rule out the possibility, but neither did he have any indication that she has been affected by 2,4-D." The woman's husband also reported unspecified illness on the day after spraying. The woman reported horses were affected; a veterinarian did not see the horses, but provided a telephone consultation for one sick animal. He felt the symptoms described to him were related to laminitis, for which he prescribed cortisone with vitamin D and selenium. The horse, which had a history of several episodes of laminitis over the past few years, responded well to treatment. The woman

reported seeing spray drift contact a spruce tree in the yard at the time of application. Black locust trees in the yard subsequently exhibited discoloration in deep foliage on the west side of the trees. - -

05/00/69	CO	Crop damaged (corn)	2,4-D (amine) Eptam
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Over ten farmers complained of damage to their corn crops after use of the same granular herbicide product for weed control. In all instances, the product had been applied within label-recommended rates, from 2.7 to 4 lb/acre. The farmers contacted denied using the product in combination with fertilizers, insecticide, or fungicides. The soils involved were light loam, loamy, or clay soils. Three fields were investigated and samples were collected. The stands of corn were described as "spotty." Damaged plants had twisted, curled leaves, abnormally shaped tap roots ("very triangular"), and anchor roots which were few in number, thin, twisted, and weak. Three 1-pint soil samples were analyzed on 6/27; 0.2 ppm eptam was detected in one sample. No 2,4-D acid was detected in any of the samples. Gas chromatography (with FID) was the method of analysis; limits of detection were 0.15 ppm eptam and 1.1 ppm 2,4-D acid. The test method was considered inadequate in that very low residues could not be detected. The time interval between use of the product and analysis was not reported.

05/19/69	AR	1 human affected, cattle affected, 5 dead, 2 aborted, 2 herds treated, 1 mare aborted; fish kill, crop (clover), trees damaged	2,4-D 2,4,5-T (ester) Arsenic
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Due to pilot error portions of two farms were sprayed with 2,4,5-T on 5/18/69 and with 2,4-D on 5/19/69 by an aerial applicator as he treated an adjacent field. Pond water was used for dilution at an airstrip where mixing of the pesticides took place. On or about 6/10/69, the owner of an Angus beef herd (34 cows with calves and 4 bulls) noted the following symptoms in his cattle and crops: weight loss in cows and bulls (up to 300-400 pounds in

the bulls), calf growth slowed, nodules (1 - 1½") appeared on the backs of cattle, estrus did not recur in most cows, two cows and one mare aborted, cattle lost their "voice" and exhibited unusual and prolonged headraising while eating; fields of clover were brown and dead, and trees appeared to be dying. Two of the cows that died had grazed tree leaves which had been "sprayed to the point of run-off." On 7/28/69, a neighboring farmer stated his Holstein dairy herd (number of cows unreported) had exhibited similar symptoms and one cow had died. A veterinarian who observed the Angus herd reported they showed typical symptoms of arsenic as well as nitrogen poisoning. A second veterinarian who had observed both herds agreed with the first. Two more cows from the Holstein herd died on 8/5. Samples were taken from cows of the Holstein herd and sent to a private laboratory along with grass, soil and leaf samples. A soil sample was sent also from the first farm. The test results showed that a qualitative analysis of milk and liver taken by a veterinarian from a cow that had died revealed low to moderate amount of arsenic; in a later report no arsenic was detected in milk, grass, leaf and soil samples. On 8/12, samples of milk, soil, grass, and pond water, and commercial feed were collected for analysis at a federal laboratory. On the same date, two Angus cattle were slaughtered; tissue and rumen content samples were forwarded to federal laboratory for pathological and metallic residue analysis. Results were not reported. Milk from the dairy continued to be marketed during the investigation period. No arsenic was detected in 2,4,5-T samples (screened to 0.005%) closest to the batch used in the application. Neither was arsenic found in the dilution water. Samples of 2,4,5-T were determined to be chemically satisfactory. No information was given concerning adverse effects reported to be experienced by a farmer's daughter who consumed dairy and garden products from one of the affected farms. A veterinarian reported that a fish kill occurred after the spraying in a pond located on the beef farm.

05/27/69

AR

Garden, yard 2,4-D
damaged; (hickory, 2,4,5-T
oak, pear trees, Fuel oil
bean plant.)

A forestry service aerially sprayed a national forest area to kill hardwoods on or about 5/27/69. The service used a formulation of 2

1b acid/gal 2,4,5-T and 1 lb acid/gal 2,4-D. The solution used consisted of $\frac{1}{2}$ gal 2,4,5-T/ $\frac{1}{6}$ gal 2,4-D/ $\frac{5}{6}$ gal water/ $\frac{1}{2}$ gal #2 diesel fuel oil applied at the rate of 7 gal solution/acre plus $\frac{1}{2}$ pt surfactant/100 gal solution. A nearby farmer ground-sprayed his property with 2,4,5-T on or about 6/16/69. Later injury/damage to plants, beans and pears in the farmer's yard and garden was attributed by the farmer to the forestry service application. Four samples of plants (oak and hickory sprouts, bean plants, and a pear tree branch) were sent to a laboratory for analysis; the hickory sprout sample contained 0.1 ppb 2,4-D and was inconclusive for 2,4,5-T; the oak sprout was inadequate for analysis; the pear sprout contained 0.1 ppb 2,4-D and 1.35 ppb 2,4,5-T, the bean plant contained 0.1 ppm 2,4-D and 0.76 ppm 2,4,5-T.

06/00/69

AR

Frogs
affected,
water
contaminated

2,4-D (ester)
DDT
DDD
Dieldrin

A farm pond situated in the center of a large pasture (no cropland for a distance of at least $\frac{1}{2}$ mile) was treated with 20% 2,4-D granular herbicide in the early spring of 1969 for control of aquatic vegetation. The application conformed to label instructions. In April, the surrounding pasture was treated with approximately 600 pounds of commercial fertilizer (13-13-13). In June, the farmer's son observed several mutated frogs while swimming in the pond. Defects included "cyclops" eyes, abnormal number of appendages, poorly developed muscles, and others. Investigation of the incident was delayed until October, when six frogs (apparently normal) were collected from the pond along with four pints of water. Since efforts to collect a mutated frog had proved fruitless, the farmer provided a live frog with two additional hind limbs which his son had been keeping in an aquarium (photo available). Samples were forwarded to a federal laboratory for analysis. Approximately 2,500 ml of the pond water was filtered to obtain a sediment, which was found to contain an organic chlorinated material which could not be identified as one of the common chlorinated pesticides. Two of the normal frogs were found to contain approximately 0.1 ppm DDE and traces of dieldrin (0.01 ppm). The six-legged frog contained approximately 0.2 ppm DDT-DDE-

DDD complex and traces of dieldrin. A blue-gill test using filtered pond water was negative. Analysis of the water indicated 12 ppb dieldrin and traces of DDT-DDE-DDD complex. Foliar spray tests, in which 3-week-old tomato seedlings were sprayed with pond water, resulted in no significant plant injury as compared with 2,4-D standards and distilled-water controls. Root growth tests revealed no inhibition of root elongation in seeds treated with pond water, also compared with standards and controls. Results of both foliar spray and root growth tests indicated the presence of no significant amounts of 2,4-D in the pond water.

06/00/69

OK

Walnut trees,
pasture damaged,
wildlife affected

2,4-D
2,4,5-T
Fuel oil

Herbicides mixed with diesel oil, water, and/or a combination of the two were aerially applied to a ranch. An area of the range adjacent to a smaller farm was sprayed with 1.5 pounds 2,4-D, 1 pound 2,4,5-T, and 4.5 gallons oil. Although there was no wind, some herbicide drifted down a valley onto the farm, where a few walnut trees were damaged. The rancher made a cash settlement to the owner of the trees, who also expressed concern over possible ill effects to wildlife in the area, citing a general scarcity of deer, squirrels and quails as compared to the preceding year. The farmer also attributed the scorching of pastures to the spray drift.

07/00/69

AZ

Humans, domestic
animals, wildlife
affected, plants
damaged (trees,
shrubs, range
plants, crops,
ornamentals)

2,4-D
2,4,5-T
2,4,5-TP

Various types of damage to many plant species as well as to humans, domestic animals and wildlife were reported by area residents, referred to in local news articles and/or observed by investigators after a canyon area was sprayed from 6/8 - 10/69 by a forestry service. A solution of 2,4,5-TP in water (8 gal/acre) was aerially applied to control brush on hunting and rangeland to allow more water to flow, thereby reducing fire hazard. In past years, 2,4-D and 2,4,5-T had also been used within the approximately 11,500-acre project

area. Spraying was discontinued whenever wind speed exceeded 10 miles per hour. The helicopter flew 20 - 100 feet above the vegetation while spraying; it avoided as much private land as possible. A nozzle clogged during one application. A recreation area and stream bottom vegetation within the treatment project were avoided. There was a lack of rainfall from the first week in May until after the first week in July. On 7/10/69 an agricultural research service officer reported that there appeared to be 2,4,5-TP damage to garden produce (beans, peas, tomatoes, melons) but no other damage characteristic of the herbicide. It was his opinion that other plant damage (including mesquite, cactus, fruit trees, and other trees and plants) was caused by something other than 2,4,5-TP. Local residents, conservation groups and university associates reported from an inspection on 9/30/69 that scrub oaks appeared blackened and chaparral "vulnerable to fire;" the walnut, sycamore, hackberry and cottonwood trees on private properties displayed abnormal growth and "remarkable variations" in leaf size and shape were noted. Split limbs on ash, walnut and cottonwoods had been invaded by fungi. Observers also reported rapid exfoliation of sycamore bark, unusual growth appearance of prickly pear cactus, and high mortality of such shrubs as yucca. At a camp ground, standing water was rust colored. During one inspection of the area, an English sparrow appeared with swollen eyelids and dying at one home; this seemed to be a familiar experience to the family. In an inspection on 10/10, a university botanist observed damage and/or abnormal growth in pines, oaks, and sumac. Pines had an abundant cone crop, twisted needles and thickened leaders with oozing sap. Willows had unseasonal bud swelling. The oaks were dead or dying in one area; gambel oaks above the spray area had unusually large leaves with overgrown midveins causing concave leaf shape, and weakened branches that could easily be pulled free. Sumacs were still covered with green leaves which were normally in full color at this time of year. Human and animal impacts were not described in detail.

08/00/69

MO

3 humans
affected

2,4-D
2,4,5-T

A possible misuse of pesticide was suspected to have caused both physical and mental disability in two of three children. In August of 1969 a (7-month) pregnant mother and her 46-month-old daughter were in their back yard when a mist was created by a neighbor spraying herbicide in his yard (used a hose-end sprayer). The two had remained in the yard approximately an hour. It was hot, not humid, and there was a slight breeze. The mother almost lost consciousness when she went into her house; at that time she noticed the yard was filled with mist. Her daughter began exhibiting convulsion-like behavior (eyes rolled back, tongue extended and sitting limply). She was rinsed with water and her clothes changed. A physician was contacted; he recommended observation of the child and removal from the area. The pregnancy resulted in a boy who is highly sensitive to chemicals and has a severe allergy condition. The child has stopped breathing in his sleep and turned a black color; resuscitation has kept him alive. Subsequently he has had "black blotches" under his skin. The mother feared teratogenic defects in the child. A third child, 18-months-old, born since the incident, is normal. At the time of the incident, an EPA misuse regulatory group was not in effect and EPA had no jurisdiction. She requested aid in compelling her neighbors to inform her prior to applying pesticides and fertilizers. She was advised that the EPA has no jurisdiction if a product is applied in accordance with label directions.

12/03/69

MO

Plants damaged
(trees, shrubs,
crops, gardens)

2,4-D

A newspaper article of 12/3 linked damage to trees, shrubs, crops and home gardens in a residential/commercial/agricultural area (in and around a large urban area) to emissions from a 2,4-D formulating plant located in the area. Damage was reported to have occurred during a period from late April to early July; a spokesman for the formulating plant was reported in the news article to have stated that the plant was idle during this period. Investigators were hampered in their efforts to iden-

tify herbicide damage because of the season of year: leaves had already dropped from trees, and gardens and crops had been harvested. County personnel were interviewed regarding specific reports of damage which they had investigated. On 6/24, a county inspector attributed herbicide damage in trees on private property to drift from a commercial spray plane, and further stated that he knew of no instance of 2,4-D damage which could not be correlated with commercial use. Another county official reported that herbicide damage occurred in late June or early July to a county vegetable garden project located $\frac{1}{2}$ mile north of the formulating plant; it was learned that the county had recently sprayed a roadside area adjacent to the garden plot with 2,4-D. This inspector also reported that all 2,4-D damage he had observed could be attributed to drift from commercial applications, and further stated that local weather conditions (air current) favored wide dispersal (at least 5 miles) of such drift. Samples of soil and horseradish leaves/roots were collected on 12/5 from a farm at which 2,4-D had not been applied for several years. Analysis results were not reported. The farm was located $\frac{3}{4}$ mile northeast (downwind) of the formulating plant; prevailing winds in the area were from the southwest. The formulating plant's attorney declined to provide information concerning 2,4-D production and plant emissions.

05/06/70

CO

1 human affected,
1 dog dead

2,4-D (ester)
2,4,5-T (ester)

- Two herbicides, a liquid weed killer and a pressurized spot weed killer were hand-sprayed to destroy dandelions and buffalo grass in the yards of a residence on 5/5/70. After a drying period, four Dalmation dogs were allowed to run in the yard. Near midnight of 5/6/70, one bitch (65 lbs, 2 $\frac{1}{2}$ -years-old) had a convulsion; a second attack occurred early the next morning. The dog's stools contained buffalo grass; the dog was taken to a veterinarian who treated her for epilepsy. On 5/8/70, he drew a blood sample from the dog, who continued to have convulsions, and sent the sample to a laboratory. The analysis report stated that the blood contained components similar to or corresponding to the spot weed killer. After the report was returned, the veterinarian began treatment with the universal antidote and 2-PAM. The

convulsions worsened and the dog died 5/10/70. The medication for organophosphate poisoning did not affect the dog in any manner. At the laboratory where the analysis was performed, the toxicologist used a gas chromatography and the "head space technique" in his testing. It was concluded that such a method did not prove the presence of a toxic material in both blood and herbicide and another laboratory was unable to detect any contamination of the two herbicides or the presence of organophosphates. On 5/12/70 the dog's owner reported that she was feeling ill and upset and her physician was giving consideration to the possibility that her illness might be related to the pesticides.

05/27/70

OK

Crops damaged (150 English pea plants, 300 okra plants, 383 beet plants, 25 hills watermelon, 33 hills cantaloupe, beans, others)

2,4-D

In an undescribed agricultural incident, drift from an aerial application of herbicide (2,4-D in water) damaged several crops in a garden.

06/02/70

NC

Fish kill (171 dead, 47 sunfish, 33 bluegill, 10 warmouth, 14 pickereel, 32 pumpkinseed, 17 chub, 14 perch, 4 yellow bullhead), water contaminated

2,4-D
2,4,5-T

Herbicides were spilled into one fork of a river approximately 4 miles above a city water supply. At approximately 11 a.m. a truck owned by an aerial service company was observed in the process of mixing the solution by pumping water from the river into the truck tanker. The company, which had been working in the area for one week, was spraying power line right-of-ways for a utility company. An error was made in turning valves and $\frac{1}{2}$ - 2 gallons of the solution flowed into the river. Laboratory tests of the river water samples showed the following: $\frac{1}{4}$ mile upstream (from spill area) - <0.002 ppm 2,4-D, <0.002 ppm 2,4,5-T; spill area - 98.0 ppm 2,4-D, 98.0 ppm 2,4,5-T; $\frac{1}{4}$ mile downstream - 2.7 ppm 2,4-D,

2.4 ppm 2,4,5-T; 3/4 mile downstream - 31.0 ppm 2,4-D, 29.0 ppm 2,4,5-T; 1, 1 1/2, and 4 miles downstream - <0.002 ppm 2,4-D, <0.002 ppm 2,4,5-T. Laboratory tests had indicated that the lowest concentration of 2,4-D to cause mortality of fish was 100 ppm. Certain esters and amines of 2,4-D were found to be more toxic, particularly in still, shallow water (similar to the involved river) and might harm fish at dosages used for weed control. Of the total number of dead fish, 136 were game fish, 35 non-game; total weight was 12.7 pounds. It was recommended the air service be assessed for the total cost of the investigation and fish replacement (\$912.16). The city water supply appeared to be unaffected.

06/18/70

OK

Trees, sprouts
affected

2,4-D (Mthate)
2,4-D (amine)
2,4,5-T

Drift damage to 20 sprouts and 2 trees occurred in an agricultural incident. The exact source of the drift was not determined; one nearby ranch had used 2,4-D amine, and another had used 2,4,5-T and 2,4-D Mthate. The pesticide was applied aerially. Details of the pesticide damage were not reported.

07/00/70

IN

135 ducks
affected;
132 dead

2,4-D
2,4,5-T

After the second spraying of a defoliant along the highway by a state highway department, Muscovy and Peking ducks raised by one family began dying. The family lived below the highway level and received drainage from the road. A veterinarian unsuccessfully treated the ducks for botulism. Two ducks that survived were nesting in adjoining fields and one was recovering from a broken wing. An environmental group froze one duck carcass and two samples of pond water. A conservation laboratory examined the dying ducks but did no tests. The frozen duck carcass was sent to a laboratory for testing. The resulting report indicated the duck was generally in excellent condition and there was no gross evidence of trauma. Corn and other food was found in the gizzard. There was no evidence of infection. No cause of death was determined. The pond water samples were analyzed for 2,4-D and 2,4,5-T; no evidence of the chemicals was found.

07/00/70

OR

Trees damaged
(alder)

2,4-D (ester)

MCPA

Sodium chlorate

Sodium metaborate

In a letter to an elected official dated 7/3/70, a professor of forestry and a professor of plant pathology reported having observed herbicide damage to streamside vegetation along a river canyon. They attributed tree deaths, partial defoliation, and leaf curling to possible drift from railroad right-of-way spraying and, more likely, to drift from aerial applications to farms located on a plateau above the river. A state agricultural inspector investigated vegetation at several points along the river, and stated that he found evidence of 2,4-D exposure in two areas: within a railroad right-of-way, and in a group of alder trees located approximately 10 miles upstream from the river's mouth. A railroad company had applied 27,300 gallons of diluted herbicide to approximately 150 miles of right-of-way on 4/27-28-29/70, beginning at the mouth of the river. The herbicide contained 0.02 lb/gal MCPA, 1.75 lb/gal sodium chlorate, and 1 lb/gal sodium metaborate diluted at a rate of 1 gal herbicide/1 gal water. The application rate was approximately 160 gallons diluted herbicide per mile of railroad track, applied by boom sprayer to an area extending 2 feet beyond tie ends. On 5/14-15-16-21/70, an aerial applicator had sprayed approximately 1,000 acres of private land with 2,4-D (ester) for control of sagebrush and rabbit brush on grazing land. Approximately 700 treated acres were located within the canyon walls and included side canyons and ridge tops. The rate of application was 3 lb 2,4-D/5 gal dilution/acre. Thirty acres of sagebrush on the opposite side of the river, including a landing strip adjacent to the river, were also aerially sprayed during the same period in May. The state investigator attributed alder tree damage to the sagebrush spraying through one or more of the following conditions: (a) minor drift during application, (b) volatilization during or after application, and/or (c) volatilization by accidental burning of treated area (several brush fires had occurred in the canyon wall). Herbicide

damage to the alder trees was described as "minor." Other tree deaths and damage observed during the investigation were attributed to old age, flooding, fire, and webworm infestations.

03/21/71

GA

Trees, shrubs,
lawn burned

2,4-D (ester)
2,4,5-TP (ester)

A home owner applied approximately 66 pounds of the granular herbicide for weed control on his lawn. The product contained 0.95% 2,4-D (isooctyl ester) and 0.45% 2,4,5-TP (isooctyl ester). He used an Ortho hand spreader for home garden and lawn. The opening setting of 4½ on the spreader was used. Label instructions were followed during the application (the temperature was less than 75° with little if any wind), with the exception of a watering of the back lawn earlier after application than recommended by the label. He watered the treated area daily; the lawns turned brown which the owner believed was due to nitrogen burn, but they did not recover as fast as they should. Major portions of the lawn were destroyed and subsequent migration of the pesticides damaged nearby shrubs and trees. The damage was confirmed by on-site investigation, and included leaf wilting, defoliation, and scorching, stem die-back and brittleness, and partial root kill. Route of exposure appeared to be systemic. The product was analyzed and was found to be chemically satisfactory. Water had run off into his neighbor's yard and had killed one of his neighbor's shrubs. Damaged or destroyed plants in the treated yard included the following: ornamental dogwood, flowering plum, silver maple, lombardy poplar, and magnolia trees; rose, forsythia, crepe myrtle, tree ivy and holly bushes; and Bermuda grass (front, side and rear lawns). A value of \$193.05 was placed on the plant losses by the owner.

03/26/71

MO

Fish kill
(40,000 killed,
largemouth bass,
green sunfish,
bluegill, crappie,
catfish, carp,
gar, shad, minnow)

2,4-D (ester)
2,4-DP(ester)
Fuel oil

Herbicide was applied by spray truck on 3/25-26-29/71 for brush control along a drainage ditch which paralleled a highway. The fuel oil carrier produced a surface slick and noticeable

color throughout the fish kill zone. Dead fish were first observed on 3/29; an estimated 40,000 fish were killed. Moribund carp also were observed. On 3/29 the kill zone included the sprayed area and an additional 1.7 miles downstream from the sprayed area, for a total length of 5.7 miles. The sprayers were ordered to cease operation after the kill was discovered.

05/00/77	OK	Trees (elm, mimosa), yard plants damaged	2,4-D (ester)	In an agricultural incident, spray drift from an aerial application of herbicide in water caused light damage to mimosa trees and flowers, and very light damage to elm trees.
05/00/77	MO	Trees, home garden, (ornamentals, vegetables) damaged	2,4-D (ester)	A farmer applied 2,4-D (ester) in water to preemergent field corn at the label recommended rate of 3.3 lb/acre. He added more 2,4-D than the label recommended but felt it did a poor job of weed control in his field. The ground-spray application was made in early to mid-May (exact date not reported) in mild, humid, overcast weather; wind speed was approximately 5 miles per hour. The boom height was approximately 18 inches from the ground; the treated field was considerably higher in elevation than residential property located directly across a highway from the field. The residential site comprised approximately 4 acres and was partially enclosed by bordering trees; the house was located 0.1 mile west of the highway. Plant damage on the residential property became evident 5 - 7 days after the spray application. An investigation of 2 acres of the affected property on 10/6 indicated that drift from the nearby application to a corn field was the cause of the damage (described as "moderate to severe"). Due to the lateness of the growing season, some damage was masked by normal defoliation and vegetative decline. Scarlet oak, white oak, and black walnut trees were most seriously affected, exhibiting extensive leaf curling, malformation and leaf burn. White pines in the area exhibited no damage. Toma-

toes, beans, roses, forsythia, wisteria, and other plants near the house also displayed curled and malformed leaves. The family reported that no herbicide had been applied on their property.

05/10/77	OK	Crops damaged (15 fruit trees, 50 grape vines, 150 tomato plants)	2,4-D In an agricultural incident, spray drift from an aerial application of herbicide caused light to heavy damage to fruit trees, grape vines, and tomato plants.
05/10/77	OK	Trees, vegetable garden damaged	2,4-D (ester) In an agricultural incident, spray drift from an aerial application of herbicide caused light to medium damage to five trees and a vegetable garden.
05/10/77	OK	Trees, vegetable garden damaged	2,4-D In an agricultural incident, spray drift from an aerial application of herbicide caused light to medium damage to trees and to a small vegetable garden.
05/10/77	OK	Fruit trees, vegetable garden damaged	2,4-D (ester) In an agricultural incident, spray drift from an aerial application of herbicide in water caused light to heavy damage to 12 fruit trees and a vegetable garden.
05/10/77	OK	Strawberry plants damaged	2,4-D In an agricultural incident, spray drift from an aerial application of herbicide caused light damage to 20 strawberry plants.
05/10/77	OK	Trees damaged	2,4-D In an agricultural incident, spray drift from an aerial application of herbicide caused light to heavy damage to nine trees.

05/00/71

AR

Trees, crops,
vines, home
gardens damaged

2,4-D (amine)
2,4,5-T (ester)
Bromacil
Dalapon (sodium salt) - -
Picloram (amine)

Forests, right-of-ways, and private property in and around a town were sprayed with herbicides using aerial, ground and hand-spray equipment. Dates of application were not specified. In approximately 20 - 25 sections surrounding the town (and including other small towns), typical hormone-type herbicide symptoms were observed in trees and vegetables. An estimated 1% - 1 1/2% of the tree population appeared to be affected. Black locust, mimosa, and sassafras trees (species considered susceptible to hormone-type herbicides) displayed yellowing of foliage, defoliation, and twig terminal curvature. Sweet gum trees exhibited leaf cupping. Foliage was yellow or dead on several oak, hickory and sumac trees. Tomatoes, peas, and other vegetables in several gardens exhibited leaf proliferation and strapping, leaf cupping, and pointed fruit. An ester of 2,4,5-T was applied by fixed-wing aircraft to a forest located (at nearest point) approximately 1 1/2 miles south-southwest of the town. The forest crossed a mountain range 1,200 - 1,500 feet in elevation. Wind velocity and temperature were expected to produce minimal drift; a 1/2-mile buffer zone was spared. Hormone-type herbicide symptoms were evident in susceptible vines and trees throughout the buffer zone, and between the buffer zone and the town. Symptoms were less pronounced as distance from the target area increased. Another forest, located 9 miles southeast of the town (and 4 miles south of another town), was sprayed by helicopter. The herbicide used was not reported. Herbicide symptoms appeared in trees and gardens near the sprayed area. No appreciable symptoms were evident in the zones between the two forest sprayings. A railroad right-of-way passing directly through the town was treated with 2,4-D (amine), bromacil, and dalapon (sodium salt) applied from a railroad spray car for brush, weed and grass control. The 2,4-D (amine) was applied inadvertently, according to the custom applicator. Hormone-type herbicide symptoms were particularly evident in

susceptible woody species. Power line right-of-ways were ground sprayed with 2,4-D (amine) and picloram (amine), except for two small, inaccessible areas comprising 25 acres which were sprayed by helicopter. Ground spraying, at its nearest point, took place 2 miles north of the town, while the two aerially-sprayed zones were located 6 and 11 miles northeast of the town (two other small towns were situated a mile northwest of the aerially treated areas). Herbicide symptoms were confined to within a short distance from target areas. An individual applied 2,4-D (amine) to a 1 - 2 acre pasture adjacent to the treated railroad right-of-way for the purpose of weed control, with poor results; a knapsack hand sprayer was used. Nearby herbicide symptoms were similar to others observed. Another individual applied bromacil for grass and weed control along a fence line on private property. All vegetation within a 3-foot-wide band was killed. Oak and hickory trees located 9 - 25 feet from the bank displayed severe foliage damage. Root absorption of herbicide was suspected of contributing to the damage. Specimens of mimosa, ash, and black walnut were analyzed for the presence of pathogenic infections; results were negative. After a 2-month investigation, hormone-type herbicide from the forest spraying and from the railroad right-of-way spraying was determined to be the principal cause of defoliation, yellowing, and leaf cupping of susceptible woody species, and of the leaf strapping and fruit effects in vegetable crops. It was theorized that conditions did not readily permit the material to penetrate the target area cover, and the fine portions remained suspended and later drifted to adjacent areas, and/or that the ester volatilized after application and the vapor drifted by air currents. Effects were more pronounced in a "draw" running through the town, which indicated a settling in lower places. Within a few weeks after the investigation, most trees had regained their foliage, with the exception of previously weakened or stressed trees, and the oaks and hickories which were severely affected along the treated fence line. Reductions in yields from affected gardens were undoubtedly experienced.

06/10/71	CA	Crop damaged (400-500 grape vines destroyed)	2,4-D 2,4,5-T Petroleum solvent	<p>Grape vines in a 40-acre vineyard were damaged when a construction company adjacent to the vineyard sprayed weeds along their fence and drift to the vineyard occurred. The prevailing wind was in an east-northeast direction. The grape vines showed heaviest damage beginning at the fence; the damage progressed in an easterly direction through the vineyard. Clusters of grapes on some vines showed many brown, dried up, immature grapes. The construction company did not have a permit to use the material and received a "strong verbal warning." After the material had been used as a soil sterilant in an out-of-state company site, the remaining four drums had been sent to the company's California quarters. The product was four to five years old when it was purchased. One drum and part of another were used. The vineyard owner felt his vines were worth \$28 each. The company had damaged vineyards in the past and had paid approximately \$15 - \$17 per vine.</p>
06/20/71	OK	Crop damaged (70 acres cotton)	2,4-D (ester)	<p>In an agricultural incident, spray drift from an aerial application of 2,4-D (ester) in water resulted in "medium" damage to 70 acres of cotton. Top leaves on the plants were curled.</p>
07/00/71	OK	Crop damage (30 acres cotton)	2,4-D (ester)	<p>In an agricultural incident, spray drift from an aerial application of 2,4-D (ester) in water resulted in light damage to 30 acres of cotton. Plants were 1½ - 2 inches high and 4 miles from the spray area.</p>

08/71

IL

1 human received
medical attention

2,4-D (amine)

A child under 5 years of age was exposed to the pesticide in an undescribed home-related incident. The herbicide was not stored in the original container.

07/71

GA

Fish kill

2,4-D
Copper

A 3-acre agricultural pond was sprayed with 2,4-D in water on 7/26 to control duckweed. On 8/5, the pond was treated with 4 gallons of algicide to control a heavy bloom of algae. A fish kill was reported; the date of kill, kind and number of fish were not reported. A check of the pond on 8/9 revealed 2 ppm dissolved oxygen.

28/71

WI

8 humans received
medical attention,
214 domestic
animals killed/
affected (cattle,
swine, dogs, cat),
wildlife killed/
affected (rabbits,
birds, deer, rac-
coons), animal feed,
garden, trees,
contaminated

2,4-D
2,4,5-T
2,4,5-TP

An aerial herbicide application was to be made to 200 acres of county land and some private farm land. The permit for spraying was given to the private farmer's father who was instructed not to use 2,4,5-T. The applicator, using a mixture of 2,4-D and 2,4,5-T, sprayed approximately 80 acres of another 280-acre private farm, making 10 - 11 passes over the area; the spray left a white blanket. Wind speed was 8 - 10 mph from the northwest. The complainant reported that on 8/28/71, his farm, his family and himself were sprayed by the helicopter near 12 p.m. and overdrift occurred for 1 1/2 hr. The family members were ill the following evening (8/29/71); approximately 2 years later the family still smelled of ketosis, the children and wife's teeth crumbled and all had joint pains and weakness. All are quite susceptible to illness. The cattle (holstein, jersey, Guernsey, Charolais and Angus) and pigs (mixed breed) showed symptoms by the

immediately after illness appeared and were told the chemicals used for weed spray were harmless to humans and animals. No examination was performed. Medical help for the livestock was not sought until secondary problems appeared. The cattle continued to smell of ketosis also. From the time of the spraying to the present, the family has experienced personal health problems and their farm animals have exhibited deformities. The mother of the family has chronicled a record of events and systematically has collected and retained many biological specimens that relate to the alleged over-spray. She had three miscarriages between 7/73 - 6/77 with much bleeding and required a blood transfusion after the last one. The mother had her teeth extracted in 11/78. Chronic illness developed in the family including fatigue, insomnia, frequent urination, loss of bladder control, nervousness, restlessness, increased susceptibility to colds and flu, fever, chills and various skin eruptions such as boils, pimples and sores. The 7-year-old female child began screaming the day after the spraying and continued for 2 weeks. She had blood exuding from her nose for 5 months after the spraying. She refused to drink milk because it had an odor and was "ropey." The 12-year-old son's face swelled after the spraying and swells everytime he is exposed to fumes of 2,4-D and 2,4,5-T. The father developed lung problems and eye irritation in 1972 after he entered a silo in which forage from fields that had experienced possible overdrift had been ensiled. It is possible that these effects were a manifestation of farmer's lung or were due to silage gases (volatile nitrogen oxides). Children born to neighbors since 1971 have had health problems. In 1972, 100 chickens were acquired. Only 10-12 matured normally; the remainder died with various ailments including curled toes, slipped tendons of the hocks, paralysis and cancerous sores. In the spring of 1977 the family purchased 100 new Rock Cornish chickens which were maintained indoors for 1½ weeks. During the next 2 weeks they were moved to a portable, bottomless enclosure in the yard. At the age of 5 weeks the chickens roamed the yard during the daylight hours and were returned to the enclosure overnight. From the age of 1 month to 4 months, increasing numbers of the chickens developed leg abnormali

ties (80% at 4 months). In 11/78 the family had a few crippled hens, one of which hatched six chicks in the spring of 1978 that grew and developed normally. The poultry laid soft eggs with poor taste, color and storage qualities. Veterinarians who examined and autopsied livestock from the farm reported no definite observable deformities except animals with stunted growth. An interviewer felt that the signs and symptoms of the poultry and livestock as described by the family were compatible with multiple nutritional deficiencies. A controlled study was planned to determine if a soil residue from the 1971 spraying was present 7 years later. No pattern of leg deformities appeared obvious in three groups of chickens raised under differing conditions the first 4 weeks of their lives; about 10-15% showed one or more leg deformities. Vegetation samples taken on 9/8/71 across the road from the family property tested positive for 2,4-D and 2,4,5-T. In November (1978) soil and water samples were collected from the farm for further laboratory analysis. The soil was to be analyzed for 2,4-D, 2,4,5-T and dioxin, the water for bacterial contamination and nitrates. No 2,4-D or 2,4,5-T was found in the soil samples; dioxin results were not reported. The bacteria in the water was 16+ and it was declared unsafe for drinking. The family ran a dairy farm and tree nursery (the trees in the woodlot nursery were found in good condition); the entire operation had been described as "marginal." Sanitation procedures in the house and barn were rather loose with a lot of clutter and dirt. It was believed by some that poor farm management and poor sanitation have contributed to health problems on this farm. On 8/22/74, the family brought a lawsuit against a member of the county board of supervisors, the cousin who owned the woodlot that was sprayed, the chemical company, the applicator and the application company. On 7/13/78 the lawsuit was dismissed by court for failure to comply with procedures (failure to pursue the case).

09/00/77

CO

Crop damaged
(corn)

2,4-D (amine)
Dicamba

A report was received concerning damage to a corn crop after a combination of 2 ounces 2,4-D (amine) and 2 ounces dicamba was aerially

applied to the field. An estimated 10% of the corn crop was lost. The farmer reported an unusual amount of rain and hail after the spraying, and was unable to attribute the corn loss to any one factor. —

10/21/71	IL	1 human received medical attention	2,4-D (amine) In an undescribed home incident, pesticide stored in the original container was involved in the exposure of a child under five years of age.
12/31/71	AL	1 human affected well water contaminated	2,4-D Propanil During a shed cleaning, approximately 1 cup of 3.12% granular 2,4-D and propanil was washed away. A heavy rain occurred that evening and a poorly constructed well nearby, which had been almost dry, held 10 feet of water the following morning. A 26-year-old, 100-pound female resident drank water from the well and approximately one hour later experienced nausea. The water had a strong taste of pesticide. She did not drink from the well the following day and recovered uneventfully.
00/00/72	IL	Plants affected	2,4-D 2,4,5-T A utility company made a spray application to country weeds in an area under a nonspray agreement. Crown-vetch and an Osage orange hedge were involved.
00/00/72	TX	Crop damaged (cotton)	2,4-D 2,4,5-T A written complaint was received from a cotton grower regarding damage to his crop from an aerial application of the herbicide solution. An inspection of the cotton fields resulted in a full investigation of the application. Legal action in 12 cases was filed or pending for violations of the state herbicide law.

0/00/72	OR	Well water contaminated	2,4-D (amine)	A partially-filled five-gallon can of 2,4-D stored in a residential pump house was accidentally tipped over. The contents ran into and around the well casing. A level of 0.03 ppm of 2,4-D was found in the well water.
11/08/72	CO	1 human received medical attention	2,4-D 2,4,5-T	A child ingested a herbicide cartridge; she experienced pain in the mouth. Ipecac, charcoal and saline were administered. Her recovery was uncomplicated.
13/00/72	NY	1 human hospitalized	2,4-D (amine salts)	An individual used the weed killer in performance of his job and, while doing so, got some on his forehead which resulted in a serious burn. Mycosis fungoides developed, and the man was hospitalized 18 days. Litigation was involved. Two physicians testified on behalf of the complainant. An appeal of the case was reported when the first decision was won by a workmen's compensation board.
13/00/72	MN	1 human affected	2,4-D	The site and circumstances related to this incident were not reported.
13/07/72	CA	1 human received medical attention	2,4-D	A 17- to 65-year-old individual was exposed to the pesticide in agricultural work. Circumstances related to the exposure were not described.
13/22/72	OH	Plants affected (tomatoes)	2,4-D 2,4,5-TP 2,4,5-T	It was determined by laboratory analysis that the fertilizer applied to tomatoes in a green house was contaminated with the herbicides. The source of the contamination was not reported.

04/00/72	MD	Trees, shrubs affected (apple, peach, pear, holly, viburnum, forsythia)	<p>2,4-D 2,4,5-TP Captan Malathion Methoxychlor (technical)</p> <p>Epinasty, hyponasty, petiolar twisting, leaf malformation and necrosis were apparent on fruit trees, ornamentals and shrubs at a private home sprayed three times, 10 to 14 days apart, with pesticide containing the chemicals. Plant damage was limited to the area sprayed. The suspected cause of damage was residue in the hand sprayer which had been used earlier in the season to apply a herbicide containing 2,4-D and 2,4,5-TP. The sprayer was an compressed air tank type with a 3-gallon capacity.</p>
04/00/72	OR	1 human affected	<p>2,4-D</p> <p>Transportation of the herbicide was involved in the individual's exposure to the pesticide. Other details were not reported.</p>
04/00/72	OH	14 trees affected (Norway spruce)	<p>2,4-D 2,4,5-T</p> <p>An industrial company settled a claim (\$362.00) for damage to the trees resulting from an undescribed industrial application.</p>
04/03/72	WA	Ornamental trees damaged	<p>2,4-D</p> <p>In an agricultural incident ornamental trees were damaged as the result of an unspecified application of herbicide.</p>
04/24/72	WA	Ornamental trees damaged	<p>2,4-D</p> <p>In a home-related incident ornamental trees were reportedly damaged as the result of an unspecified application of 2,4-D.</p>
05/00/72	OK	Crops damaged (150 pecan trees, 360 tomato plants, 3 grape vines)	<p>2,4-D (ester)</p> <p>Numerous crops were damaged due to a spray drift of herbicide from an aerial application.</p>

05/01/72	CA	1 human received medical attention	2,4-D A worker splashed the herbicide into his eye during use.
05/02/72	CA	1 human received medical attention	2,4-D An agricultural worker sustained chemical burns to his right eye and to the right side of his face while working with the herbicide.
05/02/72	OR	Crop damaged (wheat)	2,4-D (ester) Dicamba (salt) In an agricultural incident the "tank-mix" in an aerial application damaged a 200-acre wheat crop. The pesticide was applied according to label instructions.
05/02/72	WA	Crop damaged (grapes)	2,4-D In an agricultural incident herbicide drift damaged a grape crop.
05/10/72	WA	Crop damaged (grapes)	2,4-D In an agricultural incident herbicide drift damaged a grape crop.
05/11/72	WA	Crop damaged (grapes)	2,4-D In an agricultural incident herbicide drift damaged a grape crop.
05/12/72	WA	1 human hospitalized	2,4-D In a home-related incident, a 35-month-old male ingested grass that had been treated with 2,4-D earlier that day. That night the child had stomach cramps, vomiting and would not eat. He had a great desire for water and his temperature was 104°F. The mother called a poison control center for advice and the child was taken to an emergency room. At the emergency room the child had a wobbly gait and was more lethargic than usual; ataxia was observed. He was kept overnight at the hos

pital, treated with Tylenol, observed and released the following afternoon. The final diagnosis was ataxia, fever, and femoral anteversion.

05/13/72	WA	Crop damaged (grapes)	2,4-D In an undescribed agricultural incident a crop of grapes was damaged by contact with herbicide.
05/15/72	OK	Crops, vegetable plants, nut trees, fruit trees, ornamentals, pine trees, shade trees, roses, shrubbery damaged	2,4-D 2,4,5-T Extensive damage to a wide area, including damage to 146 acres of vetch, resulted from an aerial agricultural application. Symptomology of the damaged plants was not reported.
05/15/72	ID	Crop damaged (beets)	2,4-D (salt) In an agricultural incident beets were damaged due to aerial drift of chemical used to treat a grain crop.
05/15/72	WA	Crop damaged (alfalfa)	2,4-D (amine) An alfalfa crop was damaged by chemical treatment to a nearby field.
05/16/72	PA	1 dog affected	2,4-D A dog was affected after eating chemically treated vegetation at a private residence.
05/16/72	MT	Fish killed (2,500 trout)	2,4-D (ester) DDE One of five hatchery ponds had a complete fish kill after the application of 2,4-D to an adjacent wheat field. The fields were sprayed one day before the incident. Analysis of the fish samples showed 0.1 ppm DDE and 0.1 ppm 2,4-D.

05/16/72	WA	Crop damaged (grapes)	2,4-D	In an agricultural incident, a grape crop was damaged by aerial spray drift from a herbicide application to another crop.
05/18/72	MN	Plants damaged (green peppers, eggplants, flower bedding plants, Hlacs, green ash trees, mountain ash shrubs, dogwood shrubs, forsythia)	2,4-D (amine)	In an agricultural incident, numerous plants were damaged due to spray drift from an application to a sod farm. The owner of the damaged plants (in a nursery/greenhouse) stated that on the date of application a 20 mph wind was blowing from the sod farm location toward her greenhouse resulting in considerable drift to her location. She stated the spraying was done just south of her property line approximately 50 feet from her plant storage area. She asked the man applying the chemicals to stop spraying under those conditions and he refused. She called the police, but they were also unable to get him to stop spraying. She stated he sprayed again for the next four days, 5/19-22. The owner of the sod farm stated he was spraying 2,4-D for dandelions diluted at 1 gal/100 gal water. He agreed on the direction the wind was blowing but he said the speed was only 3 - 10 mph. He stated he sprayed no closer than 400 - 500 feet from the nursery and that he did no spraying during the period of 5/19-22. The plants inside and outside the greenhouse were inspected and they definitely showed signs of damage from pesticide poisoning; leaves and stems were twisted and curled. There had been enough 2,4-D drifting into the greenhouse through one open door and four roof vents to severely damage plants inside. The individual plants sustained enough damage that the owner terminated her plant selling operation for the season.

5/19/72	WA	Crop damaged (grapes)	2,4-D In an agricultural incident a grape crop was damaged by a spray drift from a nearby aerial application of chemical.
5/21/72	OK	Crop damaged (23 acres cotton)	2,4-D (amine) A cotton crop was damaged after a spray drift of pesticide occurred from a nearby aerial application.
5/22/72	WA	Crop damaged (pears)	2,4-D In an agricultural incident a pear crop was damaged by herbicide applied to a nearby field.
5/23/72	WA	Crop damaged (grapes)	2,4-D In an agricultural incident grapes were damaged after a drift of chemical occurred from an application to a nearby field.
5/24/72	WA	Crop damaged (grapes)	2,4-D In an agricultural incident grapes were damaged after there was a drift of chemical from an application to a nearby field.
5/24/72	WA	1 human received medical attention, soil contaminated	2,4-D (amine) One person received medical attention and soil was contaminated after an aerial application of chemical.
5/27/72	OR	Trees, shrubs, flowers, ornamentals damaged	2,4-D (ester) In an agricultural incident 30 damage complaints resulted from one application of chemical. Damage was caused either by drift or volatilization. The foliage showed typical symptoms of exposure to 2,4-D but none will die as a result of the exposure.

05/28/72	PA	1 human affected	2,4-D M C P P A child under 5 years of age was exposed to the herbicide in an undescribed home incident.
15/29/72	ID	Trees damaged (65 acres of 500 cherry trees)	2,4-D In an agricultural incident a field of timothy was sprayed with 2,4-D. During the aerial application, spray drift damaged the adjacent orchard.
15/30/72	ID	Crop damaged (6 acres potatoes)	2,4-D (amine) A potato crop was damaged by an aerial spray drift from an application of chemicals to an adjacent grain field.
15/30/72	M N	Trees damaged (birch)	2,4-D In an agricultural incident birch trees were damaged by spray drift from an aerial application. The trees were expected to recover.
15/31/72	K S	Trees, shrubs damaged (23 acres, 190 plants)	2,4-D (ester) 2,4-D (amine) In an agricultural application a state game management area was damaged after there was aerial spray drift and overflight by a commercial spray service. At 4:30 p.m. on 5/31 the project manager for the area in question observed a plane spraying near the areas' reservoir and the pastures to the west of it. He followed the progress of the aircraft with binoculars and watched as the plane overflew the pasture and sprayed reservoir property while engaging in a turn before shutting off his spray. The plane moved to another area; the project manager followed and took photographs of the plane overflying the reservoir with spray still being released. Damage to fish and game lands was chiefly confined to one area of the game lands at the northwest corner of the reservoir. The damage was confined to habitat destruction; no direct losses of wildlife were observed or expected because inspection of the flying service's

inventory showed only containers of standard herbicides. When the spraying occurred, it was 74°, there was a light breeze from the north and no rain. Samples of water in the overflight area and sprayed vegetation samples were taken; the results were not reported. On 6/9 the area was visited to survey the damage caused by the overflights. No drift was involved in the major damage, although drift may have caused some of the slight to moderate damage observed on the periphery of the area. In the affected northwest corner of the reservoir area, multiflora rose and autumn olive were planted the previous spring. These were planted in two long strips consisting of one row of rose, one of olive in each strip. Damage was as follows: southwest planting, 65 multiflora - all affected by chemical damage; 45 autumn olive - all affected by chemical damage except 3 plants; northeast planting, 34 multiflora - all affected by chemical damage except one plant; 47 autumn olive - all affected by chemical damage. The damages ranged all the way from slight leaf curl and coloration change to complete defoliation. It was easy to determine and distinguish planting mortality from 2,4-D damage, since those plants suffering from planting mortality were bare stems with no leaves present on the ground (they had died much earlier). The plants had not been stressed by drought of summer and consequently those that survived planting (the vast majority did) were in good shape at this time (immediately prior to the spraying incident). It was still too early to assess permanent damage. The next spring would allow such determination. It was considered that even if there is not widespread plant mortality, the plants have been severely stressed; many have lost a growing season, and it was suggested that replanting be done in the area since the plantings would have many holes in them due to mortality. Roughly 1½ acres of mature cover was ruined for at least one year with extensive defoliation and possible mortality to locust, sumac, dogwood, walnut, and forbs such as dock, ragweed, etc. These forbs were the main wildlife food in the area (seed production). Another six to eight acres sustained lesser damage to forbs, probably as a result of drift from this same spray activity. While not all cover was destroyed,

considerable food production potential was lost (forb damage). This area was to the north and east of the main damage between the rows of planted shrubs mentioned above and further northeast. The damage to potential wildlife populations could possibly be estimated as: loss of cover for one covey of quail for this year and a delay of a year in establishing perhaps two or three coveys as a result of loss of the plantings. More loss would result if the mature cover was killed instead of damaged (can only be determined later). Dove food and nesting cover were definitely lost in the same manner as for quail, and rabbits were similarly effected.

5/31/72	OK	Trees, home garden damaged (4 pine, oak trees, 5 pecan trees, 1 walnut tree, 2 hackberry trees, 3 rose bushes, vegetable garden)	2,4-D (ester)	In an agricultural incident trees and a home garden were lightly damaged by aerial spray drift from an application of herbicide to a nearby field.
5/00/72	MN	Trees damaged (boxelder)	2,4-D	In an agriculture-related incident trees received minor damage from a herbicide application. No long term effects were expected, and it was probable that pesticides were not involved in the damage.
5/00/72	OK	Crop damaged (710 acres cotton)	2,4-D (amine)	In an agricultural incident a cotton crop was damaged by aerial spray drift. There was "Infrequent light leaf fingerling."
5/00/72	OK	Crop damaged (76 acres cotton)	2,4-D	A cotton crop was damaged by an alleged aerial spray drift of chemicals. There were uniform and light phenoxy symptoms.

06/01/72	OH	Crop damaged (soybeans)	2,4-D Dicamba In an undescribed incident 30 acres of soybeans were damaged by exposure to herbicide.
06/01/72	IL	1 human affected	2,4-D (salt) 2,4,5-TP (ester) In an undescribed home incident, an individual of unknown age was exposed to the chemical.
05/01/72	WA	4 trees damaged	2,4-D In an undescribed incident grapes were damaged by herbicide drift. There were 5 other reports on this same date and in the same area giving the same circumstances.
06/02/72	WA	Crop damaged (grapes)	2,4-D In an undescribed incident, grapes were damaged by herbicide drift. There were 5 other reports on this same date and in the same area giving the same circumstances.
05/04/72	WA	Crop damaged (lentils)	2,4-D In an undescribed agricultural incident a lentil crop was damaged by exposure to chemicals.
06/05/72	PA	1 human affected	2,4-D 2,4,5-T Pine oil This incident involved ingestion of an unknown quantity of the pesticide by a child under 5 years of age. The mixture was stored in a soft-drink bottle.
05/05/72	PA	2 humans affected	2,4-D This incident in which two adults were exposed to the herbicide occurred in a home. The circumstances of the exposures were not reported.

06/05/72	W A	Crop damaged (30 acres peas)	2,4-D In an undescribed incident a pea crop was damaged by pesticides.
06/05/72	W A	Trees damaged (ornamentals)	2,4-D In an undescribed incident ornamental trees were damaged by pesticides from an unspecified aerial application.
06/05/72	W A	Crop damaged (carrots)	2,4-D In an undescribed incident a carrot crop was allegedly damaged by pesticides.
05/05/72	W A	Crop damaged (alfalfa)	2,4-D (amine) In an undescribed incident an alfalfa crop was damaged by pesticide from an unspecified aerial application.
06/05/72	W A	Crop damaged (sugar beets)	2,4-D Dicamba In an undescribed incident a sugar beet crop was damaged by pesticide from an unspecified aerial application.
06/07/72	ID	Crop damaged (alfalfa, vegetables, shrubs, flowers damaged)	2,4-D In an agricultural incident crops and foliage were damaged by spray drift from a pesticide application to an adjacent field.
06/09/72	W A	Crop damaged (carrots)	2,4-D In an undescribed incident a carrot crop was allegedly damaged by pesticides.
06/09/72	W A	Crop damaged (sugar beets)	2,4-D In an undescribed incident, a sugar beet crop was damaged by pesticide from an unspecified aerial application.

0/72	OK	Crops damaged (45 acres cotton; 4,000 tomato plants)	2,4-D Light to heavy drift damage occurred to farm crops from an aerial application of pesticide.
10/72	WA	Crop damaged (grapes)	2,4-D In an undescribed incident a grape crop was allegedly damaged by pesticides.
02/72	OH	1 human fatality	2,4-D Diazinon Dicamba A self-employed house painter died from an allergic reaction after exposure to pesticides applied by a commercial applicator to a lawn and shrubs.
1/2/72	WA	Trees damaged (7 willows)	2,4-D (amine) In an undescribed incident several trees were damaged by pesticides from an unspecified aerial application.
5/4/72	OK	Crop damaged (59 acres cotton)	2,4-D In an undescribed agricultural incident a cot- ton crop was damaged by 2,4-D. Drift from several drums of chemical, stored at an air- field, damaged 17 rows of cotton heavily and another 34 rows almost as badly. Fifty-nine acres in all were damaged. The cotton field border was approximately 6 feet from the stored chemical.
36/16/72	KY	1 human hospitalized	2,4-D 2,4,5-T An employee of a state highway department was working on a right-of-way area between 8:30 and 9 a.m. when a container of herbicide mixture exploded, and the contents splashed onto his face and his leg. He unintentionally ingested an unknown amount. He drank a soda and forced himself to vomit. He washed his

eyes within five minutes. He experienced a 5 - 10 minute period of "foggy" vision at 9:30 a.m. At 10 a.m. his eyes were lavaged in a hospital emergency room and he was admitted for 24-hour observation. His symptoms were epigastric burning and watery eyes. He remained alert, oriented and cooperative; there was no nausea or dizziness. Medication was not administered; a chest x-ray and routine laboratory work were performed. On 6/17 he was discharged at 9 a.m.

6/16/72	ID	Crop damaged (beets)	2,4-D	In an agricultural incident a beet crop was damaged by an aerial application of 2,4-D to an adjacent field.
6/16/72	WA	Crop damaged (peas)	2,4-D (amine)	A crop of peas was damaged after an aerial application of chemical to a nearby field.
6/19/72	WA	Crop damaged (sugar beets)	2,4-D	In an undescribed agricultural incident 20 acres of sugar beets were damaged by an aerial application of chemical to a nearby field.
6/20/72	KS	Plants damaged (23 acres, snow-berry, 20 other plants)	2,4-D (ester)	A project manager at a state game management area observed an agricultural plane making passes in the vicinity of the park area on 6/20/72. Spray drift was observed falling on foliage within the preserve. The manager recorded the plane's description and number; further checking determined that the chemical used was 2,4-D in low volatile ester form. The major area of damage contained about 20 - 25 acres of bottomland crop-producing area with a double row of multiflora rose, plus about an equal amount of non-cropland along the hillside. The damaged area was visited on 7/3 and 7/26. Typical herbicide damage symptoms were observed: curled leaves, curled plant terminals, non-seasonally induced color

changes, etc. Damaged plants included: snowberry, coralberry, currant, milkweeds, skunkbrush, sweetclover, sumac (smooth), goatsbeard, roughleaf dogwood, American elm, cocklebur, freemont leatherleaf, butterfly-weed, sagewort, prairie rose, hackberry, various wild thistles, burr oak, American plum, blackberry, gooseberry, and Virginia creeper. These were on the hillside. Additionally, there was injury and mortality to roughly 1/8 mile of mature, double-row multiflora rose hedge which runs through the middle of the cultivated land. There was no observed damage or apparent direct mortality to wildlife in this area. As is the situation in this kind of problem, there is no way to really assess the damage which occurred, either to plants or wildlife (indirect damage caused by habitat destruction). There was undoubtedly a loss of cover and seed production on the hillside, but some cover did still remain there. It was considered to be an ideal hillside, covered with a desirable interspersed of brushy clumps and grassy, forb covered pasture. The species of wildlife involved or potentially affected were: quails, pheasants, rabbits, and doves, with possible indirect loss to other game species, plus a wide variety of non-game species such as bluebirds, sparrows, vireos (Bell's particularly), and others.

6/20/72	M N	Crop damaged (sunflowers)	2,4-D A road crew was spraying for brush control. Drift caused minor damage to a sunflower field. No yield reduction was expected.
5/20/72	W A	Trees damaged (ornamentals)	2,4-D. In a home incident ornamental trees were damaged by an aerial application of chemicals.
6/20/72	W A	Crop damaged (sugar beets)	2,4-D In an agricultural incident a sugar beet crop was damaged by an aerial application of chemicals to a nearby field.

06/22/72	CO	1 human affected	2,4-D 2,4,5-T A child swallowed "several ounces" of the herbicide in a home incident. Ipecac was administered with successful results. The product had been stored in its original container.
06/23/72	WA	Crop damaged (7 acres grapes)	2,4-D A grape crop was damaged by herbicide drift from an aerial application to a nearby field.
06/26/72	OR	Crop destroyed (40 acres onions)	2,4-D (salt) In an agricultural incident 2,4-D was applied in error. Parathion was to be sprayed on the onion crop but the loader used the wrong chemical; the onions were a total loss.
06/26/72	OK	Crops damaged (tomatoes, cantaloupe, sweet potatoes, mustard greens, beans, peppers, okra, corn)	2,4-D (amine) In an agriculture-related incident 10 tomato plants received heavy damage, 8 cantaloupe received light to heavy damage, 3 rows (32 yards) of sweet potatoes received light damage, 3 rows of corn (38 yards) received light to medium damage, 70 sq ft of mustard greens, 4 rows of beans, 1 row (32 yards) of peppers, and 4 rows (32 yards) of okra were damaged "lightly to moderately" by drift from an aerial application to a railroad right-of-way.
06/27/72	WA	Crop damaged (Bartlett pears)	2,4-D (amine) A pear crop was damaged by 2,4-D drift from an aerial application to a nearby field.
06/28/72	OR	Plant damage, soil contaminated	2,4-D 2,4,5-T In an undescribed incident plants were damaged and soil was contaminated by herbicide when there was an accident involving the transportation of chemicals.

28/72	W A	Crop damaged (grapes)	2,4-D In an agricultural incident a grape crop was damaged by a chemical drift.
28/72	W A	1 human hospitalized	2,4-D The site and circumstances related to this incident were unknown.
01/72	W A	Crop damaged (grapes)	2,4-D In an agricultural incident a grape crop was damaged by chemical drift.
02/72	PA	1 dog affected	2,4-D M C P P In a home incident a family pet was affected by herbicide.
02/72	PA	1 human affected	2,4-D An individual between 5 and 16 years of age experienced exposure to the herbicide in an undescribed home incident.
03/72	W A	Soil, air, water contaminated	2,4-D 2,4,5-T Lead arsenate Contamination reportedly occurred after a warehouse fire.
06/72	W A	Crop damaged (grapes)	2,4-D In an agricultural incident a grape crop was damaged by drift from a chemical application to a nearby field.
06/72	C O	Soil, water contaminated	2,4-D 2,4,5-T A complaint was made against a railroad company regarding the manner in which the herbicides were applied in a right-of-way and resulted in the contamination.

7/07/72	W A	Crop damaged (grapes)	2,4-D	In an agricultural incident a grape crop was damaged by herbicide drift.
7/07/72	W A	Crop damaged (grapes)	2,4-D	In an agricultural incident a grape crop was damaged by herbicide drift.
7/08/72	PA	1 dog affected	2,4-D 2,4,5-TP	In an undescribed home-related incident, a pet dog was accidentally exposed to the chemical.
7/08/72	SD	1 human hospitalized	2,4-D (ester)	In a park/recreational area-related incident, a 22-year-old employee was hospitalized after an exposure to 2,4-D. He was involved in spraying the chemical for leafy spurge control in a game management area on 7/6 and 7/7. He was wearing a disposable white filter mask, plastic goggles, baseball cap, a work-supplied uniform, elbow-length rubber gloves, and parachute type leather boots. In the application the wind had been blowing the spray back into his face. Application of the chemical was from a 100-gallon tank (jeep mounted) at the rate of 2½ gal/100 gal water. About 600 - 700 gallons had been required for this job. The weather during application was pleasant with temperatures ranging from 70 -80°F. The subject also had spilled a dilute solution down one trouser leg. The individual felt fine when he arrived home from work on 7/7. He showered and lay down. One-half hour later he was drowsy and lacked an appetite. He did not eat and went to bed at 8:30 p.m. He visited a physician the morning of 7/8 after experiencing nausea, drowsiness, diarrhea and excessive vomiting every one or two hours beginning at 2 a.m. on 7/8. He did not tell the physician about his involvement with pesticide spraying and was diagnosed as having influenza and was treated for same. The subject did not respond to treatment and came to the physician again the following day, 7/9. Further questioning at this time revealed his

work with pesticides, and the physician immediately began treatment with atropine sulfate at a rate of 1/50 grain every six hours; the excessive vomiting and nausea subsided. The last flare-up of vomiting was on the night of 7/13. The subject had been hospitalized on 7/9 and remained until 7/15. A blood sample for cholinesterase testing was taken on 7/14, and the results showed plasma ChE to be 1.4 mm/ml/min and RBC ChE 11.0 mm/ml/min. (Dibucaine #69% or intermediate ChE = cholinesterase). On 7/31 another blood sample was tested and showed the plasma ChE as 1.7 mm/ml/min and RBC ChE as 10.5 mm/ml/min. The subject was advised not to handle pesticides in the future.

07/08/72	OH	Crops damaged (300 tomato plants, green beans)	2,4-D In an agricultural incident drift from a pesticide application to a turf farm damaged nearby gardens.
07/09/72	WA	Crop damaged (grapes)	2,4-D In an undescribed agricultural incident a grape crop was damaged by herbicide drift.
07/10/72	OK	Crop damaged (13 acres millet)	2,4-D In an agricultural incident 13 of 20 acres of millet were damaged by aerial spray drift.
07/11/72	OR	1 human affected	2,4-D A 54-year-old self-employed farmer was admitted to a hospital with a toxic reaction to corn spray. Approximately 1 hour after making an application of the herbicide, he developed blurred vision. The condition worsened, and he developed a severe headache, severe vomiting and had a lapse of consciousness. He had been spraying 2 days, his clothes were saturated and had not been changed. His temperature was 99°F, pulse 94, respiration 24 and blood pressure 200/120. A 1,000 cc lactated Ringers solution was administered upon arrival. He responded to verbal stimuli. A physical exam showed him to be blind. Labor

atory test results: chlorides 104, potassium 3.2 and sodium 139; urine contained sugar of 2⁺. (Medical history: pyelonephritis, essential hypertension, borderline diabetic, gouty arthritis, some pulmonary emphysema and a duodenal ulcer.) He was discharged in a wheelchair 7/16/72.

7/15/72	CO	1 human affected	2,4-D 2,4,5-T A child under 5 years of age inhaled the pesticide in a home incident. The child remained asymptomatic.
7/16/72	PA	1 human affected	2,4-D 2,4,5-TP In this undescribed home-related incident a child under 5 years of age was exposed to the chemical.
07/18/72	WA	Crop damaged (grapes)	2,4-D In an agricultural incident a grape crop was damaged by a herbicide drift.
07/20/72	PA	1 dog affected	2,4-D In a home incident a family dog was exposed to 2,4-D.
07/20/72	WA	Crop damaged (onions)	2,4-D In an undescribed agricultural incident an onion crop was damaged by herbicide.
07/21/72	OH	Plants damaged (raspberry bushes, grapes, tomatoes)	2,4-D 2,4,5-T This incident involved damage to ornamental plants on three properties (approximately 2 acres) adjacent to a golf course which had been treated with the herbicides. The alleged cause was spray drift from an application during a period of high wind velocity. The applicator did not follow label directions.

07/22/72	MN	Crop damaged (soybeans)	2,4-D 2,4,5-TP Drift from an aerial application along railroad tracks damaged 13 acres of soybeans owned by 13 different farmers. A large yield reduction of crop was expected.
07/24/72	WA	Crop damaged	2,4-D In an agricultural incident an unspecified crop was damaged by pesticide drift.
07/24/72	WA	Crop damaged (strawberries)	2,4-D In an agricultural incident a strawberry crop was damaged by pesticides.
07/25/72	CO	1 human received medical attention	2,4-D Ipecac was administered with good results to a child under 5 years of age who had ingested a small amount of the pesticide. The pesticide was stored in its original container in the home.
07/31/72	WA	Crop damaged (carrots)	2,4-D In an agricultural incident, a carrot crop was damaged by pesticide.
08/00/72	AR	Well contaminated	2,4-D (salt) Oil In an undescribed home incident a well was allegedly contaminated by pesticide. There was a taste change in the water; laboratory analysis failed to show the presence of 2,4-D.
08/03/72	PA	1 human affected	2,4-D A child under 5 years of age was exposed to the pesticide in an undescribed home incident.
08/08/72	WA	Ornamentals damaged	2,4-D Ornamental trees were damaged by an aerial spray application in an undescribed agricultural incident.

1/10/72

OR

Trees damaged
shrubs damaged

2,4-D (ester)

In an industrial incident a low volatile ester of 2,4-D was applied to control weeds in a vacant lot. The daytime temperature was near 100 degrees which resulted in volatilization of the 2,4-D which drifted to neighbors' trees. The trees showed symptoms of exposure.

8/10/72

PA

1 human received
medical attention

2,4-D

The site and circumstances of a pesticide incident involving a child under 5 years of age were not reported.

8/11/72

KY

Water
contaminated

2,4-D
2,4,5-T

Aerial application of the herbicide mixture was made to a power company right-of-way under power transmission lines. For the second time a home water supply (unprotected natural spring) was contaminated. The application rate was 6 pounds of actual material per acre. The water had a peculiar odor and flavor shortly after the application was completed. The spring flowed into a concrete block collection pit about 5' - 6' below the place where the water flowed from the ground. The untreated water was then pumped to the residence. The resident was advised to drain and flush the collection pit and all lines. The wife of the individual was advised that the sprayed chemicals were not harmful. A horse which was reported to have died from pesticide exposure was suspected by laboratory personnel to have been struck by lightning.

08/14/72

MN

Crop damaged
(39 acres corn)

2,4-D

In an agricultural incident a corn crop was allegedly damaged by an aerial application of 2,4-D. It was felt that the damage may not have been due to chemicals but to the previous weeks' extremely hot and humid weather and strong winds.

4/16/72	WA	Trees damaged	2,4-D In an agricultural incident trees were damaged after an aerial application of pesticide.
8/16/72	WA	Trees damaged.	2,4-D In an undescribed agricultural incident trees in a wind break were damaged by an aerial application of pesticide.
8/21/72	MN	1 human affected	2,4-D An individual over 65 years of age was exposed to the pesticide in an undescribed incident.
10/23/72	WA	Crop, trees damaged (pears)	2,4-D (salt) Monuron In an undescribed agricultural incident pears and pear trees were damaged by pesticide.
2/27/72	CO	1 human received medical attention	2,4-D A 2-year-old child ingested a small amount of the herbicide. Ipecac was administered; she developed diarrhea and vomiting. Her recovery was uneventful.
09/00/72	TX	Crop damaged (cotton)	2,4-D (acid) In an agricultural incident extensive damage was done to a cotton crop after herbicide applications to sorghum.
09/10/72	WA	Ornamentals, trees, shrubs damaged	2,4-D Ornamental trees were damaged by an aerial application to agricultural land.
09/27/72	PA	1 human received medical attention	2,4-D 2,4,5-TP In an undescribed home incident a child under 5 years of age was accidentally exposed to the herbicide.

10/06/72

UT

1 human fatality

2,4-D

A man was hospitalized with severe headaches, periods of incoordination and general weakness. His symptoms grew progressively worse and he died. The family associated onset of the condition with a time when he had been spraying 2,4-D and it had blown back into his face. Death was attributed to cerebral edema.

11/08/72

CO

1 human received
medical attention2,4-D
2,4,5-T

A child under 5 years of age ingested part or all of a pesticide cartridge/tablet in a home incident which resulted in considerable mouth pain. Ipecac, charcoal and saline cathartic were administered. The child recovered.

11/12/72

TN

Unknown

2,4-D (ester)
2,4,5-T (ester)

Various groups and private citizens requested that spraying for weed control along approximately 500 miles of state highway be curtailed. According to a local newspaper article, it was suggested that the road commissioner and the citizens meet and discuss the need for spray applicators to avoid damaging fescue, vetch, and dogwood trees which citizens' groups planned to plant along the highway in road beautification and erosion control projects. A citizen stated that previous right-of-way spraying had killed bees, other insects, small wildlife, and birds; investigation revealed no adverse effects. Investigation had determined the mixing rates for the right-of-way spraying (195 gal concentrate/-1,600 - 2,500 gal water, roughly equivalent to 1 part weed killer/10 parts water) were consistent with those recommended by a chemical company representative (3 qt concentrate/100 gal water, roughly equivalent to 1 part weed killer/100 parts water). It was thought a lower dilution rate was tried previously and the kill was not effective.

00/00/73

IL

Crop damaged
(5 acres grapes)

2,4-D

In an agricultural incident a grape crop was damaged by spray drift from an unknown source.

00/00/73	KS	1 human received medical attention	2,4-D A child under 5 years of age was exposed to the herbicide in an undescribed home incident.
01/00/73	MO	1 human affected	2,4-D The site and circumstances of this pesticide incident which involved an adult were unknown.
01/00/73	KS	1 human received medical attention	2,4-D (ester) In an undescribed home incident a child under 5 years of age was poisoned by pesticide.
02/27/73	OR	Plants affected	2,4-D 2,4,5-T In an undescribed transportation incident 1 acre of unspecified plant life was affected.
02/28/73	CA	1 human received medical attention	2,4-D (amine) A worker splashed the herbicide into his eye while mixing and loading for an aerial application.
03/00/73	TX	Garden crops damaged (9 acres)	2,4-D An aerial application of pesticide was responsible for damage to garden crops owned by several families.
03/01/73	NE	1 human affected	2,4-D The details related to this incident were not reported.
03/01/73	OH	Crop damaged (3 acres greenhouse tomatoes)	2,4-D 2,4,5-T 2,4,5-TP Potassium sulfate Phosphorus Nitrogen Dicamba Benefin Laboratory analysis of three samples of fertilizer which was represented as being potassium sulfate 0-0-52 revealed the presence of

2,4-D, 2,4,5-T or TP and an unidentified substance, possibly dicamba or benefin. The major elements of the product were determined to be nitrogen (2.9%) phosphorus (1.1%) and potassium (44.8%). The application of the fertilizer to the greenhouse tomatoes produced adverse effects (1/3 of plants were destroyed).

03/06/73	TN	1 human received medical attention	2,4-D 2,4,5-TP In an undescribed home-related incident, a child (under 5 years of age) was accidentally exposed to the chemical.
03/07/73	FL	Crop damaged (300 acres tomatoes)	2,4-D In an agricultural incident sugar cane was aerially sprayed with 2,4-D. Spray drifted 10 miles and damaged a tomato crop.
03/12/73	OK	Crop damaged (40 acres alfalfa)	2,4-D (ester) An alfalfa crop was damaged by aerial spray drift. The symptoms ranged from light to heavy.
03/15/73	OR	Crop damaged (20 acres alfalfa), soil contaminated	2,4-D (ester) In an agricultural incident a crop of alfalfa was totally destroyed by the application of 2,4-D instead of 2,4-DB.
04/00/73	LA	Trees damaged (16 Chinese tallow)	2,4-D Pesticide drift from a drainage canal weed control project damaged nearby trees.
04/02/73	SC	Vehicle contaminated	2,4-D In an unspecified incident a vehicle was contaminated by pesticide while in transit.

04/04/73	OR	Ornamentals damaged	2,4-D (ester) In an agricultural incident ornamentals (2 apricots, 1 apple, locust trees, snowball bush, forsythia, and annual flowers) were damaged by 2,4-D volatilization from an aerial application to grain.
04/04/73	OR	Crops damaged (100 acres alfalfa, raspberries), trees damaged (weeping willow, pear)	2,4-D (ester) In an agricultural incident an alfalfa crop, pear trees, weeping willows, and raspberries were damaged by 2,4-D volatilization from an aerial application to grain.
04/04/73	OR	Crop damaged (grapes), numerous trees, ornamental plants damaged	2,4-D (ester) In an agricultural incident numerous trees and shrubs were damaged by volatility from aerial spraying of a grain field. Forty-three grape plants were moderately to severely damaged.
04/04/73	OR	Crop damaged (2 acres alfalfa)	2,4-D (ester) When pesticide was applied to a wheat field adjacent to an alfalfa field, the physical drift of the 2,4-D damaged the alfalfa.
04/04/73	OR	Crop damaged (100 acres alfalfa)	2,4-D (ester) In an agricultural incident an alfalfa crop was damaged by aerial spray drift of pesticide. Symptoms included twisting, curling, and some splitting of stems. Symptoms were found in the lower 1/3 of plants, indicating an earlie exposure. Symptoms were found uniform throughout the field and were more evident in drier areas. A yield reduction was expected.

1/04/73

OR

Crops damaged
(13 acres hairy
vetch, 25 acres
crimson clover)

2,4-D (amine)

Typical 2,4-D symptoms were found in vetch (13 acres) and clover (3 acres) crops, varying from severe stunting to no effect for the clover and from death of plants to no effect for the vetch. The areas where the most severe damage was located was where these crops bordered a recently sprayed wheat field. The damage was suspected to have occurred during border spray flights. A yield reduction was expected. There was another incident of almost exactly the same nature stemming from this same application. A 22-acre crimson clover field displayed severe stunting, lack of seed development and deformed leaf growth. The pattern of damage indicated that the injuries were not caused by wind drift.

1/05/73

OR

Crop damaged
(crimson clover)

2,4-D (amine)

Wheat fields on three sides of a 30-acre clover field were aerially sprayed with herbicide on 4/5. At the time of investigation (6/28), herbicide symptoms could not be identified because the clover field had been swathed and the leaves dried to the point at which positive identification was impossible. Using the weed dog fennel as an indicator plant, it was determined that the entire clover field must have been exposed to 2,4-D. No drift pattern or indication of the direction of the source of spray remained. The loss in seed yield was almost total.

1/12/73

OR

Crop damaged
(10 acres alfalfa)
trees, plants
damaged

2,4-D (ester)

In an agricultural incident a variety of foliage was exposed to 2,4-D. The terminal ends of locust tree leaves were cupped, curled and reduced in size until the leaves had a rolled needle-like appearance, which is characteristic of one of the growth regulator herbicides. Ornamental plants, such as roses, displayed

herbicide symptoms. An alfalfa crop exhibited symptoms such as extreme curling, twisting, splitting of stems, and restricted terminal growth. The most severe damage to this alfalfa involved 208,000 sq ft or 4.5 acres. It was felt that production would be seriously reduced and that numerous alfalfa plants would die.

04/15/73	OR	Crop damaged (8 acres clover)	2,4-D (ester) In an agricultural incident a clover crop was damaged when 2,4-D was applied to a nearby field.
04/23/73	OH	Crop damaged (tomatoes)	2,4-D 2,4,5-TP 2,4,5-T Potassium sulfate Laboratory analysis of three samples of fertilizer, which was represented as being potassium sulfate 0-0-52, revealed the presence of the 3 chemicals and an unidentified substance. The application of the fertilizer to the greenhouse tomatoes produced adverse effects (1/3 of plants were destroyed).
05/00/73	PA	Water contaminated	2,4-D Spray equipment containing residues of 2,4-D was cleaned approximately 40 feet from the owner's well. The taste of herbicide appeared in the water 4 days later.
05/00/73	OK	4 humans received medical attention	2,4-D Two children in the 5 to 16 age range and two individuals in the 17 to 65 range were exposed to 0.01 ppm 2,4-D in their well water; the source of the contamination was not reported.
05/00/73	OR	Crop damaged (21.8 acres barley)	2,4-D In an agricultural incident two barley crops were slightly damaged by drift and/or volatility of 2,4-D; aerially sprayed on a wheat field.

05/01/73	VA	Ornamental plants damaged	2,4-D (amines, ester) 2,4,5-T (amines, ester) The details were not reported in an incident in which unspecified damage occurred to ornamentals subsequent to an aerial application of the herbicide.
05/03/73	ID	Crop damaged (5 acres peas)	2,4-D In an agricultural incident a pea crop was damaged by spray drift of aerially applied 2,4-D.
05/04/73	WA	Crop damaged (600 acres grapes)	2,4-D In an agricultural incident a Concord grape crop was damaged by a drift of 2,4-D.
05/04/73	NE	1 human received medical attention	2,4-D A child under 5 years of age was exposed to the herbicide in an undescribed incident.
05/06/73	IL	1 human received medical attention	2,4-D A child 5 - 16-years-old was exposed to pesticide in an undescribed home incident.
05/11/73	OR	Crops destroyed (11 acres alfalfa, some oats)	2,4-D (amine) In an agricultural incident an alfalfa crop was destroyed when 2,4-D was aerially applied to 11 acres of oats and the newly planted alfalfa by mistake. The few remaining plants displayed stem curling. The application had been intended for barley.
05/11/73	OK	Vegetable garden damaged	2,4-D A very light drift damaged a 5-acre vegetable garden. Samples were taken for analysis. No 2,4-D was recovered from vegetable or ornamental samples.
05/13/73	IA	1 human hospitalized	2,4-D A child under 5 years of age was hospitalized for 2 days in an undescribed home incident.

05/14/73	OR	Ornamental trees, plants damaged (elm, pear, walnut, ash, locust, mulberry, boxelder, elderberry, grapes, Japanese maple, lilacs, roses)	2,4-D (amine)	In an agricultural incident over 100 trees and some flowers and shrubs were damaged by an application of 2,4-D. According to the owner of the property, the flying service should not have been operating in that particular area under any conditions at that time of year. Damage was extensive on the property. Symptoms ranged from minor to serious.
05/14/73	WA	Crop damaged (600 acres grapes)	2,4-D	A grape crop was damaged by drift from a herbicide application to a nearby field.
05/14/73	OH	Flowers, ornamentals damaged	2,4-D 2,4,5-TP DCPA	An applicator ground-treated a lawn. Drift, volatilization, and run-off of the herbicides damaged roses and ornamental shrubs (28 plants). Twenty-four rose plants were replaced.
05/16/73	WA	Crops damaged (8 acres sugar beets, peas)	2,4-D (amine)	Two crops were damaged by a drift of 2,4-D from an aerial application. The applicator reportedly followed label directions.
05/16/73	WA	Trees, shrubs, flowers, ornamentals damaged	2,4-D (ester)	In an agricultural incident various types of foliage were damaged by 2,4-D. The drift was due to faulty aerial application.

05/17/73	OH	Crops damaged (1 acre straw- berries, rasp- berries)	2,4-D (amine) Atrazine	A strawberry/raspberry crop was damaged by chemical drift from an application to a corn field.
05/17/73	OK	Trees damaged (800 locust, 10 shade trees), plum bush, crops (dew- berries, black- berries) damaged	2,4-D (amine)	Forest trees and farm crops were damaged by drift from an aerial herbicide application to nearby farm lands. Eight hundred locust trees displayed defoliation and chlorotic leaves. Dewberries (two 70-foot rows) and blackberries (two 70-foot rows) were shedding their leaves. A plum bush and 10 shade trees were slightly affected.
05/17/73	OK	Trees damaged (3,000 locust, 50 bois d'arc), crops damaged ($\frac{1}{2}$ acre each raspberries, dewberries)	2,4-D (amine)	In an agriculture-related incident forest trees were damaged by drift. Locust trees were chlorotic and had shredded leaves; bois d'arc trees had leaf curling. The other plants had slight phenoxy symptoms.
05/17/73	OK	Trees damaged (4 acres locust, 4 peach trees, 1 mimosa, 1 maple)	2,4-D (amine)	In an agricultural incident aerial spray drift damaged numerous trees. The peach trees had symptoms including curled, rolled and chlorotic leaves; the mimosa had chlorotic, rolled and shredding leaves; and the maple had curled leaves, was chlorotic and shredding. It was a possibility that the applicator may not have turned off the spray nozzles when turning.

5/17/73	ID	Crops damaged (53 acres peas, alfalfa)	2,4-D In an agricultural incident aerial spray drift was suspected of causing damage to a pea and alfalfa crop.
5/18/73	OR	Crop damaged (35 acres alfalfa), ornamentals damaged (locust, boxelder, lilac)	2,4-D (ester) In an agricultural incident farm crops and trees were damaged after a nearby aerial application of herbicide. In the worst- damaged section of alfalfa the symptoms were twisting and curling of the stems; this oc- curred 1/2 to 3/4 distance below the top growth when viewed approximately 1 month after application. A reduction in yield was expected in this section.
5/24/73	IL	Ornamental trees, shrubs damaged	2,4-D In an unspecified incident an unknown quantity of trees were damaged by herbicide.
5/24/73	WA	Ornamental trees, shrubs, flowers damaged	2,4-D (ester) In an agricultural incident extensive damage was done to yard vegetation by volatile drift of chemical.
5/24/73	WA	Crop damaged (13 acres grapes)	2,4-D (sodium salts) In an agriculture-related incident a white Reisling grape crop was damaged by spray drift of chemical.

5/24/73	WA	Crops damaged (38 acres grapes)	2,4-D In an agricultural incident a grape crop (4 varieties) was damaged by spray drift of chemical.
5/25/73	WA	Crop damaged (14 acres wheat)	2,4-D (amine) Unknown triazine herbicide A wheat crop was damaged when the spray tank mix became contaminated, possibly by a triazine compound, from an unknown source.
5/28/73	WA	Crop damaged (34 acres grapes)	2,4-D In an agricultural incident a Concord grape crop was damaged by spray drift.
05/28/73	MN	Trees damaged (elm, ash, boxelder)	2,4-D (amine) In an unspecified agricultural incident trees were damaged slightly after an aerial application of pesticide to a nearby field.
05/29/73	MN	Crop damaged (sugar beets)	2,4-D (amine) In an agricultural incident a 110-acre sugar beet crop was damaged by a drift from an aerial application of pesticide. A large yield reduction was expected.
05/30/73	MN	Crop damaged (4 acres soybeans)	2,4-D (ester) A soybean crop was damaged by pesticide drift. Environmental factors were also suspected to have contributed to this damage. Most plants were expected to recover.
06/00/73	LA	24 cattle dead, soil contaminated	2,4-D 2,4,5-T Monuron Arsenic A cattle herd was sprayed with a solution of the pesticides which was found (laboratory analysis) to have a high arsenic content. Arsenic levels of 131 ppm and 245 ppm were found in rumen contents which were analyzed.

6/00/73

OR

Home garden
damaged (trees,
shrubs, orna-
mentals, vege-
tables, vines)

2,4-D (ester)
2,4,5-T (ester)

Volatilization and drift occurred when a herbicide was used by a city to control blackberries in a workshop area. An examination of a home yard and garden area of a complainant showed that the area had been exposed to a growth regulator herbicide. Symptomology included abnormal leaf cell development, retarded growth, curling of stems and partial curling of leaves. Showing minor damage were trees (grand fir, elderberry, cherry, Douglas fir, willow) and a shrub (Deutzia). Showing minor to medium damage were nasturtiums and a hazelwood tree. Medium damage was noted in a dogwood tree, 10 rose bushes, 2 hawthorn trees, and 2 devil walking cane plants. Two varieties of grapes were seriously damaged. The vines were expected to live; production would be seriously impaired. Tomato plants and squash had to be replanted. A loss claim was filed in the incident.

6/00/73

OR

Home garden
damaged (vege-
tables, trees,
ornamentals, grapes,
fruit trees)

2,4-D (ester)
2,4,5-T (ester)

A loss claim was filed in this incident which resulted from the same herbicide application described in the above abstract. The symptomology was the same. Showing minor damage were small elm trees (2" - 8" high), squash, onions, radishes, kohlrabi, cabbage, several species of flowers and a Douglas fir tree. Extremely minor damage was seen on a pear tree. Peppers displayed minor to medium injury and rhododendrons, turnips and cucumbers, medium damage. Tomatoes exhibited medium to serious injury, and the grapes were seriously injured but expected to live.

10/73

OR

Home garden
damaged
(vegetables,
fruit trees,
grapes, trees,
ornamentals)

2,4-D (ester)
2,4,5-T (ester)

A third loss claim was made resulting from the volatilization and drift from a city herbicide application. Extremely minor damage was seen on a Douglas fir tree. Minor damage was exhibited by raspberry bushes, apple trees, cabbage, cucumbers, a snowball bush, a maple, a cedar and a redwood tree, and several species of flowers. Minor to medium damage was noted in beans, pears, rose bushes, cotoneaster, pansies and a boxwood tree. An English walnut tree exhibited medium damage. Lettuce, tomatoes and grapes were seriously damaged. No plants were expected to die, but grape and tomato production was expected to be impaired.

10/73

OK

Trees damaged
(20 pecans)

2,4-D (amine)

In an agriculture-related incident aerial spray drift damaged a pecan orchard. The trees showed a complete lack of fruit.

10/73

OK

Crop damaged
(144 acres cotton)

2,4-D (amine)

Aerial spray drift caused damage to a cotton crop which displayed moderate to light phenoxy symptoms.

10/73

MN

Crop damaged
(soybeans)

2,4-D

A 1-acre soybean crop was damaged by spray drift from a roadside application. A small reduction in yield was expected.

10/73

WA

Crop damaged
(100 acres grapes)

2,4-D

Spray drift was suspected to be the cause of damage to a Concord grape crop.

06/01/73	M N	Crop damaged (12 acres soybeans)	2,4-D Dicamba A soybean crop was damaged by herbicide spray drift. The crop showed blistering at the time of inspection.
06/01/73	M N	Crop damaged (10 acres soybeans)	2,4-D Spray drift from a roadside application of herbicide caused damage to a soybean crop. A moderate reduction in yield was expected.
06/01/73	M N	Crops damaged (3 acres soybeans, cucumbers)	2,4-D Damage to the crops was associated with a roadside application, but losses also might have been due to environmental conditions.
06/01/73	M N	Crop damaged (5 acres soybeans)	2,4-D Damage to a soybean crop was attributed to spray drift.
06/01/73	W A	Crop damaged (600 acres grapes)	2,4-D Drift was suspected as the cause of damage to a Concord grape crop.
06/01/73	W A	Crop damaged (3 acres grapes)	2,4-D A grape crop was damaged by an application of herbicide. It was an old vineyard; reduced vigor was expected in part of the area.
06/04/73	G A	Crop damaged (cotton)	2,4-D There was scattered damage throughout the 5,000-acre cotton crop. Laboratory analyses proved negative for 2,4-D residue.
06/04/73	C O	1 human received medical attention	2,4-D MCPP A 2-year-old girl ingested a handful of a herbicide. Ipecac was administered; she remained asymptomatic.

06/04/73	NV	2 fish killed, plant life killed, water contaminated	2,4-D Diesel oil During an application of pesticide to sage- brush, 1½ miles of a stream were contami- nated. Vegetation in the stream was com- pletely destroyed.
06/04/73	NV	Water, soil contaminated	2,4-D Diesel oil Eight hundred gallons of 2,4-D in diesel oil (finished spray) was spilled when a nurse-rig was moving to serve an aircraft. The vehicle overturned and the contents spilled onto the ground and into a live creek.
06/06/73	MN	Crop damaged (24 acres soybeans)	2,4-D (amine) In an unspecified agricultural incident a soy- bean crop was damaged by a pesticide aerial application. The plants were recovering.
06/06/73	OK	Trees damaged (2 hackberry, 9 peach, 2 black locust)	2,4-D (amine) Trees were damaged by herbicide aerial spray drift. The trees showed phenoxy symptoms.
06/06/73	WA	Crop damaged (seed alfalfa)	2,4-D (amine) Spray drift from an aerial application to a wheat field damaged 30 acres of seed alfalfa.
06/07/73	WA	Crop damaged (28 acres grapes), air contaminated	2,4-D In an agricultural incident a 28-acre Concord grape crop was damaged and drift of 2,4-D was thought to be the cause.

06/07/73	OK	Trees damaged (6 Chinese elm, 1 walnut), plants damaged (65 tomato, 7 rows of green beans)	2,4-D Aerial spray drift caused damage to trees and garden plants.
06/07/73	CA	Shrubs, grasses damaged (1 acre), soil contaminated	2,4-D (ester) 2,4-DP (ester) A helicopter carrying approximately 5 gallons of herbicide mixed with 80 gallons of water made a forced landing, spilling the chemical. All the herbicide and contaminated soil was picked up and taken to a proper disposal area. The pilot was not injured; the helicopter was slightly damaged.
06/07/73	OK	Trees damaged (80 pecan, 1 Eng- lish walnut, 1 black walnut, 11 fruit), shrubs, vegetable garden damaged	2,4-D (amine) Aerial spray drift caused damage to trees and garden crops.
06/08/73	OK	Fruit trees damaged, vege- table garden damaged	2,4-D (amine) In an agriculture-related incident a vegetable garden and fruit trees were damaged by spray drift of herbicide.
06/08/73	OK	Fruit trees damaged, vege- table garden damaged	2,4-D (amine) Aerial spray drift was the cause of the phen- oxy symptoms displayed by trees and garden crops.

06/08/73	OK	Vegetable garden damaged (okra, beans, peas, muskmelons, tomatoes)	2,4-D (amine)	Aerial spray drift of herbicide was the cause of light damage exhibited by two 45-yard rows of okra, four 45-yard rows of beans, five 45-yard rows of peas, 15 hills of muskmelons, and 5 tomato plants.
06/08/73	OK	Crop damaged (117 acres cotton), vegetable garden damaged (tomatoes, peas, okra)	2,4-D (amine)	A cotton crop and a vegetable garden were lightly damaged by spray drift of herbicide.
06/08/73	OK	Crop damaged (55 acres cotton)	2,4-D	A cotton crop (plants 12 - 18 inches high) suffered light and scattered effects from a herbicide aerial application. Thirteen acres were plowed under and replanted with millet.
06/08/73	OK	Tree damaged (1 apple)	2,4-D (amine)	Aerial spray drift damaged an apple tree; its apples were deformed, and the tree had phenoxo symptoms.
06/08/73	OK	Trees damaged (3 peach), ornamentals, vegetable garden damaged	2,4-D (amine)	Aerial spray drift damaged ornamentals, trees and vegetables.
06/08/73	OK	Trees, grasses damaged (25 acres)	2,4-D	In an agricultural incident trees and grasses were damaged by an aerial application of pesticide.

06/08/73	OK	Crops damaged (9 rows black-eyed peas, 30 tomato plants)	2,4-D (amine)	Crops were damaged by an aerial application of pesticide. Light symptoms were evident.
06/08/73	OK	Humans affected; 2 received medical attention, trees shrubs, flowers, ornamentals affected; soil, air, water contaminated	2,4-D Disulfoton Parathion	Two people sustained unspecified injuries during a storage/mixing operation in a town. The injuries were caused by volatilization of spilled pesticides. Other people, plants, and the environment were affected.
06/09/73	WY	Vehicle contaminated	2,4-D 2,4,5-T	The circumstances of the contamination involving transportation of the pesticides were not reported.
06/10/73	OR	Fish kill (114; suckers, squawfish, eels), water contaminated	2,4-D Diuron Paraquat Amitrole + 1 other	While applying 2,4-D to a wheat field on 6/6, a farmer, whose field bordered a river, allowed one arm of his spray boom to swing over the river. No dead fish were found upstream from this farm. The river had also been exposed to overspray drift from another farmer's 2,4-D application on approximately 5/23. Numerous pesticide containers were found along the river bank during the course of the investigation; they included one 5-gallon can unknown pesticide, two 5-gallon cans diuron, two 5-gallon cans paraquat, and four 1-pint cans amitrole. Whether the cans were completely empty was not specified.

06/10/73

MT

Crop damaged
(600 acres barley)2,4-D (ester)
2,4-D (amine)

In an agricultural incident a farmer applied a herbicide to his barley crop in May; the barley was of the right size and the time of application was correct. To 75 acres he applied 2,4-D (amine) by itself, then for the next 600 acres he applied 2,4-D (acid/ester) and 2,4-D (amine) mixed at $\frac{1}{2}$ pt each/5 gal water/acre. At the end of the season he sprayed 51 acres with a mixture of 2,4-D (amine) and 2,4-D (acid/ester), which he mixed in a proportion that he stated may have been more than 50% 2,4-D (amine). The first 75 acres were not damaged; nor were the last 51 acres. The 600-acre area developed injury which appeared to the farmer to be chemical damage. The farmer stated that the 2,4-D (acid/ester) used in the last application was from a container with a different code number from the 2,4-D (acid/ester) which had been used in the 600-acre application. He attributed the damage to the particular batch of 2,4-D (acid/ester) used on the 600 acres. The damaged barley from the 600-acre area was analyzed by a plant pathologist, and the causative factor was said to be 2,4-D; however, it was felt many factors could have caused the damage, such as time of application, temperature or humidity during application, or defective chemicals. The damaged acreage was treated with a combination of pesticides not recommended by label data on either product but considered "common agricultural practice not constituting misuse." Tests were done to determine if 2,4-D (acid/ester) from the suspect batch was contaminated; these tests proved negative. The other batch of 2,4-D (acid/ester) and the amine product were unavailable for sampling. It was felt that the yield from the damaged cropland would be 15 to 25% less than normal. The herbicide dealer suspected that the acid/ester product had been applied too early.

06/13/73

MN

Crop damaged
(soybeans)

2,4-D

A 2-acre soybean crop was damaged by aerial spray drift. The crop showed good growth when inspected.

6/14/73	IL	1 human received medical attention	2,4-D	The herbicide in cartridge form was ingested by a child under 5 years of age in a home incident.
6/14/73	CO	1 human hospitalized	2,4-D	A child under 5 years of age ingested the herbicide which was being stored in a beer bottle in a home. In addition, the material was splashed onto the child when she dropped the bottle and it broke. Vomiting was induced at the hospital and she was washed thoroughly. She was discharged 4 days post exposure without sequelae.
6/14/73	CO	1 human affected	2,4-D 2,4,5-TP	A woman got the herbicide in her mouth and on her skin in a home incident while spraying. She had a burning sensation in the mouth and on the tongue and developed cramps and diarrhea. She washed her mouth with a soap solution and swallowed some, which was the suspected cause of her gastrointestinal symptoms. The herbicide was used at double strength. She recovered without further problems.
06/14/73	MN	Crop damaged (soybeans)	2,4-D	In an agricultural incident a 4-acre soybean crop was damaged by a "drift problem." Any yield reduction may have been associated with environmental factors.
06/14/73	MN	Crop damaged (soybeans)	2,4-D (ester)	In an undescribed incident soybeans were damaged by a "drift problem" from a roadside application. Plants were recovering at the time of application.
06/15/73	OK	Trees damaged (300 pecan)	2,4-D (amine)	Pecan trees were damaged by spray drift of pesticide. The symptoms were curled leaves and some light colored, immature fruit in

various areas. In most areas the nuts did not appear to be affected.

8/73	WA.	Crop damaged (3 acres grapes), air contaminated	2,4-D In an unspecified agricultural incident a Concord grape crop was damaged by a herbicide application. Undescribed air contamination was reported.
8/73	OH	Tree, shrubs damaged	2,4-D (amine) An aerial application was the cause of damage to 18 acres of trees and shrubs.
8/73	MN	Crop damaged (5 acres soybeans)	2,4-D Spray drift from a roadside application damaged a soybean crop. Little reduction in yield was expected.
8/73	MN	Home garden damaged (tomatoes, beans)	2,4-D In an unspecified agricultural incident a small home garden was damaged by a pesticide application.
8/73	MN	Crop damaged (1 acre soybeans)	2,4-D 2,4,5-T A "drift problem" resulted in soybean damage after an application of the pesticide. Good regrowth was noted.
8/73	MN	Crop damaged (4 acres soybeans)	2,4-D (ester) 2,4,5-T Drift from a roadside spray application resulted in damage to the crop. Regrowth was reported.
8/73	MN	Crop damaged (3 acres soybeans)	2,4-D (ester) 2,4,5-T Drift from a roadside spray application resulted in crop damage.

06/21/73	MN	Crop damaged (10 acres soybeans)	2,4-D (ester) 2,4,5-T A small yield reduction was expected from the soybean crop subsequent to damage from drift from a roadside spray application of the herbicide.
06/21/73	MN	Crop damaged (1 acre soybeans)	2,4-D A soybean crop was damaged by drift from a herbicide application. No yield reduction was expected.
06/21/73	WA	Crop damaged (grapes)	2,4-D In an unspecified incident a grape crop was damaged by herbicide.
06/21/73	WA	Crop damaged (33 acres grapes), air contaminated	2,4-D A grape crop was damaged by herbicide. Undescribed air contamination was reported.
06/22/73	OH	Trees affected (12 acres dogwood, red bud, oak)	2,4-D (amine) 2,4,5-T (amine) The damage to the trees resulting from an aerial agricultural application of the herbicides was not described. The trees appeared to be outgrowing the damage.
06/22/73	OH	Crop damaged (tobacco)	2,4-D A tobacco crop was damaged when contaminated fertilizer was used on tobacco beds and damaged young plants. The number killed and/or affected was unknown.
06/22/73	OR	Crop damaged (6 acres potatoes)	2,4-D In an agricultural incident a potato crop was damaged by an aerial spray application. Two swaths 70 feet wide each (23 steps) and 1,800 feet long (30 water lines, 60 feet apart) showed a definite pattern of phenoxy damage

that was discernible from the norm. The potato foliage in the exposed area showed distortion and twisting of leaves and abnormal leaf cell development which are characteristic symptoms of one of the growth regulator herbicides such as 2,4-D. The total area showing growth regulator symptoms consisted of 252,000 square feet or 5.78 acres.

06/22/73	M N	Crop damaged (30 acres soybeans)	2,4-D Dicamba In an agricultural incident a soybean crop was damaged by herbicide drift. A yield reduction was expected.
06/22/73	M N	Crop damaged (4 acres soybeans)	2,4-D A soybean crop was damaged by a herbicide spray drift from a roadside application. No yield reduction was expected.
06/22/73	M N	Crop damaged (10,000 sq ft soybeans)	2,4-D A soybean crop was damaged by a herbicide spray drift from a roadside application. The plants had recovered at the time of inspection and no yield reduction was expected.
06/22/73	M N	Crop damaged (1 acre soybeans)	2,4-D A soybean crop was damaged by a herbicide spray drift from a roadside application. No yield reduction was expected.
06/22/73	M N	Crop damaged (25 acres soybeans)	2,4-D A soybean crop was damaged by spray drift from a herbicide application. There was good regrowth of soybeans at the time of inspection.
06/23/73	M N	Crop damaged (1 acre soybeans)	2,4-D A soybean crop was damaged by a herbicide spray drift from a road application. No yield reduction was expected.

06/23/73	MN	Crop damaged (1 acre soybeans)	2,4-D A soybean crop was damaged by a herbicide spray drift from a roadside application. No yield reduction was expected.
06/23/73	MN	Crop damaged (10 acres soybeans)	2,4-D Dicamba A soybean crop was damaged by spray drift. The plants showed new growth at the time of inspection.
06/23/73	MN	Crop damaged (35 acres soybeans)	2,4-D (ester) Dicamba (amine) A soybean crop was damaged by chemical spray drift. Some reduction in yield was expected.
06/23/73	MN	Crop damaged (35 acres soybeans)	2,4-D A soybean crop was damaged by chemical spray drift. Some reduction in yield was expected.
06/24/73	OH	3 humans, horses, trees affected (5 acres)	2,4-D 2,4,5-T Herbicides were used in an aerial application to clear an area for farm use. Drift and vaporization affected trees; the extent of damage could not be determined until the following spring. Descriptions of the affects on the children and horses conflicted; neither physicians nor veterinarians were consulted.
06/25/73	MO	Crops damaged (10 fruit trees, vegetables, berries melons, 5 orna- mentals) trees, flowers damaged	2,4-D (ester) 2,4,5-T (ester) A resident living east of a pasture aerially sprayed with a herbicide stated that he had seen a fine mist falling from the aircraft as it made several trips from the east to the west side of his house beginning about 7 a.m. Later that day (noon) the individual noticed plant leaves were curling. He later noticed "a thickening effect" on the plants and trees.

06/25/73

TN

Vegetable
garden damaged;
pasture, bees,
spring affected

The garden produce was not eaten as no agency assured the residents that it was safe. The applicator reported that he made one wide pass around the residence. The wind was approximately 2 - 3 mph from the east. The spray mix contained 2 pounds each 2,4-D and 2,4,5-T and was applied at a rate of 1 lb (each)/acre.

2,4-D (amine)
2,4,5-T (amine)
MSMA
Diuron

Chemical damage was detected on bush beans, tomatoes, peas, grapes, apples, clover, trees, brush, and broadleaf weeds on residential property east of a railroad right-of-way. The owner also reported that pasture grass and a spring on the property were exposed to drift, that fumes had been carried by the wind through his house, and that a long-established bee tree had been abandoned by the bees a few days after the spraying. The right-of-way extended 50' from the track's center to the property fence. The house was located 200 - 300 yards from the railroad, and the vegetable garden was located approximately 90 paces from the fence. The application was made from a train and the spray applied with high-pressure fire hose-type equipment. Spray was estimated to reach 30' in height at times. The product contained 2 pounds each of 2,4-D/2,4,5-T and was mixed 100:1 with water (compatible with label directions). The owner was able to collect a vial of spray material from leaves after the application. In May, a roadbed spraying had occurred in which a rail-mounted truck with fixed nozzles sprayed the immediate track area and 8' on either side with a mixture of 2,4-D amine, diuron, and MSMA. Results of analysis of spray residue and foliage samples were not reported. The family in residence asked \$25.00 in damages in efforts to prevent a recurrence. The applicator agreed to flag the property in future applications to avoid more injury. A similar complaint had been filed 8/21/72 by the same family. Damage from the 1972 incident was still evident on locust trees near the fence.

06/26/73	W A	Trees damaged (10 Chinese elms, black locusts) air contaminated	2,4-D In a home-related incident trees were damaged by an aerial application of pesticide. Undescribed air contamination was reported.
06/26/73	W A	Crop damaged (4 acres grapes), air contaminated	2,4-D A grape crop was damaged by a herbicide. Air contamination was also reported.
06/28/73	M N	Crop damaged (2 acres soybeans)	2,4-D A grape crop was damaged by spray drift from a roadside application. A small reduction in yield was expected.
06/28/73	W A	Trees damaged (20 ornamentals)	2,4-D (amine) In an agricultural incident ornamental trees were damaged by an aerial spray drift.
06/28/73	M N	Crop damaged (40 acres soybeans)	2,4-D In an unspecified incident soybeans were damaged by an application of pesticide.
06/28/73	M N	Crop damaged (3 acres soybeans)	2,4-D A soybean crop was damaged by spray drift from a roadside application. The beans had good regrowth and color at the time of inspection.
06/28/73	W A	Crop damaged (2 acres grapes), air contaminated	2,4-D In an unspecified incident grapes were damaged by an application of pesticide.

06/29/73	OH	Crops damaged (tomatoes, green beans)	2,4-D (amine) In a home-related incident an individual applied pesticide carelessly, and it drifted into a neighbor's garden.
06/29/73	MN	Crop damaged (soybeans)	2,4-D Dicamba A soybean field was damaged by a pesticide application. The crop showed little or no chemical damage at the time of inspection.
07/01/73	CA	1 human received medical attention	2,4-D A worker developed dermatitis after applying the material to golf greens. Treatment details were not reported.
07/01/73	IL	Crops damaged (vegetable garden)	2,4-D (ester) In an undescribed incident a vegetable garden was exposed to pesticides.
07/01/73	MN	Crop damaged (2 acres soybeans)	2,4-D Dicamba In an agricultural incident soybeans were damaged by spray drift on two separate occasions. Some yield reduction was anticipated.
07/01/73	MN	Crop damaged (soybeans)	2,4-D Spray drift was thought to be the cause of damage to a soybean crop. Investigation revealed no damage.
07/02/73	WA	Crops damaged (10 acres grapes), air contaminated	2,4-D Damage to a grape crop was associated with a herbicide. Undescribed air contamination was reported.

07/03/73	OH	Plants killed (90,000 tomato)	2,4-D (amine) In an agricultural incident, tomato plants were heeled-in along a roadside furrow adjacent to a corn field. The plants could not be seen from the road. There were no signs; when the roadside was sprayed, the plants were killed. A claim was paid.
07/03/73	MN	Crop damaged (4 acres soybeans)	2,4-D Drift from a roadside application damaged a soybean crop, though no reduction in yield was expected.
07/03/73	MN	Crop damaged (4 acres soybeans)	2,4-D Drift from a roadside application damaged a soybean crop.
07/03/73	MN	Crop damaged (1 acre soybeans)	2,4-D Drift from a roadside application damaged a field of soybeans. A small reduction in yield was expected.
07/03/73	MN	Crop damaged (2 acres soybeans)	2,4-D Soybeans were affected by drift and a small reduction in yield was expected.
07/09/73	CO	1 human received medical attention	2,4-D Parathion A woman reported that her decade-long skin sensitivity was aggravated by an aerial pesticide application. She also was reported to have developed a similar problem following an application 10 years prior to this incident. Analysis of a urine sample was negative.
07/10/73	CO	1 human received medical attention	2,4-D Dicamba A farmer reported that use of the herbicide, dicamba, caused herpetiformis epidermitis condition to worsen. Urine assay showed 2,4-D to be present (which he had been using also). Dicamba was not detected in the samples.

07/11/73	WI	Soil contaminated	<p>2,4-D (ester) 2,4,5-T (ester)</p> <p>A violation was reported related to a roadside spray application for which a notice of intent to spray was not made.</p>
07/11/73	OK	<p>Fruit trees, shade trees, crops damaged (grape, tomatoes, peppers)</p>	<p>2,4-D (amine)</p> <p>Aerial spray drift affected numerous trees, plants and vines.</p>
07/11/73	OK	<p>Trees, shrubs damaged (pecan, walnut, locust mimosa, red bud, rose bushes)</p>	<p>2,4-D</p> <p>Various trees, bushes and plants were affected by drift from an aerial spray application of pesticide.</p>
07/12/73	WA	<p>Crop damaged (10 acres grapes)</p>	<p>2,4-D</p> <p>A grape crop was damaged in this undescribed agricultural incident.</p>
07/12/73	WA	<p>Crop damaged (10 acres grapes)</p>	<p>2,4-D (ester)</p> <p>Grapes were damaged due to the volatilization of chemical.</p>
07/15/73	OR	<p>Crop affected (bush beans)</p>	<p>2,4-D (ester) 2,4,5-T (ester)</p> <p>A farmer sprayed a fence row with the pesticide. Four acres of bush beans adjacent to the fence row were damaged. The distance of the affected crops from the sprayed area was not reported. The yield loss was described as minor to medium.</p>

07/06/73	OH	Crops damaged (soybeans, tomatoes), maple trees damaged	2,4-D Dicamba	Crops were damaged by an aerial spray drift of chemical from an application to nearby corn. The soybeans outgrew the damage caused by the drift; the trees were not too seriously affected and were expected to leaf out the following spring.
07/07/73	WA	Trees damaged (4 black locust)	2,4-D	In a home incident trees were damaged after an aerial application of pesticide to a nearby area.
07/07/73	WA	Crop damaged (38 acres grapes), air contaminated	2,4-D	In an undescribed agricultural incident a grape crop was damaged after a nearby application of herbicide was made.
07/07/73	MN	Crop damaged (3 acres soybeans)	2,4-D 2,4,5-T	A "drift problem" related to an agricultural application of the pesticide was expected to result in a slight yield reduction.
07/07/73	MN	Crop damaged (3 acres soybeans)	2,4-D 2,4,5-T	Drift from a roadside herbicide application was not expected to result in a yield reduction.
07/08/73	MN	Crop damaged (2 acres soybeans)	2,4-D 2,4,5-T	A small yield reduction was expected as a result of drift from a roadside application of the herbicide.

07/19/73	WA	Crop damaged (20 acres alfalfa)	2,4-D (amine) An alfalfa crop was damaged by chemical spray drift due to application under inversion conditions.
07/19/73	OR	Trees damaged (pear, apple, lilac, elm)	2,4-D Diazinon Petroleum distillate In a home incident, a dormant spray application to trees in early March proved harmful to the trees as the sprayer was contaminated with 2,4-D. The damage was medium to the pears; the elm tree showed dead terminal growth, and there was codling moth damage to pears.
07/19/73	WA	Crop damaged (24 acres grapes) air contaminated	2,4-D In an undescribed agricultural incident a grape crop was damaged by a herbicide. Undescribed air contamination was reported.
07/23/73	OH	Crop damaged (5 acres grapes)	2,4-D A grape crop was damaged by herbicide. The source was undetermined—possibly a carry-over from the previous year.
07/25/73	WA	Crops, ornamentals damaged	2,4-D In an agricultural incident volatile drift from area dryland of 2,4-D, which was applied in mid-May, damaged a variety of garden crops and ornamentals. No serious damage or recent injury was apparent. Symptoms were slight.
07/25/73	MN	Crop damaged (2 acres soybeans)	2,4-D (amine) Drifting of chemicals damaged a soybean crop. No yield reduction was expected.

07/27/73	ID	1 human hospitalized	2,4-D	An agricultural worker was sprayed in the face by the herbicide. A small quantity was swallowed. Weight loss and possible liver damage were reported. The only laboratory test that was abnormal was SGOT.
07/29/73	OR	Crop damaged (23 acres alfalfa)	2,4-D (amine)	In an agricultural incident an alfalfa crop was damaged by an aerial application of pesticide to a nearby field. The damage symptoms were twisting and curling of the stem and a reduction in terminal leaf size, which are characteristic of a growth regulator herbicide such as 2,4-D. It was expected that the overall yield loss of the second cutting would be minor.
07/30/73	OK	Trees damaged (2 pear, 2 cherry, 2 peach, locust, hackberry, mimosa), crop damaged (tomatoes)	2,4-D	Aerial spray drift damaged numerous trees and tomato plants in an agricultural incident.
07/31/73	WA	Ornamentals damaged (60)	2,4-D (amine)	Aerial spray drift damaged numerous ornamental plants in an agricultural incident.
09/01/73	MN	Crop affected (soybeans)	2,4-D (amine) 2,4,5-T	No damage from the herbicide was detected following an undescribed exposure.
08/02/73	IL	Trees, shrubs damaged	2,4-D	In an undescribed incident trees and shrubs were damaged by herbicide.

08/02/73	OH	1 human hospitalized	2,4-D M CPP Dicamba A home-owner broke out with a severe skin rash after an applicator treated her lawn. She was reported to be allergic to many things. Doctors were unsure if her condition was due to the pesticides.
08/03/73	WA	Crop damaged (16 acres grapes) air contaminated	2,4-D In an agricultural incident a grape crop was damaged by herbicide. Undescribed air contamination was reported.
08/04/73	WI	1 family affected, water contaminated	2,4-D (ester) 2,4,5-T (ester) Possible overspray or spray drift from a roadside application into a farm yard caused undescribed discomfort for an undetermined number of people. Results of analysis of samples taken from a creek and a river were not reported.
08/10/73	OH	Crop damaged (2 acres soybeans)	2,4-D Dicamba Herbicide drifted onto soybeans from an application to a corn crop.
08/10/73	OH	Crop damaged (12 acres soybeans)	2,4-D Atrazine A field of soybeans was sprayed in error. The farmer had not requested the application. The aerial applicator in the area denied spraying the field. The soybeans were injured.
08/11/73	OK	Crop damaged (32 acres soybeans)	2,4-D MSMA Spray drift from a herbicide application to a railroad right-of-way damaged a soybean crop.
08/15/73	MN	Crop damaged (soybeans)	2,4-D A soybean crop was damaged by an aerial spray drift of pesticide. No chemical damage symptoms were noted at time of inspection.

08/19/73	WA	Crop damaged (30 acres asparagus)	2,4-D (amine)	Aerial spray drift of herbicide was the cause of damage to an asparagus crop. The application was made under air inversion conditions.
08/20/73	OR	Trees damaged (50 - 100 oak, ash, Cascara, hawthorne, hazel)	2,4-D	Numerous ornamental trees were exposed to a herbicide due to an aerial application under unusual weather and air pressure conditions. The leaves exhibited abnormal leaf cell development resulting in curled, twisted and malformed leaves which are characteristic symptoms resulting from exposure to a growth regulator herbicide such as 2,4-D. The oak trees exhibited the most serious injury. New regrowth foliage was evident. It was felt that, to a major extent, this regrowth was caused by exposure to the herbicide and secondarily to various oak leaf diseases. The other trees showed only minor exposure.
08/22/73	OH	Crop affected (4 acres soybeans)	2,4-D 2,4,5-T	The plants appeared to outgrow damage resulting from drift of herbicide from a railroad right-of-way. The symptoms on the beans were similar to those caused by the pesticide dicamba, which was not used.
08/27/73	WA	Trees damaged (3 acres locust, Hinden), vegetable garden damaged	2,4-D (amine)	Trees and a garden were damaged by 2,4-D aerial spray drift. There was the possibility of a hazardous condition of air inversion at the time of application.

12/28/73	OH	Trees, shrubs, grass, ornamentals damaged (pyracantha, ash, holly)	<p>2,4-D 2,4,5-TP Aldrin</p> <p>Turf, newly planted shrubs, and small trees were killed or injured by drift from an application of tank mix and fertilizers. This was an accidental home-related incident.</p>
08/31/73	OH	Lawn damaged	<p>2,4-D 2,4,5-TP Aldrin</p> <p>An entire lawn showed damage after an application of tank mix and fertilizer. The field investigation was delayed and no direct evidence of pesticide damage was found. Insect grubs were suggested as a cause. The soil was analyzed for over-application; results were negative.</p>
09/01/73	CO	1 human received medical attention	<p>2,4-D 2,4,5-TP 2,4,5-T</p> <p>A 3-year-old child was found with a herbicide cartridge in his mouth. The child was given ipecac and vomited. He remained asymptomatic.</p>
09/01/73	ID	1 human received medical attention	<p>2,4-D 2,4,5-T</p> <p>From 1968 - 1972, a 51-year-old male sprayed herbicides on a national forest. He developed fatigue, breathing difficulty, and painful urination in September 1973. Examination and tests at a hospital revealed renal cysts, polycythemia, mild chronic obstructive pulmonary disease, and tension headaches. Although the worker attributed his illness to herbicide exposure, no evidence could be found to support his conclusion.</p>
09/19/73	WA	Crop damaged (10 acres grapes)	<p>2,4-D</p> <p>A grape crop was damaged due to massive amounts of volatile esters moving a long distance.</p>

09/20/73	OH	Trees, flowers damaged (locust, spruce trees)	2,4-D 2,4,5-TP Drift from ground application to a right-of-way led to the injury of 64 trees and 40 rose bushes. It was felt that the locust trees would out-grow damage.
01/12/74	AL	1 human received medical attention	2,4-D 2,4,5-TP A child less than 5 years of age was involved in an undescribed home-related pesticide incident.
01/22/74	CA	1 human received medical attention	2,4-D (amine) The details of this agriculture-related incident were not reported.
02/27/74	WA	Crop damaged (carrots)	2,4-D (amine) A carrot crop was contaminated by 2,4-D, presumably due to the presence of the herbicide in irrigation water coming from another area.
02/29/74	UT	1 vehicle contaminated	2,4-D An unknown number of 30-gallon drums containing 2,4-D were found leaking upon their arrival at a freight terminal. The chemical manufacturer was called, and he advised that the liquid be soaked up with sawdust or sweeping compound and then the contaminated trailer be washed with soap and water. The cause of the damage was unknown, but container bottom failure was suspected. The trailer, and its load of 67 of the 2,4-D drums, was sent on to the final destination for handling and cleaning.
03/08/74	IA	Food contaminated (412 cases of salt)	2,4-D 2,4-D (amine) A railcar carrying 2,4-D and salt was "humped" and 7 bags of herbicide ruptured and spilled over the cases of salt. The salt was voluntarily destroyed (buried in a city landfill).

03/11/74	AL	1 human received medical attention	2,4-D In a home incident a child, under 5 years of age, was poisoned by herbicide.
03/15/74	LA	Farm land affected	2,4-D 2,4,5-TP Fenac A farmer reported that spray from a nearby aerial application to sugar cane drifted onto his land. No damage was reported.
03/16/74	CA	1 human received medical attention	2,4-D The site and circumstances of this pesticide incident were not reported.
03/18/74	CA	1 human hospitalized	2,4-D A pest control operator was reported to have experienced a mild anaphylactic reaction following exposure to the herbicide while cleaning his spray equipment. The results of a cholinesterase test were not reported.
03/19/74	CA	1 human received medical attention	2,4-D Paraquat Dalapon MSMA Sodium cacodylate An individual was exposed to several pesticides in his agricultural job.
04/00/74	OR	Crops damaged (1 1/2 acre)	2,4-D An unidentified crop was damaged by aerial spray drift from an application to a nearby grain crop.
04/00/74	OR	Crops damaged (47 acres barley)	2,4-D In an agricultural incident a barley crop was damaged by aerial spray drift. Some barley heads were curled and some were held tightly by the flag leaf which are characteristic

symptoms expected from exposure of a growth regulator herbicide such as 2,4-D. It was felt there would be a minor reduction in yield for the barley.

04/08/74	OR	Crops damaged ($1\frac{1}{2}$ acres lettuce, radish, cabbage, onion)	2,4-D	In an agricultural incident a vegetable crop was damaged by aerial spray drift. The foliage of the vegetables (lettuce, onions and cabbage) showed abnormal cell development and growth which resulted in various sizes and shapes of foliage, plus twisting and turning of young onion plants which are characteristic injury symptoms expected from exposure to a growth regulator herbicide such as 2,4-D. Onion plant tops displayed twisting and curling; it was too early to determine the extent of loss although some of the onion plants were dead. The leaves of the lettuce and cabbage plants were growing in an abnormal manner.
04/14/74	WA	Crops damaged (carrots, spinach), soil contaminated	2,4-D (amine) MCPA	Carrot and spinach crops were damaged due to drift from a ground spray rig application.
04/15/74	OR	Crop damaged (27 acres apples)	2,4-D	An apple orchard was damaged by spray drift from a nearby application. Weeds, particularly China lettuce, growing in the apple orchard exhibited curling of the stem and abnormal leaf cell development which is a characteristic symptom expected from exposure to a growth regulator herbicide such as 2,4-D. A visual observation of the immature apples showed an undetermined percentage of the fruit to be misshapen in the early developmental stage of growth. A random sample of the immature apples was collected for analysis of 2,4-D residue. No 2,4-D residue was found in the apples sampled; this was probably due to the fact that 2 months had elapsed from the date of incident to the date of sample collection.

04/18/74

OR

Numerous
ornamentals,
trees damaged

2,4-D

An aerial spray application damaged ornamentals and trees. The foliage of the trees, shrubs and plants exhibited injury symptoms exemplified by wilting, cupping of leaves, abnormal leaf cell development and twisting and turning of stems which are characteristic injury symptoms expected from exposure to a growth regulator herbicide such as 2,4-D. It was thought that the exposed trees and plants would not die.

04/22/74

OR

Trees damaged
(2 acres filberts)

2,4-D

Damage to filbert trees was due to aerial spray drift. An examination of foliage showed abnormal cell development plus twisting and turning of petioles which are characteristic symptoms expected from exposure of susceptible plant species to a growth regulator herbicide such as 2,4-D. Phenoxy injury symptoms to the filbert trees was mostly on the south side of the trees. Four and one-half rows of trees, adjacent to the highway, showed injury symptoms. Symptoms were not too apparent on trees in the fifth row. Phenoxy injury symptoms to the foliage were observed 1/2 to 2/3 the distance from the terminal end of individual branches. No foliar injury on the new developing leaves indicated that the 2,4-D exposure occurred several months prior to the inspection, and the normal developing foliage indicated there was no 2,4-D residue in the branches or trees. It was felt that the filbert yield loss would be minor and not really affected by the 2,4-D exposure.

04/22/74

OR

Crop damaged
(4 acres filberts)

2,4-D (amine)

In an agricultural incident a filbert orchard was damaged by 2,4-D. It was felt that overformulation or misuse of pesticide was responsible for this incident. The symptoms noted included epinasty of terminal growth, chlorosis of leaf margins, cupping of foliage and excessive leaf drop. This inspection took

place on 5/30/74; a second inspection on 7/10/74 found more areas of the orchard with top foliage showing marginal chlorosis symptoms. Some of the others showed typical die-back from the exposure of the phenoxy herbicide.

04/22/74	WA	Crops damaged (hay, oats)	2,4-D (amine) In an agricultural incident aerial spray drift of 2,4-D resulted in harmful effects to a hay and oat crop.
04/22/74	WA	1 human received medical attention; soil contaminated	2,4-D An applicator aircraft spraying 2,4-D to rolling terrain hit a hill with his landing gear. The plane flipped and burned. There was no evidence to link the crash to pesticides.
04/24/74	HI	1 human fatality	2,4-D Ametryn Dalapon A pilot was killed in the crash of a helicopter during pesticide spraying operations. Pilot exposure to pesticide drift was reported to be unlikely. Blood samples were analyzed with the following results: whole blood - 0.3% 2,4-D, 0.1% ametryn; blood plasma - 0.04 ppm 2,4-D; urine - 0.25 ppm 2,4-D.
04/25/74	WA	Crop damaged (grapes)	2,4-D (amine) A grape crop was damaged by an alleged application of pesticide.
04/25/74	OR	Ornamental plants, trees damaged	2,4-D In an agricultural incident ornamental plants and trees were damaged by either 2,4-D drift or volatilization. The plants and trees showed abnormal foliar leaf cell development, twisting and turning of stem petioles which are characteristic injury symptoms expected from exposure of susceptible plant species to a herbicide such as 2,4-D.

04/29/74	OR	Crops damaged (1½ acres vegetables)	2,4-D	A vegetable crop was damaged by an apparent drift of 2,4-D from a nearby aerial application.
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04/29/74	OR	Crop damaged (1 acre berries)	2,4-D	Chemical drift onto a berry crop made it non-acceptable to the food processor because of residue. Symptoms of exposure to phenoxy herbicide were noted on the berries and canes. Epinasty (twisting and curling of canes) was very noticeable on fruiting spurs, terminal growth and individual canes. Deformed leaf growth was also noted at this time (5/1/74). The exposure was sublethal to the vines. On 6/13/74, it was noted that some of the individual fruit did not develop.
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04/29/74	OR	Crop damaged (94 acres alfalfa), trees, plants damaged (40 acres variety)	2,4-D	In an agricultural incident ornamental and alfalfa foliage had symptoms of partial wilting, cupping of leaves, twisting-curling of stems and petioles, reduction in size of leaf and abnormal leaf cell development after an aerial herbicide application. These symptoms are characteristic of plant injury expected from exposure of susceptible plant species to a growth regulator herbicide, such as 2,4-D. Trees, bushes, flowers and plants located in the yard area exhibited the same symptoms as above. None of the plants or trees was expected to die.
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04/29/74	OR	Trees, plants. damaged (numerous)	2,4-D	Aerial spray drift was responsible for damaging trees and plants in this agricultural incident. Two separate incidents were written as one in this case. The same symptoms were given. The foliage of the trees, shrubs, and plants exhibited injury symptoms exemplified
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by wilting, cupping of leaves, and abnormal leaf cell development which are characteristic injury symptoms expected from exposure to a growth regulator herbicide.

04/30/74

OR

2 humans
hospitalized

2,4-D
2,4,5-T

A woman and her daughter were claimants in an action related to pesticide exposures. The mother was a spina Bifida patient with severe hyphoscoliosis and a severe history of respiratory problems and asthma. She was confined to a wheelchair and had moved frequently from urban to rural areas in search of less air pollution. She also had a history of extreme sensitivity to petro-chemicals (especially those related to sulfide fumes, hydrocarbon type chemicals). Her sensitivity was recorded as probably a neurological disorder resulting from her general status of autonomic dysfunction. The daughter (age unknown) became semi-conscious at a church camp when she was acutely exposed to an aerosol bomb-type pesticide. Her present sensitivity to numerous pesticides, possible allergy, for which she had been treated may have stemmed from the camp exposure. Both of these individuals were hospitalized and treated symptomatically after they experienced extreme respiratory/-allergenic symptoms following a U.S. forest spray program with the pesticides 12 to 14 miles from their residence. The physician felt it was due to drift. In addition, highway spraying by a road crew near the residence also caused violent symptoms. Cholinesterase tests were not done because of lack of facilities. Treatment details were not reported.

04/30/74

OR

Trees damaged
(7 acres
filbert, cherry)

2,4-D
Dicamba

A filbert and cherry orchard was exposed to pesticide from aerial spray drift. The trees exhibited foliar and fruit injury symptoms such as partial to complete wilting, partial to complete desiccation of newly developing terminal growth, plus distorted leaves and stems resulting from abnormal cellular development. These symptoms are characteristic of that type of plant tissue injury expected from an

exposure of susceptible plant species to a growth regulator herbicide such as 2,4-D, dicamba, etc. It was felt that probably the entire filbert orchard would be devoid of any crop in 1974 and a 1975 yield loss was expected. Eighteen rows of sweet cherry trees exhibited major foliar wilting and abnormal skin texture of the developing fruit. A random sample of the sweet cherry fruit was taken for phenoxy residue analysis. The analytical results from the laboratory showed levels of .6 ppm of 2,4-D and .07 ppm of dicamba in the fruit. It was felt that fruit from these trees should not be harvested. Twelve rows of sweet cherry trees showed major foliar wilting and abnormal skin texture of the developing fruit. A random sample of the sour cherry fruit was taken for phenoxy residue analysis. The analytical results from the laboratory showed levels of .19 ppm of 2,4-D and .21 ppm of dicamba in the fruit. It was recommended that no fruit from these trees be harvested.

05/00/74	OK	1 human received medical attention	2,4-D A woman, 17 to 65 years of age, sought medical attention after an aerial application of pesticide, 1/2 mile from her home, made her ill.
05/00/74	OR	Crop damaged (4.5 acres alfalfa)	2,4-D An alfalfa crop was damaged due to drift from a nearby aerial application. Injury symptoms ranged from medium to severe.
05/00/74	OR	Crops damaged (1/2 acre)	2,4-D During a ground application to an agricultural roadside area, pesticide drifted into a nearby orchard.
05/00/74	OR	Crops damaged (1 acre apple trees, grapes)	2,4-D In an agricultural incident 1 acre of crops was exposed to herbicide from an aerial application. The foliar injury symptoms expressed were cupping of leaves as a result of abnormal

leaf cell development and curling and twisting of stems which are characteristic plant injury symptoms caused by a growth regulator herbicide such as 2,4-D. An apple tree in the orchard exhibited complete exposure of a growth regulator herbicide; the new growth showed no damage symptoms. Due to this exposure, no fruit was produced on this tree in 1974. It was impossible to determine loss of yield, if any, of the other apple trees, although most appeared to have a light crop. Phenoxy symptoms were observed in the middle portion of grape vines which indicated the grape plants were exposed to a growth regulator herbicide at an earlier date. All new grape foliage was normal, indicating no herbicide residue in the plants.

05/00/74	OR	Crop damaged (40 acres)	2,4-D	An unspecified crop was damaged due to drift from an aerial application to a grain crop.
05/01/74	OR	Crops, trees, shrubs damaged (5 acres)	2,4-D Dicamba	In an agricultural incident numerous plants and trees were damaged by aerial spray drift from a nearby application. On 5/16 the plants examined exhibited injury symptoms exemplified by partial to complete wilting, curling and cupping of leaves, and twisting and curling of stems caused by abnormal cell development. These symptoms were particularly evident in succulent broad leaf plants and in new developing leaves. The degree of foliar injury symptoms was in direct relationship to location of trees in the exposure pattern of the herbicide. One-fifth of the trees and plants examined had minor to medium damage, the remainder had minor or less severe damage. For definition purposes: a minor injury symptom indicated that the injury symptom was just visible, and further abnormal plant growth was not expected. A medium injury symptom indicated that the foliar and stem growth was stunted, showing definite signs of abnormal growth where some terminal dieback might occur and that a period of time would be required before the herbicide dissipated. It was felt that none of these plants or trees would die.

05/02/74	OR	Crops damaged	2,4-D In an agricultural incident an unspecified variety and amount of crops were damaged by aerial spray drift from a commercial application.
05/05/74	OR	Trees, shrubs flowers, damaged	2,4-D In an agricultural incident trees, shrubs, and flowers were damaged due to drift from an aerial application of pesticide. The foliage exhibited injury symptoms exemplified by wilting, cupping of leaves, and abnormal leaf cell development which are characteristic injury symptoms expected from exposure to a growth regulator herbicide such as 2,4-D. Other than 3 small Douglas fir trees, it was expected that no other trees would die.
05/06/74	WA	Crop damaged (5 acres pears)	2,4-D In an agricultural incident drift from an aerial 2,4-D application caused damage to a nearby pear orchard.
05/07/74	CA	1 human received medical attention	2,4-D MCP In an incident involving a nursery, a 17- to 65-year-old male, handled bags of pesticide (18 - 36 lbs each) while wearing gloves and a shirt; he developed a rash. He washed and was later treated by a physician.
05/07/74	OR	Crop damaged (15 acres grapes)	2,4-D In an unspecified incident a grape crop was damaged either by drift or volatilization or both. Phenoxy symptoms were evident; the injury was termed minor and yield was not appreciably affected.

05/08/74	CA	1 human received medical attention	<p>2,4-D M CPP Dicamba</p> <p>In a job-related agricultural incident an individual 17 to 65 years of age received medical attention.</p>
05/10/74	WY	1 vehicle contaminated	<p>2,4-D (amine)</p> <p>In a transportation incident a van trailer was contaminated by leaking pesticide containers. Approximately 1½ gallons of chemical were spilled of a total 144 gallons in the load. There were 24 cases of chemical, each case containing six 1-gallon tin cans. There were 2 cases found to be leaking; 1 case had one 1 - gallon can leaked empty and another case had one 1 - gallon can ½ leaked out. The cause of leakage was determined to be container-bottom failure. No damage was done to the other freight or the truck.</p>
05/10/74	WA	Crop damaged (grapes)	<p>2,4-D (ester) 2,4-D (amine)</p> <p>In an agricultural incident, 2,4-D drift damaged a grape crop. There was a possible violation indicated in that the spray was applied at the wrong time.</p>
05/12/74	IL	Vehicle damaged, soil contaminated	<p>2,4-D MSMA Bromacil</p> <p>In an incident involving the transportation of pesticide, a truck hit the side of an overpass and its tank was ruptured. The entire contents (1,260 gallons) flowed across the bridge and down an embankment into a drainage ditch. There were no crops or water nearby; a local fire department washed down the spill with 2,000 gallons of water.</p>

05/13/74

OK

Crops damaged
(100 acres
potatoes,
2 acres garden
vegetables)

2,4-D
Diazinon
Captafol
Xylene

In an agricultural incident a farmer complained that his potato crop was damaged by pesticide drift. He expected 60% of his crop to be lost due to this contamination. The plants appeared to have been subjected to some sort of stress condition; there was no evidence on the potato plants themselves which would have indicated damage from phenoxy herbicides. Morgold Russets, Norland Red and FL-96 potato fields had a similar appearance. Many older leaves near the base of the plant had a definite yellow color and leaf margins were rolled up and in. The foliage on pie melons in these fields exhibited typical 2,4-D symptoms on only one leaf in most instances; it was about the third to fifth leaf from the tip of the vine. The veins of the leaf were elongated and abnormally close together. Indentations on the palmately lobed leaves were deeper than on normal leaves. Lasota potato vines were larger, more vigorous with a deeper green color; tubers were larger and more numerous. Pie melons were not noted in this field. A number of other plants in a garden in the immediate vicinity such as bell peppers, pinto beans, tomatoes and pie melon did exhibit symptoms of damage similar to phenoxy herbicide damage such as deformed leaves, parallel leaf venation, and epinasty. None of these plants were dead and no dead spots were observed on any of their leaves. The owner was quite certain that the damage to his crop was a result of spray drift from an application to pastureland to the northeast of his property. It should be noted that the distance between his potato field and this pasture is 2 miles at the nearest point. The owner of a flying service stated that he did treat the pasture area with 2,4-D amine on 4/23/74 and that winds were northeast at 0-4 knots. Weather service reports indicate that winds were not more than 10 knots that day. There was no visible evidence of actual phenoxy herbicide damage to the potato plants in any of the fields observed. According to available information, the potato plant is more resistant to 2,4-D herbicide than the average

herbaceous plant; for damage which would have been significant enough to give a reduction in crop yield, the plants should have exhibited some symptoms of damage as that observed on the more susceptible plants in the area. The only exception to the above which could have had an effect on the yield would have been for the herbicide to have reached the plants when they were in full bloom. A state representative stated that the potatoes were in bloom on 5/14 when he inspected them; the potato farmer was not questioned on this point. The 100 acres of potatoes were planted 3/10 - 20/74. The land was fertilized in February with 100 pounds per acre 0-0-60 (potash) and at planting with 500 pounds per acre 5-10-5; it was top-dressed on 5/3 or 5/4 with 150 pounds per acre 33% nitrogen fertilizer. Other chemical applications were made on 5/2 and consisted of 1½ pint/acre captafol fungicide and 1 pint/acre diazinon insecticide. A state investigator had walked the entire distance between the two locations and what appeared to be indications of 2,4-D damage were noted on plants for the entire distance, although this damage was extremely obscure in most instances. Eighteen days elapsed from the time 2,4-D was applied to the pastureland until the first report of damage. In the meantime, another aerial applicator had applied fungicide and insecticide to the potato crop on 5/2. It would be difficult to rule out the possibility of herbicide contamination from this source. Damage was first reported to state officials on 5/8. The report of a plant diagnostic lab indicated that three different plant diseases caused by fungi were identified from five of the plant specimens submitted by state inspectors, namely stem rot, Fusarium wilt (plants showed vascular discoloration and early blight (plant showed a browning of leaves). A pesticide lab failed to recover any residues of phenoxy herbicides, picloram and dicamba from potato plant samples collected.

05/16/74

W A

Crop damaged
(20 acres grapes)

2,4-D (ester)

In an unspecified agricultural incident a grape crop was damaged by long range spray drift of an aerially applied high volatile ester.

05/22/74	W A	Crop damaged (30 acres grapes)	2,4-D (ester) In an agricultural incident a grape crop was damaged by drift due to wind conditions.
05/22/74	W A	Crop damaged (grapes)	2,4-D A grape crop was moderately damaged due to drift/volatilization of 2,4-D.
05/23/74	O H	Soil con- taminated	2,4-D Chlorpyrifos Dicamba In a transportation incident a truck spilled its 200 gallons of chemical mixture. Most of the chemical soaked into the soil. A local fire department hosed down the area. No water was thought to be contaminated.
05/23/74	O H	Water contaminated fish affected	2,4-D (amine) A fish-hatchery was oversprayed with pesticide. It was a careless application. No fish were killed.
05/24/74	ID	Crop damaged (25 acres peas)	2,4-D (amine) In an agricultural incident a pea crop was damaged by a nearby application of pesticide. Epinasty was readily observed in the peas extending from the western edge of the field to approximately one-half the width (E-W) of the field in the southern section and across the full width of the northern section. Total acreage of the field was 44 acres, of which an estimated 25 - 30 acres appeared to be damaged. Samples were collected, taking the entire plant at approximately 50-foot intervals. The results indicated that 2,4-D (acid) was present at the rate of 2.3 ppm. On 5/24 the grain field west of the pea crop was sprayed aerially using 2,4-D (amine), 4 lb acid/gal. The licensed aerial applicator covered a 50-foot swath marked with an automatic flagger and he flew 3 feet above the ground when applying chemicals. Spray nozzles were of both T-jet and fan type,

spaced 12 inches apart, and the boom pressure was 14 pounds for this job. The pilot indicated that at the time of application the wind was from the west at 8 mph. Records at the FAA office recorded the wind at 10 mph from the north at 8 a.m. and 8 mph from the northwest at 9 a.m. Spraying of the grain field was completed at 10 a.m. on the 24th. The temperature at the time was 78°F. The pilot stated that he did not at any time turn or fly over the pea field. On the 24th he completed all but 200 feet on the eastern edge of the grain adjacent to the peas. He sprayed the 200 feet on the 25th when the winds were reported to be calm. The pilot attributed the situation to the hot weather and volatilization of the chemical.

05/24/74	OR	Soil contaminated	2,4-D In a transportation incident a helicopter crashed and spilled its 2,4-D contents on a wheat field. There were no human injuries.
05/24/74	MN	Crop damaged (80 acres alfalfa)	2,4-D In an agricultural incident the aerial applicator sprayed the wrong field. A reduction in yield was expected.
05/25/74	WA	Crop damaged (35 acres grapes)	2,4-D (ester) In this agricultural incident the problem resulted from chronic long range drift of high volatile ester formulations.
05/28/74	MN	Crops, flowers damaged (cress, tomatoes)	2,4-D (amine) In an undescribed agricultural incident a small garden was slightly damaged by pesticides. Some replanting had to be done.
05/28/74	WA	Crop damaged (grapes)	2,4-D Damage to this vineyard due to drift/volatilization was strongly indicated.

05/29/74	MO	Plants damaged (6 tomatoes, 5 cucumbers, 20 beans)	2,4-D (ester) 2,4,5-T Drift occurred when the herbicides were applied to brush along a property line by an individual who did not read the label thoroughly.
05/29/74	WA	Trees damaged (pears, apples)	2,4-D Dicamba Due to aerial drift and possible inversion, pear and apple trees in the orchard were damaged.
05/29/74	WA	Crop damaged (grapes)	2,4-D (amine) 2,4,5-T (amine) Drift from a ground spray application resulted in widespread damage to a grape vineyard.
05/29/74	WA	Crop damaged (6 acres grapes)	2,4-D (ester) In an agricultural incident damage to a grape crop was due to chronic long range movement of high volatile ester which was applied aerially.
05/31/74	ID	Crop damaged (20 acres sugar beets)	2,4-D (amine) A sugar beet crop was damaged by chemical drift from a nearby application. The sugar beets nearest the sprayed area showed severe damage with an 85% loss. Damage was a slight to none at all on the rest of the field. The beets showed malformation of leaves and stems and enlarged crowns on the beets. The spray pilot called the owner of the sugar beets before the application to check the wind and was told it was calm, but on the first pass he could tell the wind had come up from the south-southwest. The pilot's airplane was examined and found to be in violation for using a fan nozzle when the state required a foam nozzle or Akesson nozzle. The drift problem could have been minimized with the proper equipment.

05/31/74

OR

Crop damaged
(20-25 acres
alfalfa, pasture
grass), trees dam-
(2 apple, 2 pear,
1 peach-plum, 2
willow), ornamentals
damaged (lilacs,,
spirea, flowers)

2,4-D

In an agricultural incident an alfalfa crop, ornamentals and some fruit trees were damaged by drift from a nearby application. The trees, flowers and some alfalfa plants exhibited partial to complete wilting, abnormal cell development, and twisting-curling of stems and petioles. Five fruit trees showed some exposure to a growth regulator herbicide which was most evident on the west side of the trees. The yield loss was restricted to the west portion of the fruit trees and they did not die. Fruit bud set for the 1975 crop was not adversely affected by the 2,4-D exposure. Minor injury symptoms were noted on two willow trees, lilac bushes, and a spirea bush. Several flower species exhibited minor symptoms. A 15-year-old grass-alfalfa field located west of the highway showed 2,4-D symptoms. It was estimated that approximately 20-25 acres of the alfalfa-grass pasture exhibited these symptoms. Those plants growing near the south fence were yellow and exhibited a twisting and curling of the stems. No new growth was observed on alfalfa plants. Possible death of some of the alfalfa plants was expected to occur within 50 feet of the south fence. Death of the plants was expected to be directly related to 2,4-D exposure, climatic conditions and carrying capacity of the pasture. A newly planted alfalfa-grass field east of the highway was examined and no appreciable injury symptoms were noted.

05/31/74

MN

Crop damaged
(5.5 acres
alfalfa)

2,4-D
Dicamba

An alfalfa crop was damaged by aerial spray drift from a nearby application. The alfalfa appeared under stress and slight yield reduction was expected.

06/00/74	M N	Crop damaged (19 acres soy- beans)	2,4-D (ester) 2,4-D (amine) Dicamba (amine)	A drift problem caused the plant leaves to have a curled and cupped appearance. There was good regrowth.
06/00/74	ID	Trees (locust), garden crops damaged	2,4-D	A home garden and some garden trees were reported damaged by an aerial spray drift. The locust trees on the north side of the home, 50 yards from the residence, showed burned leaves and defoliation on their north side. A strawberry patch also on the home's north side showed no dead or distorted plants to indicate 2,4-D damage. In the vegetable garden, east of the home and approximately 55' x 128' in size, the corn was somewhat stunted; however, there were ears forming on the plants in the center of the garden. Tomato plants near the corn were in good condition except for one plant that had curled leaves. The potatoes were completely eaten by insects and it was impossible to determine if they had received any damage. A peach tree, which did not bear fruit, had no 2,4-D symptoms and the foliage appeared normal. The owners replanted carrots and other vegetables; they did not germinate properly and grow. When asked if the garden was checked for nematodes the response was negative. Since 2 months had elapsed from the time of the incident until the inspection of the premises, it was impossible to evaluate any damage symptoms other than on the locust trees.
06/00/74	OR	Ornamental shrubs, trees, fruit trees dam- aged (privet, roses, corkscrew willows, plum), grass killed	2,4-D	In a home incident, 2,4-D applied by an individual caused damage to trees and shrubs on a next door neighbor's property. A 120-foot-long privet hedge, 6 to 8 feet high, which served as

the property boundary, was damaged and the area adjacent to it was bare and lacked any vegetative growth, i.e., grass or weeds. At least 78 lineal feet of the hedge were dying. Loss of foliage together with chlorosis of remaining foliage would indicate the chemical applied was being taken up through the privet root system. A plum tree, three large rose bushes, and a corkscrew willow tree also showed leaf symptoms which indicated they were being affected but to a lesser degree than the privet hedge. It was felt that the chemical involved was water soluble or at least moved with the surface water, as in several locations the grass was killed where surface water flowed from property to property.

5/00/74	OR	Crops damaged	2,4-D Two acres of crops were damaged by drift from an aerial application to a nearby grain field.
5/30/74	OR	Crops damaged	2,4-D One-half acre of crops was damaged by drift from an aerial application to a nearby grain field.
06/00/74	OR	Residence contaminated, crops damaged	2,4-D An acre of unspecified crop and a home residence were damaged by drift from a ground spray application to a nearby wheat field.
06/00/74	OR	Crops damaged	2,4-D A 15-acre crop was damaged by spray drift from an aerial application to a nearby grain field.
06/00/74	OR	Crops damaged (grain, others)	2,4-D A 16-acre crop was damaged by direct spraying with 2,4-D.

06/00/74	M N	Crop damaged (soybeans)	2,4-D Dicamba A soybean crop was reportedly damaged by a pesticide application; no injury from spray was observed. Damage was attributed to lack of moisture and frost.
06/02/74	M N	1 human hospitalized, trees damaged (2 ash)	2,4-D Dicamba An adult suffered from eczema which was irritated by an exposure to chemical drift; the individual was hospitalized. The involved trees were recovering.
06/03/74	SO	1 human hospitalized	2,4-D (ester) 2,4,5-T (ester) This episode involved development of chemical pneumonitis in a man who sprayed the herbicides onto his yard, buildings and ditch for a 5½ hour period using no protective equipment. He was hospitalized 6 days.
06/03/74	M N	Trees damaged (75 willows)	2,4-D (amine) Many trees were damaged by an exposure to an aerial spray drift of chemicals. The trees lost many leaves but were expected to recover.
06/03/74	W A	Crop damaged (asparagus)	2,4-D An asparagus crop was damaged due to drift/-volatilization of 2,4-D.
06/10/74	OR	Numerous trees, shrubs, flowers, ornamentals damaged	2,4-D Damage was due to drift from an aerial application to a nearby pasture to control weeds. Five weeping birch trees, numerous birch trees, two horse chestnuts, seven holly trees, a weeping willow, a corkscrew willow, 30 hawthornes, maple trees, mulberry, and honeysuckle displayed one or more of the following symptoms: partial to complete defoliation, terminal dieback of branches,

abnormal leaf development, and abnormal leaf cell development. The 1974 fruit crop was destroyed in five apple trees, four cherries, three pears, and several plums. The 1975 fruit set was questionable, especially for the pears. The survival of a number of trees was in doubt.

06/10/74

ID

Crop damaged
(10 acres sugar
beets)

2,4-D (amine)

A sugar beet crop was damaged by chemical spray drift from an application to nearby fields. Ten acres of 63 acres of sugar beets were damaged. Whole plants were taken as samples at approximately 50-foot intervals along a northeast-southwest diagonal through the damaged area. These samples were found to contain 3.31 ppm 2,4-D. The sugar beet owner recalled seeing a spray plane applying chemical to the property directly east of the beet field. The two fields were separated by a 25-foot-wide dirt road. The flying service was contacted and said that they had used 2,4-D (amine), 4 lb acid/gal of material, at a rate of 2 pt/acre to spray grain on 6/3 and 6/10. The area adjacent to the beet field was sprayed on 6/10. The plane was equipped with automatic flagger; the booms had 36 nozzles with 8 - 10 orifices and the pressure at the nozzles was always 20 PSL. All nozzles had a check valve diaphragm to prevent dripping. The tank truck driver was instructed to check for leaks each time the plane was loaded with chemical. The pilot flew in east-west and west-east swaths, carrying him over the beet field. He flew approximately 5 feet above the grain while spraying but stated he was 150 - 200 feet above the beet field. Winds were calm to 3 mph, temperatures were 52 - 54°F. The pilot felt he had taken adequate precaution to prevent any drift going onto the beet field. On 6/24 the weeds between the grain and beet field were examined and appeared not to have been affected by 2,4-D. On the north side between the beet field and a 40-acre corn field, broadleaf weeds showed typical signs of 2,4-D damage. The owner of this corn field was contacted and he stated his son had used a pull-type spray rig on approximately 6/10 to apply 2,4-D to his corn crop. He sprayed the west portion of the field in the morning and the east in the late afternoon. He used 2,4-D

(amine), 4 lb acid/gal material, and the sprayer was pulled at 5 mph with 30 PSI pressure. The spray booms were 32 inches above the ground and the son noticed no wind while spraying. From the damage pattern in the beet field, it would appear that the drift had come from the aerial application of 2,4-D to the grain, but there was no visible damage to broadleaf plants between the two fields. While damage to broadleaf plants could be followed from the corn field to the border of the beet field, the pattern was atypical for drift from this direction. It was impossible to determine the responsibility for the damage.

06/10/74	ID	Crop damaged (10 acres sugar beets)	2,4-D (amine)	Slight damage was done to a sugar beet crop by spray drift from a nearby field, possibly due to a hairline crack in the pump of the aerial spray apparatus. The wind speed was 3 - 5 mph. Weeds in the fields did not show damage symptoms.
06/11/74	MN	Crop damaged (30 acres soybeans)	2,4-D	A soybean crop was damaged by aerial spray drift from a nearby application.
06/11/74	MI	Air, water contaminated	2,4-D + 41 others	Arson was suspected when a fire destroyed a building and its inventory of agricultural chemicals; the loss was estimated at \$1,000,000.00. Approximately 150 families in nearby areas were evacuated as precautionary action to avoid exposure to potential toxic contaminants in the air; no exposures were reported. A health department obtained swipe samples from homes in the area of suspected higher concentrations of spray and mist; tests showed no significant accumulation occurred. Fire run-off water was dammed, collected and transported to storage facilities after which a private company was engaged to treat and dispose of the water. The disposal of the fire

debris and bottom sludge from the creek in which run-off was dammed was at a landfill. The day after the fire, samples of downstream river water showed chemicals other than 2,4,5-T.

Date	State	Incident Description	Chemical(s)	Details
06/11/74	WA	Crop damaged (grapes)	2,4-D	A grape crop was damaged by drift and/or volatilization of 2,4-D in an undescribed application.
06/14/74	IA	Water contaminated	2,4-D Dicamba Alachlor	A pesticide mixture was diluted to 1/3 normal concentration and allowed to siphon into a well over a 2-week period. The well water showed 0.416 ppm 2,4-D 45 days later. As of 7/31/74, the farmer was allowed to use the water for everything except human use.
06/14/74	WA	Crop damaged (4.5 acres grapes), air contaminated	2,4-D (ester)	A grape crop was damaged as a result of chronic long range drift of high volatile ester formulations from aerial application.
06/15/74	KS	Crops damaged (29 acres green beans, squash, tomatoes, corn and melons)	2,4-D	A variety of garden vegetables were damaged by aerial spray drift from an adjacent corn field application of 2,4-D at the rate of 1/3 lb/acre. The 2,4-D was diluted with water. Temperature at application was 85° to 90°F with wind at 2 - 8 mph out of the southeast. This corn was located 150 - 200 yards from the damaged field. The vegetables showed some wilting of plants with more damage to plants along the east side of the fields. Green beans were sampled and analysis revealed less than .01 ppm 2,4-D residue.

74	SD	1 human hospitalized	2,4-D (ester) 2,4,5-T (ester) This incident involved a hand injury sustained by a worker when a bottle of the pesticide (original container) exploded in his hand as he was shaking it.
74	MN	Plants damaged (home garden, crops, trees)	2,4-D An aerial application of the herbicide resulted in a drift. It was suggested that the pines and willows affected would probably recover. The garden would have a reduced yield.
8/74	ID	Crop damaged (1 acre potatoes)	2,4-D (ester) In this incident the chemical was spilled while loading an airplane. It was thought that the material vaporized and drifted to the potato field adjacent to where the plane was loaded. The potatoes showed moderate damage: curling of leaves and stems and some defoliation. The spraying occurred between 8 and 9 p.m. The wind was blowing slightly and the temperature was about 80°F. The container used to mix 2,4-D (ester) and a fertilizer overfilled and spilled onto the ground. Before the material could be covered with dirt, the fumes had affected the potatoes. It was felt that the ground crew showed neglect and carelessness.
1/20/74	WA	Crop affected (Concord grapes)	2,4-D (ester) Unspecified effects to Concord grapes resulted from long-range drift from an aerial application of herbicide.
5/21/74	WA	Crop affected (Moorpark apricots)	2,4-D (ester) In an agricultural incident, effects to 3 acres of Moorpark apricots resulted from suspected long-range drift of high-volatile 2,4-D ester from an aerial application.

6/22/74	WA	Ornamental plants damaged (forsythia, lilacs), house, yard contaminated	2,4-D A house and yard were contaminated and plants were damaged as a result of aerial application of herbicide to nearby agricultural land. Recovery was reportedly good. Samples were taken for laboratory analysis; results were not reported.
5/24/74	MN	Crop damaged (soybeans)	2,4-D (amine) Dicamba (sodium salt) In an agricultural incident, 3½ acres of soybeans displayed elongation and cupping of the leaves as a result of drift from a non-aerial application of herbicide. No reduction in yield was expected.
06/24/74	OR	Soil contaminated	2,4-D In an undescribed transportation incident, a small amount of herbicide spilled at an intersection. A fire department neutralized the spill with calcium oxide and flushed the area with water.
06/25/74	MN	Trees, flowers, ornamental plants damaged	2,4-D In an agricultural incident, a variety of 30 plants were damaged as a result of drift from an aerial application of herbicide.
06/28/74	MN	Crop damaged (soybeans)	2,4-D One acre of soybeans was damaged by drift from a non-aerial application of herbicide along a state highway. Good regrowth was noted at the time of inspection; no reduction in yield was expected.
07/00/74	OR	Crop damaged (10 acres filberts)	2,4-D In an agricultural incident, an orchard was damaged by drift from a herbicide application to a nearby fence row. A 4.5-acre orchard

area was visually inspected for damage. Foliage displayed leaf cupping as well as curling and twisting petioles, which were considered characteristic symptoms to be expected from exposure to 2,4-D. A lack of normal seed set was reported to be directly related to the intensity of exposure to 2,4-D in a direction away from the sprayed fence row. Losses in yield were expected for 1974 and 1975.

17/00/74	OR	Crops damaged	2,4-D Ten acres of unspecified crops received drift damage from an aerial application of herbicide to a grain field, which was not damaged.
17/00/74	OR	Crops damaged	2,4-D Ten acres of unspecified crops received drift damage from an aerial application of herbicide to an alfalfa field, which was not damaged.
17/01/74	OR	Crop damaged (10 acres potatoes)	2,4-D Ten acres of potatoes received drift damage from an aerial application of herbicide to an adjacent alfalfa field. In an inspection on 9/4/74, no determination of the size and extent of injury could be made as the potato foliage and vines had been dessicated as a result of either a frost or chemical treatment. Inspection of potatoes from numerous hills dug across the field revealed no variance in size or quality of potatoes between the hills sampled.
17/02/74	OR	2 humans received medical attention	2,4-D (amine) -A woman and a man reported that they experienced a "burning feeling in the throat and chest" following treatment of their lawn for weed control by their landlord. The symptoms persisted through 7/5, when a physician attributed the woman's sore throat to exposure to toxic fumes. The couple reported that their throats were still somewhat sore later when a second physician was consulted. The landlord used a small baby food jar full of 2,4-D per 3 gallons of water. Analysis of a sample of the material used

indicated the contents were as labeled. A previous conflict existed between the landlord and the tenants; the complaints of illness may have been related to this conflict rather than to 2,4-D exposure.

07/02/74	IL	1 human received medical attention	2,4-D (sodium salt) A herbicide cartridge and a child under 5 years of age were involved in an undescribed home-related pesticide incident.
07/03/74	WA	Crop affected (5-10 acres Concord grapes)	2,4-D (amine) A Concord grape crop displayed evidence of drift from a non-aerial herbicide application. The exact date of application was not determined.
07/04/74	IL	3 humans received medical attention	2,4-D (sodium salt) Herbicide cartridges in the original container were involved in a home incident in which 3 children under five years of age were exposed to the pesticide.
07/05/74	IA	1 family involved livestock involved, water contaminated	2,4-D An agricultural spray tank containing 2,4-D back-siphoned into a residence water supply. After four hours of pumping, the water had 8 ppm 2,4-D.
07/07/74	MN	Crop damaged (soybeans)	2,4-D (ester) A 40-acre soybean field was damaged by drift from a non-aerial application of herbicide. The top tri-foliolate leaves displayed cupping and curling. Regrowth was noted to be good. The field had already been under stress from lack of moisture.

7/74	MN	Crop damaged (soybeans)	2,4-D Atrazine Dicamba (sodium salt) A soybean crop displayed blistering of the upper leaves resulting from drift from a non-aerial herbicide application.
7/74	MN	Crop damaged (soybeans)	2,4-D (amine) Dicamba (amine) An 18-acre soybean crop displayed drift damage from a non-aerial herbicide application. Regrowth and blossoming were observed in all plants at the time of inspection.
08/74	MN	Crop damaged (soybeans)	2,4-D 2,4-DB A 40-acre soybean crop displayed drift damage from an aerial herbicide application.
08/74	WA	Crop affected (grapes)	2,4-D (ester) Long-range drift from an aerial application of high-volatile 2,4-D ester was suspected of having affected a 10-acre crop of Concord grapes.
7/09/74	MN	Crop affected (alfalfa)	2,4-D An alfalfa crop was affected by an aerial application of herbicide. No evidence of damage was noted at the time of inspection.
11/10/74	WA	Crops affected (cherries, peaches, plums)	2,4-D A 3-acre plot set aside for plant certification at a plant quarantine station was affected by an agricultural application of herbicide. Cherries, peaches and plums were affected in an undescribed manner.
07/11/74	MN	Crop affected (63 acres sun- flowers)	2,4-D A 63-acre sunflower crop was affected when an aerial applicator inadvertently applied 2,4-D instead of insecticide.

07/11/74	W A	Crops affected (7 acres Campbell's, Concord grapes)	2,4-D	The grapes were affected as a result of contamination of the tank and boom of an applicator aircraft with 2,4-D.
07/12/74	O R	Crop damaged (filbert trees)	2,4-D	Drift from an aerial application of herbicide damaged 73 trees (2 rows) in a filbert orchard. The 36 trees in the first row along the south side of the orchard showed more severe symptoms including burned foliage and defoliation on the south side of the trees. Some terminal growth exhibited die-back. Trees in the second row displayed marginal chlorosis of the leaves, cupping of foliage, and wilting. Crop yields for 1974 and 1975 were expected to be affected in these two rows. Trees along the east side of the orchard displayed only minor symptoms.
07/14/74	O H	225 humans affected; 4 hospitalized, 221 received medical attention, 3 trees affected, soil, air, water contaminated	2,4-D 2,4,5-T + 33 others	At 8:30 p.m. lightning struck a factory building in which pesticides were stored. Two ambulance drivers and two firemen were hospitalized. Details of their treatment were not reported. A physician indicated that the aftereffects in persons involved in smoke inhalation would not be "sinister." Some symptoms of smoke inhalation exhibited by firemen were sore throat, sore mouth and diarrhea. Air contamination tests were done. As of 9 a.m., 7/18, 225 people had reported to a hospital; 1 cc atropine sulfate was administered to many who exhibited symptoms. A landfill site (30' fire clay) was located in an abandoned strip mine area. Lime was applied to streets and peat moss was used as a filter in the drains. Several agencies cooperated in combating contamination.

12/74	ID	Crops damaged (42 acres pinto beans, 58 acres sugar beets)	2,4-D	<p>Spray drift from an aerial application of 2,4-D damaged pinto bean and sugar beet crops which were growing across the road to the northeast of the treated wheat field. Little or no wind was blowing during application; it was thought that spray particles must have been drawn along in the vacuum created by the plane as it flew east and west. The damage, which appeared 2 days after spraying, was spotty with a 13$\frac{1}{2}$-acre sugar beet field east of the wheat sustaining the most damage. Epinasty was noted throughout this field and in all other fields, with the exception of a 5-acre patch of beans north of the grain. The bean and beet plants began to wilt and the leaves twisted indicating 2,4-D damage. Random foliage samples were collected at 30-foot intervals through the center of each field; laboratory analysis results were negative. Since the incident occurred early in the growing season, the crops were expected to outgrow the damage.</p>
07/19/74	CA	1 human received medical attention	2,4-D Propachlor Glyphosate	<p>An agricultural employee was exposed to the pesticides in an undescribed incident.</p>
07/19/74	MN	Forest damaged (birch, poplar)	2,4-D (ester)	<p>An unspecified number of birch and poplar trees were damaged by drift from an aerial application of herbicide. Affected trees displayed dried and discolored leaves at the time of inspection.</p>
07/19/74	WA	Crop affected (russet potatoes)	2,4-D (amine) Dicamba (amine)	<p>A russet potato crop was affected by drift from an aerial application of herbicides. In a typical drift pattern, the spray drifted across two county roads, a four-lane highway, and a 50-foot right of way before reaching the potatoes, it then continued for 150 - 200 feet through the potato field. A 5 mph wind was blowing at the time of application.</p>

07/20/74	MN	Crop damaged (soybeans)	2,4-D Dicamba Drift from a non-aerial application of herbicides damaged 18 acres of soybeans. Plants exhibited good new growth at the time of inspection; no yield reduction was expected.
07/27/74	IL	1 human received medical attention	2,4-D A child under 5 years of age was exposed to the pesticide in an undescribed incident.
07/29/74	IL	1 human received medical attention	2,4-D (sodium salt) A child less than 5 years of age was exposed to the pesticide in an undescribed home incident involving herbicide cartridges in their original container.
07/30/74	CA	1 human received medical attention	2,4-D Glyphosate Propachlor A youth 5- 16-years-old developed contact dermatitis as a result of an exposure to pesticide in an undescribed incident.
07/31/74	IL	1 human received medical attention	2,4-D In a home-related pesticide incident, a 5- to 16-year-old youth experienced an exposure to the pesticide.
07/31/74	WV	Crops, trees affected, soil, water contaminated	2,4-D (ester) 2,4,5-T (ester) An electric power cooperative arranged for right-of-way spraying with an out-of-state air service which used a helicopter with a stationary spray rig. The herbicide was applied at the rate of 2½ gal/acre. One of the small organic farm owners (40 acres) along the right-of-way was of the opinion (8/6/74 phone conversation) that herbicide misuse occurred in the spraying. He stated that his pond as well as several others are the residents' main water supply, and he was fearful that spray

had contaminated the streams. Laboratory tests of soil and vegetation samples taken 8/7/74 (7 days after spraying) from under the power line showed 2,4-D and 2,4,5-T. There was no chemical evidence of the herbicides in his pond. The herbicides could not be detected chemically on the crops but the vegetation did show typical phenoxy-type damage. During a visit to the farms and through the adjacent national forest, there was little, if any, sign of over-spray or deviation from the right-of-way. There was some minor wilting of trees, and crops in the area appeared to be damaged. Further investigation showed that the power line passed through cattle grazing area, streams crossed the right-of-way, and run-off would be unavoidable in some areas. The spraying operations had been performed competently; it was suggested that the farm owners and the power company discuss future maintenance practices to insure avoiding contamination of the streams and ponds (especially with continued run-off) and the grazing pastures and to avoid severe drift damage. More than one method of clearing the right-of-way might have had to be employed. It was concluded that the product should not be applied along areas of the right-of-way which were close to grazing pastures or streams.

1/74

LA

Trees, ornamentals,
grass damaged
(pines, oaks, gum,
maple, dogwoods,
azaleas, clover,
flowering shrubs),
soil contaminated

2,4-D
2,4,5-T
Picloram

Following the aerial application of herbicides to a power line right-of-way, a property owner reported damage from drift to the various plants. According to the owner, drift from the spray killed or damaged trees as far as 30 feet inside the property. The area was maintained by the property owner in park-like condition (trees did not exceed 3'). Clover had been planted for grazing and a drainage swale was planted with centipede grass. Investigation showed there was no misuse of the herbicides. The property owner was awarded \$200.00 by the power company for damages in response to his claim of \$356.00 in damages.

08/00/74	OR	Crop damaged	2,4-D In an agricultural incident, 2 acres of crops were damaged by aerial spray drift from an application to a nearby grain crop.
08/00/74	OR	Crop damaged (4.5 acres)	2,4-D Crops were damaged by drift due to a farmer's application of chemicals along a fence row.
08/01/74	WA	Crop damaged (136 acres grapes), air contaminated	2,4-D (ester) In an undescribed agricultural incident, a grape crop was allegedly damaged by long range drift due to the volatility of the product applied. The application was aerial.
08/01/74	MN	Crop damaged (85 acres corn)	2,4-D (ester) Drought and early frost severely damaged corn. Chemicals had little if any effect.
08/02/74	PA	2 humans received medical attention, water contaminated	2,4-D (amine) During the week of 7/27/74, pesticide applications to the roadside vegetation were made to control weeds. The pesticide residue was conducted by rainwater to an unprotected spring which was the source of domestic water supply for a family. The impact on the family members was not reported.
08/05/74	PA	3 humans affected; 1 received medical attention, water contaminated	2,4-D (ester) 2,4,5-T (amine) MSMA A girl became ill, exhibiting non-specific symptoms referable entirely to the gastrointestinal tract, after a railroad right-of-way near her home was sprayed for weed control. It was determined that the family's water supply had been contaminated with the herbicide. The water supply was a totally unpro-

tected source receiving water from a small drainage area along the railroad tracks. Water samples analyzed by a chemical company and a health department (8/12/74 and 8/13/74) showed similar results: 0.01 ppm 2,4-D and less than 0.01 ppm 2,4,5-T, respectively. A sample taken on 8/8/74 and analyzed by the chemical company showed concentrations of 2,4-D and 2,4,5-T at 0.9 ppm and 1.9 ppm (no mention of arsenic) respectively. Other family members experienced no symptoms. The daughter also had eaten raspberries picked from the sprayed area. Residue data on vegetation was not available. The possibility of arsenic poisoning could not be entirely ruled out. The railroad company was warned to prevent spray materials from entering and contaminating any bodies of water in the future.

8/12

MT Water contaminated 2,4-D

In a home incident, a man was filling a spray tank from a well located on his property. Thirty-six quarts of 2,4-D arrived in a truck tank. The well pressure was low, resulting in a back-siphon. The well was pumped out successfully and the water was usable again.

8/14

SD 1 human hospitalized

2,4-D (amine)
2,4-D (ester)

In an agricultural incident, a 17- to 65-year-old individual was exposed to pesticide when wind blew fumes in his direction during a hand spray application. He inhaled enough to affect his breathing and lungs. X-rays of the lungs showed some irritation.

8/13/74

MO Water contaminated 2,4-D (amine)

In an industrial incident, 16,650 gallons of 2,4-D were spilled into a major river during the period from 8/13 - 16/74. The 2,4-D escaped from a 30,000-gallon tank in a chemical company formulating plant. The tank contained 4 pounds per gallon 2,4-D (amine) formulation. The tank had a 1-inch drain pipe with a pressure relief valve incorporated in the discharge service. Someone attached a hose to this pipe, which was in an obscure area, and the pressure relief valve malfunctioned.

tioned, allowing the material to drain from the tank. The floor drains in the plant were designed to require a manual release of accumulated fluids as a safety factor. The floor drain involved in this accident was not properly closed, allowing the chemical to flow into the sanitary sewer and from there to the sewer plant and a major river. Samples were taken at the plant, the river, and downstream as well. No 2,4-D was found in any of the 20 samples taken. It was felt, by a chemical company representative, that the movement of the chemical through the sewer would have the effect of lowering the percent of active ingredients since 2,4-D is affected materially very quickly by bacterial action, plus the fact that much of the material would be removed with the sludge which is retained in the sludge pit.

4/4/74	IL	1 human hospitalized	2,4-D (amine) A 5- to 16-year-old youth experienced pesticide exposure in a home-related incident which was not detailed.
8/19/74	IL	1 human received medical attention	2,4-D (amine) In a home incident, a child under 5 years of age was poisoned by chemical.
12/21/74	WA	Crop damaged (12 acres), air contaminated	2,4-D An asparagus crop was damaged by aerial spray drift "under wind conditions." A violation was served.
08/27/74	ME	Humans affected; fish kill (6,000 dead, 90% salmon, eel, sucker, shiner, dace, pout, pickerel, bass, sunfish, chub), water, pipes, pump contaminated	2,4-D 2,4,5-T The fish kill resulted when a custom applicator applying the herbicide mixture to a railroad right-of-way inadvertently turned the wrong

valve, causing spillage of 5 - 10 gallons of the herbicides. The incident was reported by the chief engineer of the railroad company, who had been notified by the foreman of the crew involved. The accident occurred when the crew stopped at a lake outlet to take on water. A fish and game department was notified. By 5 p.m., the stream had turned milky and dying fish (young salmon) were in evidence. Some children waded in the stream picking up fish and thus were exposed to the chemicals. A water sample was taken at 8 p.m. about 200 yards downstream from the bridge on which the truck had stopped; laboratory analysis of the water showed 7.9 ppm 2,4-D and 5.9 ppm 2,4,5-T. The following day at noon, fish and water game personnel took a water sample from a pool of cloudy water in a depression in the bottom of the stream under the bridge. In collecting the samples, the individuals experienced burning sensations on their skin (thought to be caused by the emulsifier residues). Analysis of the sample showed it contained 245 ppm 2,4-D and 232 ppm 2,4,5-T. At 6 p.m. on the same day, an agriculture department officer sampled water 30 feet downstream and 50 feet upstream from the bridge; the downstream sample contained 0.79 ppm 2,4-D and 0.39 ppm 2,4,5-T and the upstream contained 2.0 ppb 2,4-D and 1.42 ppb 2,4,5-T. The fish were killed in the stretch of stream extending about 1/2 mile downstream from the bridge. Most of the fish were fingerlings. The stream was used as a domestic water supply by two area residents. One of these pumped contaminated water through his system prior to his being made aware of the spill. There existed the possibility that all pipes would have to be replaced. A licensing problem related to the crew foreman existed, and it was urged that a hearing be held to consider "faulty, careless or negligent application." The analytical results on the fish samples taken were not reported.

12/00/74

OR

Crop damaged

2,4-D

In an agricultural incident, 2 acres of crop land (variety unspecified) were damaged due to aerial spray drift from a nearby application. Grain was not damaged.

09/05/74	NJ	1 human received medical attention	2,4-D A truck driver was unloading a truck of 2,4-D (720 50-pound bags) and putting them in a warehouse (no bags were broken). He complained of nausea and was taken to a hospital where numerous tests and x-rays were made. An expectorant was administered. The illness could not be attributed to the pesticide.
09/22/74	OR	Numerous crops, trees, flowers, ornamentals, shrubs damaged (3 acres)	2,4-D Crops of 3 separate claimants were affected by chemical drift. All 3 properties contained crops, trees and shrubs that showed injury symptoms associated with exposure to a growth regulator herbicide. None of the vegetation was expected to die.
10/11/74	CA	1 human hospitalized	2,4-D Bromacil Petroleum distillates Pentachlorophenol A city employee hand-sprayed weeds with pesticide. He was wearing street clothes and the wind drifted spray onto his clothes, face and hands. He later felt dizzy, experienced numbness in his hands and felt nauseous. It was recommended that the work be done when it was not too windy and that the sprayer should have a longer nozzle.
10/25/74	AL	1 human received medical attention	2,4-D An adult was involved in an undescribed pesticide incident.
11/00/74	CA	1 human received medical attention	2,4-D (ester) 2,4,5-T (ester) Dicamba A gardener developed a rash after working on a lawn which had been treated with 2,4-D.

04/74	FL	Crop damaged (92 acres tomatoes), mixing tank contaminated	2,4-D Unknown chemicals	A tomato crop was sprayed aerially with chemicals. The mixing tank was contaminated with 2,4-D.
1/00/74-75	WA	1 human received medical attention	2,4-D	An individual claimed that he was physically impaired following a ground application of herbicides to the roadside abutting his property. Two physicians and one hospital did not associate his illness with the pesticide exposure (inhalation).
1/00/75	OR	3 humans received medical attention	2,4-D	Several members of a family complained of dizziness and nosebleeds, and one complained of an irregular menstrual cycle. It was their opinion that the described problems were caused by a 2,4-D exposure from a forest industry application. No residues of 2,4-D were found in the three urine samples.
00/00/75	CA	1 human received medical attention	2,4-D Dicamba (amine)	A bucket of the herbicides spilled on the front of a mixer/loader in an agriculture-related incident.
00/00/75	MT	Crop damaged (winter wheat)	2,4-D Picloram	A farmer discovered some short wheat and black spots on the heads, and attributed these symptoms to exposure to pesticide which had been sprayed on the wheat in the spring by a non-certified aerial applicator. No determination could be made as to the cause of damage.

02/00/75	AR	1 human hospitalized	<p>2,4-D</p> <p>A college student used a hatchet in his work applying 2,4-D. He reported that the solution splashed as it was applied. He was hospitalized with symptoms of kidney damage, blistered lips, weakness, and headache. The results of cholinesterase and urine tests were not available.</p>
02/18/75	CA	2 humans received medical attention	<p>2,4-D.</p> <p>Dalapon (sodium salt)</p> <p>Dicamba</p> <p>M CPP</p> <p>Dalapon (magnesium salt)</p> <p>Two agricultural employees developed a rash after mixing a weed killer for application. One employee became nauseous and sneezed while mixing. He developed extreme nose sensitivity, a rash on his hands, and "broke out" on his lips. The other employee experienced itching.</p>
03/05/75	CA	1 human affected	<p>2,4-D</p> <p>A 41-year-old male welder was struck on the forehead by a drop of pesticide material as he was attaching a spray tip onto a boom. The drop rolled into the inside corner of his eye; he wore safety glasses. The extent of the resulting discomfort, if any, was not reported. The use of a face shield was recommended.</p>
03/10/75	OR	Soil, road contaminated	<p>2,4-D (ester)</p> <p>2,4,5-T (ester)</p> <p>Two drums containing the herbicides fell from a flatbed truck and contaminated the roadside area. A stream 85 feet from the spill was not involved. The product was intended for use on a lumber company's private forest land. The contaminated soil was hauled away and the site was refilled with clay. There was a question regarding the registration of the product for the intended use.</p>

02/00/75	AR	1 human hospitalized	<p>2,4-D</p> <p>A college student used a hatchet in his work applying 2,4-D. He reported that the solution splashed as it was applied. He was hospitalized with symptoms of kidney damage, blistered lips, weakness, and headache. The results of cholinesterase and urine tests were not available.</p>
02/18/75	CA	2 humans received medical attention	<p>2,4-D Dalapon (sodium salt) Dicamba M CPP Dalapon (magnesium salt)</p> <p>Two agricultural employees developed a rash after mixing a weed killer for application. One employee became nauseous and sneezed while mixing. He developed extreme nose sensitivity, a rash on his hands, and "broke out" on his lips. The other employee experienced itching.</p>
03/05/75	CA	1 human affected	<p>2,4-D</p> <p>A 41-year-old male welder was struck on the forehead by a drop of pesticide material as he was attaching a spray tip onto a boom. The drop rolled into the inside corner of his eye; he wore safety glasses. The extent of the resulting discomfort, if any, was not reported. The use of a face shield was recommended.</p>
03/10/75	OR	Soil, road contaminated	<p>2,4-D (ester) 2,4,5-T (ester)</p> <p>Two drums containing the herbicides fell from a flatbed truck and contaminated the roadside area. A stream 85 feet from the spill was not involved. The product was intended for use on a lumber company's private forest land. The contaminated soil was hauled away and the site was refilled with clay. There was a question regarding the registration of the product for the intended use.</p>

IL 1 human received
 medical attention

2,4-D (salt)

A youth (5 - 16 years of age) was exposed to the herbicide in cartridge form in a home-related incident.

OR Water
 contaminated

2,4-D
2,4,5-T

The herbicides were aerially applied to private timber company land while snow was on the ground. Residents using water from the creek which drained the treated area detected odors and unusual tastes in their domestic water. A water sample taken from a tap in one home on 3/31 showed 0.0003 ppm each of 2,4,5-T and 2,4-D. Samples taken on 4/1 at the same site showed 0.0002 ppm each. No aftereffects were reported. The residents were assured that water containing those levels would not reduce or stop egg laying by chickens, nor would it adversely effect shrubs or other plants.

1/75

VA Unspecified

2,4-D
2,4,5-T
Lindane
Carbaryl
Dicamba
DOT

An industrial warehouse fire (cause unknown) destroyed a building formerly used by a car dealership which, at the time of the fire, was used by USDA as a storage facility for vehicles and pesticides. Reportedly, there were no injuries or water problems. Debris disposal plans were not reported.

04/03/75

NC Crop affected
 (tobacco)

2,4-D

A tobacco crop was affected by a ground application of 2,4-D dust. Three plant and soil samples were taken in tandem. The results were as follows: sample 1 - 0.083 and 2.080 ppm 2,4-D; sample 2 - 0.172 and 6.990 ppm 2,4-D; and sample 3 - 0.000 and 0.008 ppm 2,4-D. A sample of ferbam dust, which was suspected of being cross-contaminated with 2,4-D, was analyzed; no contamination was found.

5/75

FL

Crops, home gardens damaged (peas, tomatoes, beans, turnips, trees, blackberries, weeds), soil contaminated

2,4-D (amine)

Grazing pastures at a dairy farm were aerially sprayed with herbicide on the morning of 4/5. According to the dairy farm supervisor, a 10 - 12 mph wind was blowing from the west-northwest when two planes sprayed herbicide at a rate of 1 pint/10 or 20 gal water/acre. Measures taken to reduce the possibility of spray drift included an anti-drift additive in the spray mix and the use of flagmen to indicate flight lines and cut-off points; pilots were instructed to leave a 300-yard untreated margin within the farm borders. Three farmers living adjacent to the sprayed area reported damage to home and commercial vegetable gardens beginning 1 - 2 weeks after the spraying. All three farmers reported that the spray planes flew over their land at times; only in one case did the planes fly directly over the areas which later displayed damage. None of the farmers reported seeing spray released from the planes while flying over their lands. Plant damage included curling or drawing up of young leaves and shoots of vegetable plants, blackberries, trees, and weeds. All three farmers stated that they expected to lose most of the vegetables from damaged gardens and fields. Losses had occurred the previous year when aerial applicators directly sprayed gardens and fields on the three farms while treating the same dairy farm. A state extension official examined pea and tomato samples submitted on 4/23, and identified phenoxy herbicide damage characterized by strap leaves and parallel veins. On 5/1, soil and plant samples were collected from the three affected farms, along with a documentary sample of the herbicide used on the dairy farm. Results of analyses were not reported.

04/11/75

CA

1 human received medical attention

2,4-D (amine)

A flagman developed a reaction to poison oak in an agricultural incident. Due to the fact that he was working around pesticides, his physician filed a pesticide illness report.

6 A	Crop damaged (cotton)	2,4-D	Damage to a 5-acre cotton crop was attributed to the aerial spraying of herbicide on a cornfield located 300 yards away. The complaint was later determined to be unjustified.	ural am-
6 A	Crop damaged (7 acres cotton)	2,4-D	Damage to 7 acres of cotton was attributed to the aerial spraying of herbicide on a cornfield located approximately 400 yards away. The complaint was later determined to be unjustified.	iced ibed
0 H	Trees, ornamental plants affected (6 buckeye trees, 6 flowers)	2,4-D (amine)	Six buckeye trees and six undescribed flowering ornamentals at a residence were affected by a ground application of herbicide.	way pray acco of
0 R	Well water contaminated	2,4-D	A homeowner spilled 2,4-D in his well while mixing spray. Analysis of the well water indicated 0.1 ppm 2,4-D. Since the man's wife was pregnant, it was recommended that the well be flushed by pumping and that the woman drink bottled water for 3 - 4 weeks.	hree d as e.
T X	Ornamental plants, trees (19 ornamentals, Arizona ash, willows, mimosa, cottonwood, peach, pear, roses), home vegetable garden damaged	2,4-D	A city made a ground application of herbicide to a drainage area for weed control. The herbicide volatilized and damaged gardens and trees at a number of residences in the vicinity.	It of icide ome

75

MT

Trees, ornamentals, home garden affected (approximately 50 ash, 30 poplar, 15 birch, 30 pine and spruce, lilac bushes, various garden plants)

2,4-D (ester)
2,4,5-TP (ester)
2,4,5-T (ester)

Warm weather and gusty breezes carried spray drift throughout a section of a town causing 31 home owners to complain of plant damage. The city parks and recreation department of the town ground-sprayed a butyl ester on park trees and the drift resulted. A licensed applicator did the spraying.

11/75

MT

Ornamental trees, home gardens damaged

2,4-D

Twenty-five property owners reported damage to home gardens and trees as a result of drift from an application of herbicide by a licensed aerial applicator. Many plant and tree species were involved. One property owner attributed the incident to negligence, and reported damage to fruit trees, green ash, cottonwood, American and Siberian elm, and blue spruce trees.

16/00/75

MT

Crop damaged (1-1½ acres seed potatoes)

2,4-D
Picloram

A farmer noticed chemical damage on a 1- to 1½-acre seed potato crop shortly after emergence. Additional damage was noted throughout the growing season and was attributed to drift from an application of 2,4-D-picloram mixture. Soil samples and potato plants were analyzed by thin layer chromatography with a sensitivity of less than 1.0 ppm. Results were negative for 2,4-D and picloram in the soil and plants; the potatoes were not analyzed.

06/00/75

WA

1 human received medical attention

2,4-D
Thiram
PMA

A 77-year-old man hand-applied a homemade mixture of pesticide and fertilizer to his lawn. He developed severe toxicodermatitis. Appar

ently, dust from the mixture fell on the individual's hands and face. No thiram residue was detected in a urine sample submitted 10 days later. The man reportedly was making a full recovery.

06/00/75	AR	Crop damaged (16 acres cotton)	2,4-D A farmer experienced a reduction in yield from his 16-acre cotton crop after nearby rice growers applied herbicide (ground and aerial applications) to their crops. When damage to cotton plants was first noted, plants were inspected by a county agent. Both the agent and the farmer expected the cotton crop to grow out of the damage. However, only $\frac{1}{2}$ bale/acre was produced in 1975, in contrast to a normal yield of 1 - $1\frac{1}{2}$ bales/acre. The farmer also reported that a similar situation had occurred after spraying in 1974, when $\frac{1}{2}$ bale/acre was produced.
06/01/75	CA	1 human received medical attention	2,4-D (ester) 2,4,5-TP (ester) Chlordane In an agricultural incident, a 47-year-old male pest control operator inhaled the chemical while spraying crabgrass. He used hand equipment and failed to wear a mask which was available to him but was not required safety equipment. The subject had worked several years as a gardener for the company and had never been involved in any problem of this nature.
06/01/75	OH	Ornamental plants damaged (taxus, spruce)	2,4-D (amine) Dicamba In a home incident, ornamental plants were affected by a ground application of herbicides.
06/02/75	OR	Well water contaminated	2,4-D A homeowner spilled herbicide adjacent to his well. Water analysis indicated 0.1 ppm 2,4-D. It was recommended that before using the water, it be pumped dry and allowed to refill.

06/05/75	GA	Crop affected (200 Better Boy tomato plants), ornamental plants affected (300 petunias, 200 assorted house plants)	2,4-D (ester)	A hand application of herbicide affected approximately 700 plants at a commercial nursery.
06/05/75	GA	Crop affected (12 acres cotton)	2,4-D	Three cotton fields of 3, 4 and 5 acres were affected by an aerial application of herbicide.
06/05/75	GA	Crop damaged (12 acres cotton)	2,4-D (ester)	An 8-acre field was severely affected by an aerial application of herbicide. A 4-acre field displayed slight damage at one end.
06/05/75	OH	Ornamental trees (1 flowering almond, 1 flowering plum), turf affected	2,4-D (amine) MCPP Dicamba	In a home incident, two ornamental trees and turf were affected by a hand application of herbicide by a non-certified applicator.
06/06/75	OH	Home vegetable garden, ornamental plants affected (flowers)	2,4-D (amine) 2,4,5-T	This incident involved effects to ornamental and garden plants following the home use of the herbicide (ground application).
06/08/75	OR	Ornamental trees damaged (313 Chinese elm, 7 locust, 2 weeping willow)	2,4-D (amine)	A rye field was aeriially sprayed for weed control on a windy day using 4 lb/gal herbicide applied at a rate of 1 pt/acre. Spray drift damaged 321 ornamental trees planted along a

fence row and near the house on a neighbor's ranch. Most damage was medium or severe, although some light damage was also noted.

06/10/75

OR

Crop, trees affected (1½ acres alfalfa, 2 apricot trees)

2,4-D
Dicamba

In an agricultural incident, 2 apricot trees and approximately 1½ acres of poor quality, dry-land alfalfa forage were affected by drift from an aerial application of herbicide for control of Mediterranean sage in a grain field.

06/16/75

WY

1 human hospitalized, crop affected (1/10 acre wheat), soil contaminated

2,4-D

An applicator aircraft crashed with 65 gallons of solution in the bulk tank; 500 gallons had been mixed and transported. The crashed plane was removed the same day. It is unknown if the pilot was transporting or spraying when the crash occurred. The pilot was hospitalized. Soil and a wheat crop, presumably at the crash site, were contaminated or affected as a result of the crash.

06/18/75

CO

Crop affected (4½ acres alfalfa), home vegetable garden affected (12 - 15 tomato plants, 12 - 15 pepper plants), ornamental plants, trees affected (20 - 25 Jewish artichokes, 3 - 4 Russian olives)

2,4-D

An 80-acre wheat field was aerially sprayed with a herbicide (believed to be 2,4-D) on a windy day, as reported by a resident on neighboring land. Spray drift landed on the neighbor's crops, home vegetable garden, and ornamentals. The neighbor stated that the pilot flew too close to her house and was careless in his application.

5/20/75	FL	Crops damaged (3/4 acre peas, corn, butterbeans, okra, tomatoes, watermelon, cucum- bers, Irish potatoes)	2,4-D (ester) Bromacil Pentachlorophenol Petroleum distillate	<p>A city agency hand-sprayed a hedgerow (non-certified applicator) located approximately 10 yards north of a 3/4-acre vegetable garden. The affected crops were in a low-lying area. Due to a recent abundance of rain, a herbicide wash was considered possible. Some plants were killed; other details of the damage were not reported. The damaged crops included 15 rows of corn, 5 rows of butterbeans, 4 rows of okra, 4 rows of tomatoes, 3 rows of watermelons, 2 rows of cucumbers, and 2 rows of Irish potatoes. Samples were collected for analysis; results were unavailable.</p>
6/21/75	MT	Crop damaged (alfalfa hay)	2,4-D	<p>Growing alfalfa hay was damaged by drift from an aerial application of herbicide to a neighbor's grain field. The alfalfa owner stated that initially the damage appeared to be severe (in hot sunshine), but that after subsequent cool weather and considerable rain, it appeared that the damage would not be permanent. The owner expected some yield reduction on the first cutting. She stated an opinion that the aerial applicator had demonstrated some negligence or faulty judgement regarding speed and direction of wind.</p>
6/25/75	NM	Home garden damaged	2,4-D	<p>Okra in a home garden was damaged by drift from an agricultural (aerial) application of herbicide.</p>
6/27/75	CO	Ornamental trees damaged (elm, Rus- sian olive, fruit trees)	2,4-D	<p>In an agricultural incident, a wheat field 200 yards north and adjacent to a neighbor's property was aerially sprayed in "quite windy" weather. Herbicide drift landed on the neighbor's ornamental trees, causing leaf damage.</p>

7/75

TX

Home vegetable garden damaged (tomatoes), trees damaged (4 oak)

2,4-D

A woman reported that agricultural herbicide spraying was killing home gardens. Tomatoes were the first plant to exhibit damage; two 20-foot rows were reportedly affected. The woman also reported that owners of grave plots in a cemetery which she managed were using herbicide to kill weeds on grave sites, resulting in damage to nearby trees. Four large oak trees were affected.

7/00/75

ID

Crop damaged (70 acres potatoes), trees damaged

2,4-D (amine)

Aerial applicators sprayed grain fields on two or three occasions for weed control with 1½ pt 2,4-D/acre, diluted with water (foam was also used). The applicator's records indicated that the wind was calm. Label instructions were reported to have been followed during application. A neighbor reported that a slight breeze caused spray to drift across the road onto his 70-acre potato crop. He stated that growth ceased and that leaves turned yellow and curled; the crop remained in this condition for approximately 3 weeks. Due to the damage and to a "late spring," the farmer expected total loss of yield. The potato field was inspected and/or plant samples were examined by several agricultural experts during the period of 7/14-21. Drift from 2,4-D was determined to have passed over the affected property, as evidenced by browning and dessication on the east side of several trees. Herbicide symptoms were identified on volunteer potato plants which had emerged from the previous year's tubers; these effects were presumed to be due to a prior herbicide application in 1974. No 2,4-D effects were found on 1975-planted potatoes, although all plants displayed damage. The damage was attributed to a stress condition involving late planting weather conditions, lack of irrigation, lack of nitrogen fertilizer, overgrowth of weeds, and failure to rotate crops. A 60% loss of yield was predicted. Some inspectors reported having seen similar symptoms in other fields throughout the area; in these cases, no cause of damage could be determined although

herbicide exposure was ruled out. The owner of the treated grain fields stated that the neighbor's potato plants had not yet emerged at the time of application; lack of herbicide symptoms on the 1975 plants seemed to support this statement.

7/01/75

LA

Pasture
damaged

2,4-D
2,4,5-T
Picloram

A property owner reported that a helicopter flew over his pasture while spraying a power line right-of-way. A hard rain was reported to have fallen between the morning of application (7/1) and the first morning of investigation (7/2). A strip of dead vegetation about 130 yards long and averaging 8 yards wide was found in an investigation on 7/7. One of the soil samples contained 111 ppb picloram. The other sample was negative for the other pesticides. The herbicide was reported to have been mixed and applied according to label instructions. The aerial applicator stated that a slight gust of wind could have easily and unavoidably caused spray drift into the adjacent pasture. Contrary to the applicator's statement that he flew only within the right-of-way area, the pasture owner stated that the applicator flew a swath 11 - 12 yards inside of his pasture fence, spraying as he did so.

7/02/75

OH

Crop affected
(soybeans)

2,4-D
Atrazine
Paraquat

Fifteen acres of soybeans were affected by a ground application of herbicides to a railroad right-of-way.

7/04/75

MT

Ornamental plants
(numerous trees,
shrubs, flowers),
home gardens
damaged

2,4-D
+ unknown insecticide

Hundreds of ornamental trees and plants in home gardens were reported to have been killed or damaged when a licensed aerial applicator sprayed for mosquito control using spray tanks which had not been cleaned after prior herbicide use. The citizen who made the report attributed the incident to negligence.

1/01/75	MT	Crop damaged (sugar beets)	2,4-D	While spraying corn with herbicide, a licensed aerial applicator made turns over an adjacent sugar beet field. A leaking nozzle caused damage to narrow strips of beets over 4 - 6 acres. A settlement was expected to be made with the owner at harvest time.
1/13/75	MT	Crop damaged (wheat)	2,4-D	An aerial applicator failed to get the proper mix when he diluted 2,4-D emulsifiable concentrate in 225 gallons of water in preparation for a weed-control application to wheat fields. As a result, the first passes made by the plane contained almost 100% herbicide, while the later passes contained almost none. Approximately 300 acres of wheat displayed herbicide damage. Areas of the field which remained weedy because of too little herbicide were expected to yield less grain than the damaged portions.
1/15/75	OH	Fruit orchard, ornamental trees affected	2,4-D (amine)	In a home incident, shade trees and a fruit orchard were affected by a ground application of herbicide emulsifiable concentrate.
1/16/75	OR	Home garden, trees damaged (1 pear, 2 locust, 3 willow trees, 1/10 acre comfrey, grapes)	2,4-D	Drift from an aerial application of herbicide to barley fields caused slight damage to a home garden.
1/23/75	OH	Crops damaged (alfalfa, clover)	2,4-D 2,4,5-T	This incident involved unspecified damage to an alfalfa crop following an aerial application of the herbicide to an adjacent field for weed control. Spray drifted directly over 3 - 4 acres killing some of the plants. Clover also was damaged or killed.

07/28/75	ID	1 human received medical attention	2,4-D	A spray rig operator worked for 2 months spraying roadsides and farms until a rash appeared first on one arm, then the other, and then on part of his body; his right eye became involved. This occurred within a 24-hour period. Treatment details, if any, were not reported.
07/28/75	ID	1 human received medical attention	2,4-D	A spray rig operator wore the same boots for a year as he worked. His first symptoms were a temperature and a headache (7/28/75). In 3 days, he developed slight tremors, difficulty in breathing and a rash. He was examined by a physician (7/31) who prescribed topical ointments and powder for his feet. At last contact he had discarded the boots and was working again.
07/28/75	OH	Soil contaminated	2,4-D Dicamba MCPP Chlorpyrifos	Soil contamination resulted from a highway accident in an undescribed transportation incident.
08/13/75	OH	Ornamental trees affected (maples)	2,4-D (amine) Atrazine	Twenty-five maple trees were affected by a ground application (agricultural) of herbicide.
08/19/75	CA	1 human received medical attention	2,4-D	An industrial employee was spraying broadleaf weeds with the herbicide when the wind changed and spray was blown into his face.
08/27/75	UT	1 human received medical attention	2,4-D	A child between 5 and 16 years of age was orally exposed to herbicide in an undescribed incident. A hospital emergency room called a poison control center. When follow-up at

tempts were made, no documentation of a pesticide poisoning could be found in hospital records.

9/10/75	AZ	1 human received medical attention	2,4-D In a home-related incident, a hose failed during spraying and the herbicide was sprayed into a maintenance worker's eyes and onto his face.
9/29/75	CA	1 human received medical attention	2,4-D A 44-year-old man got spray in his left eye as he "spot sprayed" morning glories around a lemon crop (ground application) for 8 hours. The dilution rate of the herbicide was 1/3 qt/100 gal. He did not wear a face shield or respirator, which were provided, but not required by the product label. The diagnosis of the eye problem was mild chemical conjunctivitis for which eye drops were administered.
10/06/75	CA	1 human received medical attention	2,4-D A parcel service clerk was working in the damaged parcel area and was handling 2,4-D in undescribed circumstances when he developed nausea, wheezing, and a headache after he inhaled 2,4-D vapors.
10/17/75	OH	Water, roadside contaminated	2,4-D M CPP Dicamba In a transportation incident, a highway accident resulted in a herbicide spill. Heavy rainfall and a washdown of the area by a fire department diluted the spill enough that no obvious environmental damage resulted.
10/27/75	CA	1 human received medical attention	2,4-D (amine) Dicamba (amine) M CPP An industrial employee walked through wet grass after he had sprayed it with the chemicals (ground application). His shoes and trouser legs became wet. He developed red, raised

and swollen dermatitis involving his right leg and foot, and areas of his right thigh and both hands.

1/29/75

M N

Building, water
contaminated

2,4-D
+ 15 others

A pesticide storage warehouse was destroyed by fire caused by an overheated stove. Some of the products, including 300 gallons 2,4-D from an inventory total of 500 gallons, were considered salvageable. Plans were made for the orderly disposal of damaged pesticides and of lime used to absorb fire runoff water around the building. The total building inventory included 16 pesticides and a foam spray adjuvant.

1/00/76

ID

1 human received
medical attention

2,4-D

An individual worked 8 - 10 hours per day from May through August mixing herbicides and fertilizers. His estimated use was 800 - 900 gallons of mixed chemicals per day. After two months, the man began to experience chest pains. He requested a cholinesterase test. Results of the test (performed by an EPA project) were not reported. A serum 2,4-D level was also planned.

1/17/76

C A

1 human received
medical attention

2,4-D

A country club gardener got 2,4-D in his eye as he was hand-spraying. A physician diagnosed the resulting problem as mild infection of the conjunctiva.

1/27/76

C A

1 human received
medical attention,
water contaminated

2,4-D
2,4,5-T
Petroleum distillate

Two thousand gallons of the herbicide mixture from an overturned truck were spilled. "Some" contamination of a nearby river occurred, to which the Coast Guard was alerted.

12/75	CA	1 human received medical attention	2,4-D 2,4,5-TP Dicamba A gardener inhaled herbicide fumes while he was hand-spraying. A physician's diagnosis was mild chlorinated hydrocarbons inhalation.
1/12/76	WA	3 humans affected, water contaminated	2,4-D 2,4,5-T Oil Three or more children experienced gastro-intestinal problems on an Indian reservation after a federal agency sprayed near the area. A tribe representative stated the water supply was contaminated when the herbicides were sprayed by helicopter over lands adjacent to the stream. Water samples were analyzed and 14.0 ppb 2,4,5-T were detected in two samples. Other samples showed no greater than 10.0 ppb.
1/19/76	OR	Roadway, vehicle contaminated	2,4-D Four 5-gallon cans of liquid herbicide leaked while being transported in a truck. One additional can fell off the truck onto the roadway, spilling its contents. Clean-up operations were uneventful.
3/02/76	MN	Soil, water contaminated	2,4-D Atrazine Dicamba 2,4-DB Bentazon Chloramben A fire at an agricultural warehouse containing herbicides resulted in suspected runoff contamination of a drainage ditch. The fire area was cleaned; debris was diked with lime and covered with plastic.
3/05/76	OR	Plants damaged, water, roadway, vehicle contaminated	2,4-D 2,4,5-T Oil At 10/25 p.m. a tanker truck overturned on a highway and a spill of 2,000 gallons of the herbicide solution occurred near a river. The

Coast Guard notified an EPA regional office. The herbicide was to be used for spraying forest land of a paper company. Approximately 1 acre of creekside growth (general broadleaf plant life) was affected.

8/76

TX

Humans affected

2,4-D (ester)
Monuron trichloroacetate
Petroleum distillate

Several adults inhaled a herbicide which contained 2.4% 2,4-D and 5% monuron trichloroacetate. No symptoms or treatment were reported for this undescribed incident.

09/76

CA

1 human received
medical attention

2,4-D

A golf course gardener took off a sprayer nozzle during his work to clear it of clogging and the spray hit him in the face. An examination by a physician revealed no sign of eye damage, slight irritation of his forehead and cheek, slight pain and irritation of upper and lower lips; heart and lungs were normal. The treatment included exam, x-ray and Neosporin.

11/3/76

NO

71 bee colonies
moderately
damaged

2,4-D

A herbicide application to weeds in an adjoining alfalfa field resulted in moderate damage to 71 bee colonies valued at \$532.50.

11/6/76

CA

1 human received
medical attention

2,4-D
2-Phenylethanol

A 41-year-old lemon grader developed atopic dermatitis (generalized) which she felt was caused by the chemicals with which the fruit was treated. The employer reported that all graders were required to wear rubber gloves and did not come in direct contact with any chemical materials. An injection of ACTA 406, and Aristocort 40 were administered.

11/18/76

CA

1 human received
medical attention

2,4-D

A bystander was exposed to drift from an industrial site. He was taken to a hospital emergency room, examined, advised and released.

3/19/76	TX	Crop damaged (tomatoes)	2,4-D	A 35-acre tomato crop was affected by drift from an undescribed 2,4-D application. A plant pathologist noted herbicide symptoms on the plants; damage was not expected to be permanent.
3/25/76	TX	Soil, water contaminated	2,4-D (amine) M CPP Dicamba (amine)	A pest control operator drove into a restaurant parking lot while off duty. A hose broke on a spray tank, releasing herbicide onto the parking lot; the chemical was washed into a culvert which flowed into a nearby creek. The flow was stopped. As the herbicide was heavily diluted, no adverse effects resulted from the spill.
3/30/76	CA	1 human received medical attention	2,4-D Dicamba (amine)	A 20-year-old city maintenance employee was spraying highway medians with a hand sprayer (4 - 6 tsp/1,000 sq ft). He sprayed for approximately 2 hours wearing protective gear, including waterproof clothing and a respirator, which were not required by the product label. The following morning a slight rash appeared on his cheek. The diagnosis of the rash was chemical dermatitis and Mycolog cream was administered. (Because of employee unions and compensation pressures and possible litigation, this particular city office suspended all use of chemical spraying.)
4/05/76	OR	4 humans affected, crash site contaminated	2,4-D (ester) 2,4,5-TP (ester)	A helicopter became caught in brush as it lifted, and the pilot (a certified applicator), who was experiencing his second crash in the season, dumped the load of 2,4,5-TP and 2,4-D onto four people in the ground crew. No medical follow-up information was reported.

4/05/76	OR	2 humans affected (fabrication)	2,4-D 2,4,5-T 011	Tree planters were working in a forest which had been sprayed with the herbicide mixture. One man developed abdominal cramps and nausea. The two men ceased working for the timber company which had had the spraying done. Grievances for both individuals were filed against the company and complaints to a state office and the forestry service. The incident was reported too late for samples to be taken. A follow-up investigation determined that the incident was fabricated by the individuals "to vent their dissatisfaction."
4/13/76	WA	1 human received medical attention	2,4-D	Drift from an aerial application of the technical chemical for a right-of-way was suspected of resulting in a respiratory ailment.
4/19/76	WA	Crop affected (wheat)	2,4-D	Misapplication of herbicide by an aerial applicator affected 30 - 35 acres of wheat.
4/22/76	OR	6 humans affected, water, vehicle contaminated, orchard affected	2,4-D (amine) 2,4,5-T	A mountainside area of private homes was aerially sprayed for several days during herbicide applications for one property owner. One woman and a number of children were sprayed while in a car. A spring which supplies water to several farm homes was contaminated by spray drift as was the residential and orchard area. Cherry trees and some forest foliage exhibited a wilted appearance. Maple trees along the county road, well off the sprayed property, showed definite signs of phenoxy herbicide damage. Samples taken on 6/30/76 revealed 2,4-D residue in foliage along the spring at 0.22 ppm and in the cherry foliage at 0.11 ppm. No pesticide was detected in the water. Follow-up samples on 7/22/76 showed 2,4-D present in seven out of eight foliage samples from the area. Foliage 100 feet from

the spring had 0.6 ppm and leaves directly over the spring showed 0.1 ppm 2,4-D. Noted was that no 2,4,5-T residual was found in any of the samples. There was "nothing to indicate spraying directly over the spring." Enforcement of misuse was recommended as people were sprayed in the car and drift contaminated private property.

6

FL

1 human
hospitalized

2,4-D
Carbaryl

A mixer/loader-ground spray rig operator developed an unspecified illness which involved dermal contact with the pesticides in an unidentified manner.

76

IL

1 human received
medical attention

2,4-D

An 18-month-old girl ingested an unknown amount of a weed killer. She was successfully treated with ipecac syrup. She remained asymptomatic. The location of the incident was not reported.

76

CA

1 human received
medical attention

2,4-D (ester)
Bromacil
PCP
Petroleum distillate

A maintenance worker was exposed to weed killer which had been sprayed on roots and the ground about the trees. His specific job was to pull roots and toss them into a truck. He did not wear gloves and used his hands to wipe his back. Within 24 hours he developed an itching on the back of his neck which was diagnosed as dermatitis venenata.

1/76

MN

Well water
contaminated

2,4-D

In an undescribed agricultural incident, a private well was contaminated with herbicide by back-siphoning.

09/76	TX	Crop damaged (250 acres cotton)	2,4-D	A cotton crop displayed slight phenoxy herbicide effects over the entire field after a pasture 3½ miles away was aerially treated.
10/76	WA	Crop damaged (sugar beets)	2,4-D	A sugar beet crop was damaged by herbicide when an adjoining wheat field was aerially sprayed. An insurance settlement was made.
10/76	WA	Ornamental plants, flowers damaged	2,4-D	In an agricultural incident, aerial spraying of herbicide took place during an inversion. Spray drift damaged unspecified ornamentals. A warning letter was sent to the applicator.
11/76	CA	1 human received medical attention	2,4-D (amine)	A construction maintenance worker's eyes were exposed to the pesticide while he was spraying a drainage canal.
11/76	WA	Crop affected (sugar beets)	2,4-D	Spray drift from an aerial application of herbicide affected a sugar beet crop.
12/76	WA	Crop affected (beets)	2,4-D	Spray drift from an aerial application of herbicide affected a beet crop.
13/76	WA	Crop affected (grapes)	2,4-D	Spray drift from an aerial application of herbicide affected a grape crop.

1/03/76

NV

1 human affected,
crop damaged
(alfalfa hay),
rangeland affected
(sagebrush, grease-
wood, Russian
thistle), water
contaminated

2,4-D (ester)

During an aerial application of 2,4-D ester on barley, the hose running from the plane's hopper to the pump became loose, spilling the herbicide. The hopper contained approximately 150 gallons of liquid of which 10 gallons was 2,4-D. The pilot hit the dump lever and climbed to an elevation of 500 feet while the hopper emptied out. The plane was flying in a north-south direction. Wind speed was 2 - 3 miles per hour out of the east. Part of the dump took place over a 15-year-old stand of alfalfa hay and an irrigation ditch. Approximately 1½ acres of alfalfa hay to the immediate east and west of the plane's flight path exhibited herbicide damage. The owner stated that he planned to plow the alfalfa under. The irrigation ditch flowed eastward into a wheat field and a pasture; neither of these fields was damaged by the herbicide. The remainder of the load was dumped on rangeland, which exhibited no damage. A human was reportedly affected; no details of the exposure were reported.

1/05/76

WA

Ornamental plants
affected

2,4-D

Spray drift from an aerial application of herbicide on an agricultural site affected unspecified ornamental plants in a private residential yard.

1/05/76

TX

Crop damaged
(350 pecan trees)

2,4-D (amine)

In an agricultural incident, pecan trees were affected by an aerial application of herbicide on a nearby area. Severe effects were noted on 150 trees closest to the treated area.

1/17/76	WA	Crop affected (lentils)	<p>2,4-D MCPA MCPA (ester) Bromoxynil</p> <p>An aerial application service sprayed a wheat field with a herbicide mixture and an adjacent field of lentils was damaged.</p>
1/18/76	UT	1 human hospitalized	<p>2,4-D (ester) 2,4,5-TP (ester)</p> <p>In a home-related incident, a 4-year-old boy drank an unknown volume of a liquid weed killer containing the chemical. Standard laboratory tests showed normal. The clinical diagnosis was exposure to the pesticide.</p>
1/18/76	WA	Yard plants damaged	<p>2,4-D (amine) MCPA (ester) Bromoxynil</p> <p>Plants in a residential yard displayed wilting and curling as a result of a neighbor's application of herbicide.</p>
1/21/76	WA	Yard, trees damaged	<p>2,4-D</p> <p>Spray drift from an aerial application of herbicide damaged a residential yard and trees.</p>
1/21/76	WA	Crop damaged (grape)	<p>2,4-D</p> <p>A vineyard was severely damaged by a herbicide drift from an aerial application.</p>
1/25/76	WA	Yard plants affected	<p>2,4-D</p> <p>A residential yard was affected by herbicide drift from an undescribed application.</p>
1/27/76	WA	Yard affected	<p>2,4-D</p> <p>In an agricultural incident, a yard was affected by herbicide drift from an undescribed application.</p>

11/76	WA	Ornamental plants damaged	2,4-D	Herbicide spray from a ground application drifted into a cemetery, damaging ornamental plants. The applicator was cautioned about drift.
11/76	MI	1 human hospitalized	2,4-D 2,4,5-TP	A 69-year-old man hand-sprayed his lawn with the herbicide over a 2-day period. He developed numbness of the mouth and tongue followed by extreme soreness with difficulty in swallowing. He consulted his physician 4 days after the last spraying and was hospitalized 6 days later. The tongue was coated with a thick membrane and the pharynx had a thick coating of dried mucoid material. While hospitalized, he was treated with antibiotics in view of the presence of coagulase positive staphylococci in a culture. The reaction of the tongue and floor of the mouth proceeded to the point of necrosis involving the anterior one-third to one-half of the tongue. A medical history revealed an intensive course of radiation therapy to the oral cavity (cobalt - 60 therapy for a carcinoma of the tonsillar area), pharynx, and throat in 1972, after which the man had also experienced significant reactions necessitating hospitalization. It was impossible to determine the extent of pesticide involvement in this episode.
11/76	MO	7 humans affected; 2 received medical attention, home gardens damaged (14 100' rows bush beans, strawberries, corn; 0.75 acre unspecified plants)	2,4-D	Five families, 16 people, had conflicting stories of the incident. An aerial applicator was said to be the cause of reported damage to plant life in gardens. Results of tests of water and garden samples were negative for pesticides. The time span between date of application and date of sampling was con-

sidered a possible reason for the negative test results. The symptoms of the humans involved were not described.

1/01/76	WA	Crop damaged (clover seed)	2,4-D Herbicide mistakenly was aerially applied to cloverseed in an agricultural incident.
1/01/76	WA	Crops damaged (wheat, alfalfa, hay)	2,4-D A wheat field was aerially sprayed with herbicide. Spray drift produced symptoms in a nearby alfalfa hay field.
1/01/76	WA	Plants affected (ornamentals)	2,4-D (amine) In an undescribed agricultural incident, herbicide was applied in a hazardous manner, resulting in plant damage. The applicator was sent a letter of warning.
1/01/76	WA	Yard plants damaged	2,4-D Yard plants in an unspecified location were slightly damaged by herbicide drift from an aerial application.
1/04/76	UT	1 human affected	2,4-D 2,4,5-TP In a home incident, a child between 5 and 16 years of age remained asymptomatic after the ingestion of part of a dandelion treated with herbicide.
1/04/76	WA	Crop affected (alfalfa)	2,4-D A governmental agency ground-sprayed a drainage ditch with herbicide. Spray drift affected a nearby alfalfa crop.

5/05/76	OK	Crop damaged (165 acres mung beans)	2,4-D Growth regulator herbicide symptoms in mung bean fields were suspected to have resulted from spray drift from an aerial application to adjacent fields. Administrative action involving regulatory violations was instituted.
5/05/76	OK	Crop damaged (11 acres alfalfa)	2,4-D Drift from an aerial application of herbicide to an adjacent field was suspected of resulting in hormone-type herbicide symptoms in alfalfa.
5/06/76	OK	Crop damaged (mung beans)	2,4-D An aerial application of herbicide to a nearby field was suspected of causing growth regulator herbicide symptoms in mung beans. Administrative action involving regulatory violations was initiated.
5/07/76	UT	1 human affected	2,4-D (ester) 2,4,5-TP (ester) In an undescribed home-related incident, an adult was dermally exposed to the chemical. The subject remained asymptomatic.
5/08/76	UT	1 human affected	2,4-D Dicamba - A child less than 5 years old experienced dermal exposure in a home-related pesticide incident. The circumstances of the exposure were not detailed.

08/76	OK	Pasture damaged (35 acres), home garden damaged (1/2 acre blackberries, 1 acre vegetables), trees damaged (1 apple, 1 English walnut)	2,4-D	Drift from an aerial application to a neighbor's property was suspected of causing hormone-like herbicide symptoms on home garden, berry, and pasture forage plants as well as fruit and nut trees. Administrative action involving regulatory violations was initiated.
09/76	MT	Ornamental trees damaged (ash, caragana)	2,4-D	In an agricultural incident, it could not be determined whether slight damage to ornamental trees was caused by herbicide or by leaf roller insects.
10/76	WA	Crop damaged (seed peas)	2,4-D	Herbicide drift damaged a seed pea crop in an undescribed agricultural incident.
10/76	MT	Home vegetable gardens affected	2,4-D	Home vegetable gardens were affected when an aerial applicator shut off the herbicide spray and turned in flight over a small town while spraying a strip directly south of the town.
12/76	OR	1 human affected, ornamentals, trees affected	2,4-D 2,4,5-T	Approximately 948 feet of rose hedge and apple trees were damaged along a private driveway to a residence. The driveway is adjacent to a tree farm to which the herbicide was applied by ground rig. The home owner also complained of sore nostrils. She stated that she handled blooms before realizing they had been sprayed.

15/76

TX

Home garden
damaged (½ acre,
okra, tomatoes,
beans, peas, sweet
potatoes, collards,
corn)

2,4-D

The herbicide was aerially applied to a pasture. All the plants in a home vegetable garden showed slight effects. It was not definite the damage was due to herbicides.

15/76

AR

Ornamental tree
damaged (tulip
tree), soil
contaminated

2,4-D
2,4,5-T

While the owner was on vacation, it was believed a tulip tree was maliciously poisoned. When the owner returned, the tree shed its leaves and died within 2 weeks; no surrounding vegetation was affected. Soil analysis of the area around the tree indicated a strong concentration of the two pesticides. (The tree was located where it blocked a neighbor's view of a lake.

15/76

TX

30 Hereford
cattle affected;
15 dead, pasture
contaminated

2,4-D

A cattle owner reported that 30 cows were affected and 15 expired as a result of a herbicide application to an adjacent maize field. According to a veterinary report on 6/17, a "fair amount" of wind was blowing, carrying spray drift onto a field in which over 100 cattle were pastured. Noxious weeds in the pasture included fireweed, silver leaf nightshade, and cocklebur (the latter two in the thorny stage). Three cows expired on 6/15, one on 6/16, and one on 6/17. At the time of the veterinary report, 20 cattle were reported to be still affected with emaciation, dyspnea, diarrhea, and pronounced cyanosis. A field diagnosis of acute nitrate toxicity was made. A quantitative nitrate test was requested. A level of 3,560 ppm nitrates in fireweeds growing near the farmhouse was reported on 6/18; this was considered a "dangerous" level. Pasture vegetation contained 790 ppm. On the basis of a negative DNP (Diphenylamine blue) test on ocular fluid from a cow, it was con

sidered unlikely that the animal died of nitrate poisoning. A necropsy on the cow indicated lesions and changes not indicative of any particular condition; pulmonary emphysema was present, suggesting the possibility of solanum (nightshade) poisoning. Nitrate tests results reported on 6/22 revealed 540 ppm and 820 ppm in rumen contents of two cows, 3,890 ppm in pasture weeds, and 31,760 ppm in weeds near the farmhouse. Three more cattle were reported dead by 6/18. Necropsy on a second animal yielded results similar to the previous necropsy. Solanum poisoning was suspected, and it was also stated that the lung lesions could possibly be due to inhalation of a noxious substance. It could not be determined if pesticide was the cause of death.

6/16/76	WA	Crop damaged (grapes)	2,4-D	During an undescribed herbicide application, loose spray hose connections resulted in severe damage to a grape crop.
6/17/76	WA	Crop damaged (90 acres grapes)	2,4-D	In an undescribed agricultural incident, herbicide symptoms were noted on 90 acres of grapes.
6/17/76	WA	Crop damaged (grapes)	2,4-D	In an undescribed agricultural incident, 100 acres of grapes displayed herbicide damage.
6/18/76	UT	1 human affected	2,4-D 2,4,5-TP	A child less than 5 years old remained asymptomatic after an oral exposure to the herbicide in a home-related incident.
6/19/76	OK	Crop damaged (cotton)	2,4-D	Herbicide symptoms in 9.6 acres of cotton were suspected to have resulted from an aerial application of herbicide to a neighbor's property. Administrative action involving regulatory violations was initiated.

6/23/76	M N	Unspecified	2,4-D Trifluralin + 2 others	In an undescribed agricultural incident, a fire occurred involving pesticides.
6/25/76	MI	Crop affected (grapes)	2,4-D (amine)	Drift from a ground application of herbicide to corn affected plants in an adjacent vineyard to varying degrees.
6/29/76	W A	Crop damaged (grapes)	2,4-D	Drift from an aerial application of herbicide damaged 25 acres of grapes.
6/30/76	OK	Crop affected (buckwheat)	2,4-D (ester)	Drift from an aerial application of herbicide to a pasture was suspected of affecting a 10-acre buckwheat crop. Evidence was insufficient to support a claim of misuse by the applicator.
7/30/76	ID	Crop damaged (grapes)	2,4-D	A vineyard was severely damaged by drift and/or volatilization of herbicide which was aerially applied to grain fields in the area. A local newspaper article reported that grape leaves were distorted with dry, blistered surfaces; damage was light in some grape varieties and severe in others.
7/06/75	CA	1 human received medical attention	2,4-D Bromacil Pentachlorophenol Petroleum distillate	A 40-year-old sanitation plant gardener was unfamiliar with a sprayer and was sprayed in the eyes during a hand application. The sprayer had no nozzle when pressure was applied.

10/76	ME	Fish kill (brook trout), water contaminated	2,4-D Azinphos methyl	Immediately following a ground application of pesticides on oats, the spray equipment was cleaned near a brook. Runoff from heavy rains washed the sprayer rinse water into the brook. Fishermen reported that brook trout up to 10 inches in length were killed. Because the brook was heavily silted at the time of inspection, no estimate of the size and extent of the kill could be made.
12/76	HI	1 human received medical attention	2,4-D 2,4,5-T	An adult male developed a back pain 2 days after being in contact with the pesticide solution at work. He sought advice from a poison information center.
12/76	WA	1 human hospitalized	2,4-D (sodium salt)	A 31-year-old female, who had been drinking, placed 3 - 4 tsp of dry chemical (granular) in a glass of beer and drank it. Her attending physician reported that the woman was brought to the hospital emergency room within an hour of the incident. No symptoms were evident when she arrived at the hospital. She was given ipecac followed by activated charcoal. No further problems developed from the ingestion. The herbicide had been stored on a shelf in the home for some time prior to the suicide attempt.
15/76	WA	Ornamental plants affected	2,4-D	Drift from an aerial application of herbicide affected ornamental plants in an undescribed agricultural incident.
22/76	CA	1 human received medical attention	2,4-D Petroleum distillate Pentachlorophenol Bromacil	In an agricultural incident, a disconnected hose caused a 15-year-old spray rig operator to be sprayed in the face and eyes with the herbicide. The youth had worked for 3 hours

with the pesticide and wore gloves; no safety equipment was required by the product label. He was treated for contact dermatitis of the face and eyes with Vasocon ophthalmic drops, 60 gm Kenalog cream 0.025, and a third medication (unspecified).

7/22/76

FL

1 human
hospitalized

2,4-D (amine)
MSMA
Oil

A 39-year-old white male spray rig operator at a recreational facility developed nausea and dizziness after spraying all day with a mixture of 1½ gallon 51.19% MSMA, 1½ quart 51.1% 2,4-D (amine), and 3 gallons of oil in 300 gallons water. He was taken to a hospital where he was noted to have non-constrictive pupils, blood pressure 120/90, and a pulse of 120. Some heart palpitations and fibrillation were noted in an examination. An electrocardiogram revealed atricular fibrillation, occasional premature junctional beat, and supraventricular tachycardia. The worker reported chest discomfort. His heart rate remained elevated on 7/23; at 10:15 p.m. on that date his heart rate was 150, lasting for 45 minutes. The worker received 0.5 mg digoxin at 10:30 p.m. on 7/22, and 0.25 mg at 10 a.m. the following morning. He was much improved by the afternoon. Cholinesterase levels were 0.8 μ H/hr in RBC and 0.9 μ H/hr in plasma, both within normal limits.

7/27/76

ID

1 human affected,
locust trees
affected

2,4-D

Residents of two homes reported respiratory stress (1 person) and damage to trees in their yard after an aerial applicator sprayed the herbicide on wheat fields (80 acres) across the road from one residence on 7/27/76, between 8 and 9 a.m. A survey of the site on 8/2/76 determined that there was some type of herbicide damage to the trees in the yard and to the trees in a neighbor's yard. Grapes in a yard were not affected. The applicator stated that the application was made at a rate of 1/2 to 3/4 pt/acre. The field was very weedy and there was no evidence of herbicide damage to the weeds in the wheat field.

V11/76	UT	1 human received medical attention	<p>2,4-D (ester) 2,4,5-TP (ester)</p> <p>In a home incident, a child under 5 years old spilled a 2,4-D herbicide on his skin and developed some irritation. A poison control center was called for information.</p>
V13/76	WA	Crop damaged (potatoes)	<p>2,4-D</p> <p>Damage to a potato crop was presumed to be due to drift from a herbicide application.</p>
V16/76	TX	Crop damaged (cotton)	<p>2,4-D</p> <p>Slight to severe hormonal-type herbicide effects on a 390-acre cotton crop were suspected to have resulted from an aerial application (certified applicator) to milo.</p>
V17/76	TX	Crop damaged (cotton)	<p>2,4-D</p> <p>Slight to severe hormonal-type herbicide effects on a 100-acre cotton crop were suspected to have resulted from an aerial treatment (certified applicator) of milo 1 mile distant.</p>
V17/76	WA	Raspberries damaged	<p>2,4-D 2,4,5-T</p> <p>An individual reported that an application (undescribed) of the herbicide had damaged her raspberries. The woman was referred to a county agent.</p>
V20/76	WA	Crop damaged (lentils)	<p>2,4-D</p> <p>Damage to 30% of a lentil field was caused by herbicide drift from an unspecified application.</p>
V25/76	WA	Crop damaged (grapes)	<p>2,4-D</p> <p>The source of herbicide which damaged a vineyard could not be determined.</p>

128/76	WA	Crop damaged (mint)	2,4-D	A mint crop which was to be aerially sprayed with kelthane was mistakenly sprayed with 2,4-D.
1/02/76	WA	Crop affected (90 acres lentils)	2,4-D	Drift from an aerial application of herbicide to a neighbor's pasture affected a lentil crop.
1/03/76	WA	Crop affected (beets)	2,4-D	Herbicide spray drift affected 3 acres of a 10-acre beet field.
1/05/76	WA	Crop damaged (pears)	2,4-D	Phenoxy-type herbicide damage to a pear crop was suspected to be due to 2,4-D. The damage included twisted stems and wrinkling of leaves.
1/05/76	UT	1 human received medical attention	2,4-D (ester) 2,4,5-TP (ester)	In a home incident, a 2-year-old boy was left unattended for a moment while herbicide was being mixed. The child then was found with herbicide on his hands and face; whether he consumed any was undetermined. A poison control center advised the parents to observe the child for symptoms; no symptoms developed.
1/06/76	TX	Crop damaged (82 acres cotton)	2,4-D	Slight to severe hormonal-type herbicide damage to cotton was suspected to have resulted from an aerial treatment of milo by a certified applicator.
1/09/76	ID	1 human hospitalized	2,4-D	In a home suicide attempt, a young man intentionally ingested 2,4-D; he did not die.

10/1/76	UT	1 human received medical attention	2,4-D	In a home incident, a 2-year-old child was suspected of ingesting herbicide which had been mixed for weed control. The parents called a poison control center for advice. No treatment was given and the child remained asymptomatic.
10/8/76	WA	Water supply contaminated	2,4-D	In an agricultural incident, helicopters contaminated an individual's water supply while spraying herbicide on timber.
11/5/76	SC	Trees damaged (3 pecan, 6 pine, 3 live oak), home gardens damaged (field peas, sugar cane, sweet potatoes)	2,4-D 2,4-D (ester)	A certified aerial applicator applied herbicide to corn. Wind drift and high humidity resulted in damage to trees and home vegetable gardens. Pecans from damaged trees were reported to have an "off" taste, pine trees displayed yellow needles, and leaf kill occurred on live oak trees. Approximately 200 feet of a row of field peas was damaged along with 100-foot lengths of sugar cane and sweet potatoes (killed).
11/9/76	HI	1 human affected	2,4-D (amine) 2,4,5-TP (amine) MSMA Dicamba (amine)	An adult male inhaled the herbicides while he was applying them in his yard. He reported he did "not feel right;" he felt lightheaded and "woozy."
12/5/76	WA	Water contaminated	2,4-D (diethanolamine) 2,4-D (ester) Diuron Amitrole Copper sulfate Diquat dibromide 2,4,5-T (ester) 2,4,5-T	A total of 8 applications of herbicides were made throughout a 6-month period to a spring-fed lake. The lake supplied drinking water to

20 - 30 people. Samples were taken; the results were not reported. That there were several violations of label directions was noted.

1/04/76

TX

Trees damaged
(2 pecan, 6 live
oak, 8 shade)

2,4-D
2,4,5-T
Picloram

Herbicides were applied by helicopter to rangeland for brush control. Symptoms were severe on the pecan and live oak trees and slight on the shade trees.

1/14/76

CA

1 human
hospitalized

2,4-D

An 18-month-old child "mouthed" a cup in which 2,4-D had been mixed 1 to 2 months prior to incident. The child's stomach was pumped and laboratory tests were planned.

1/24/76

ID

1 human received
medical attention

2,4-D
Bromacil
PCP
+ other (unspecified)

At 10:30 a.m. a correctional officer (non-certified applicator) was sprayed in the face and eyes when a sprayer handle came apart as he was checking and adjusting the equipment. His eyes were flushed within 2 - 3 minutes. Within 1/2 hour he developed cramps and a headache. He went to an emergency room at 1 p.m., where his eyes were washed again. Staining of the eyes revealed no further damage. No treatment was administered for the cramps or headache, and no one asked to look at the pesticide label which the officer brought with him to the hospital. The man was much improved by 6 p.m. and was able to return to work the following day.

2/04/76

TX

1 human received
medical attention

2,4-D
2,4,5-TP

In a home incident, a 2-year-old male ingested an unknown amount of the herbicide. There were no symptoms or treatment.

2/00/77

MN

Water contaminated

2,4-D

Two 5-gallon herbicide solution cans were found in an old water-filled gravel pit within a park. Divers removed the cans and other debris.

1/00/77	CA	2 humans received medical attention, building contaminated	<p>2,4-D 2,4,5-TP 2,4,5-T</p> <p>In a home incident, two individuals became ill the day after a helicopter applied pesticides to a nearby field. Symptoms included fatigue, sore throat, and difficulty in breathing.</p>
1/00/77	ID	3 cattle dead, hay contaminated	<p>2,4-D</p> <p>Three cows expired in a pasture near a field which had been aerially sprayed with herbicide. A blood sample was negative for 2,4-D ester. Results of screening for nitrates, heavy metals, and other pesticides were not reported. Hay was reported contaminated.</p>
1/27/77	WA	Water contaminated	<p>2,4-D 2,4,5-T</p> <p>A spring-fed tributary was contaminated significantly when a ground application for weed control was made along a roadside right-of-way by a county public works agency. It was reported that spraying in, over, and around flowing water was a gross violation of application. Pictures and samples were taken by an ecology department.</p>
1/28/77	WA	Vegetation, berry bushes affected, water contaminated	<p>2,4-D (ester) 2,4,5-T (ester)</p> <p>A road crew ground-sprayed along a right-of-way; three citizens complained of the spray on property bordering the road. Positive levels were found in vegetation and water samples. 2,4,5-T was found in drainage water which flowed into a lake (500 yards away). The spray zone extended across the 30-foot highway roadside easement and onto the adjoining private properties. An oily, smelly material was evident on the roadside vegetation during an examination and an oily residue was visible in the constant run-off which dripped down the sides of the roadway into the drainage ditch. Blackberries along the road were contaminated. There were no known poisonings or major damage; the issue in the forefront was the spraying of private property without</p>

authorization. Results of laboratory analysis for 2,4-D and 2,4,5-T in three vegetation and one water sample were (a) 146 ppm 2,4-D and 119 ppm 2,4,5-T, (b) 118 ppm 2,4-D and 93 ppm 2,4,5-T, (c) 123 ppm 2,4-D and 90 ppm 2,4,5-T, and (d) 2.1 ppb 2,4-D and 0.86 ppb 2,4,5-T (water sample).

2/11/77	OR	Water contaminated	<p>2,4-D 2,4,5-T</p> <p>A fiber company aerially sprayed about 4 hours on the morning of the incident. During this operation a watershed for 25+ homes and some private property was sprayed. Investigation of the claim was planned, and soil, water and vegetation samples were to be analyzed. Results were not reported.</p>
2/28/77	WA	Highway contaminated	<p>2,4-D</p> <p>A truck load shifted while in transit, spilling ninety-two 5-gallon drums and one 30-gallon drum of liquid herbicide onto the highway. A road crew quickly absorbed the spill with sand, preventing it from escaping into a drainage ditch along the roadway. No contamination of groundwater was expected as the chemical was biodegradable.</p>
3/19/77	CA	1 human received medical attention	<p>2,4-D</p> <p>In an agricultural incident, a gardener working with 2,4-D got some in his eye. Diagnosis was chemical irritation.</p>
3/22/77	MN	Unspecified	<p>2,4-D Dicamba Bromoxynil Barban Carbon tetrachloride Carbon disulfide Ethylene dichloride Ethylene dibromide MCPA</p> <p>No impact was reported for an agricultural fire involving six products.</p>

4/00/77

OH

1 human received
medical attention

2,4-D (amine)
Dicamba (amine)
Bensulide

A lawn service company (certified applicator) ground-sprayed a lawn with herbicide. A child less than 5 years old with known allergies played on the lawn after the spray had dried. The child experienced undescribed effects which a physician could not identify as pesticide-related.

4/11/77

UT

1 human received
medical attention

2,4-D (ester)
2,4,5-TP (ester)

The parents of a male child (under 5 years of age) hand-treated their lawn with a fertilizer/herbicide. Approximately 2 hours later the child was playing in the yard and subsequently became "swollen and red." He was suspected of having rubbed herbicide into his eye. The local poison control center advised irrigation with water and was later informed that the symptoms had cleared. The actual cause of the irritation was not determined.

4/18/77

NJ

1 human received
medical attention

2,4-D (ester)
2,4,5-TP (ester)

In a home incident, a child under 5 years of age ingested an unknown amount of the herbicidal solution. The child was treated in the poison control center emergency room; no symptoms or toxic effects were observed.

4/18/77

NJ

1 human received
medical attention

2,4-D (ester)
2,4,5-TP (ester)

An adult male (homeowner) applied the herbicides in a hand-spray operation and experienced skin exposure when the wind shifted, blowing spray back onto him. Approximately 10 - 12 hours after exposure, he began vomiting and had a slight fever; he sought medical help. The attending physician reported that the vomiting continued after 8 hours, and felt that a viral infection was the cause of the distress as the symptoms were not consistent with the exposure described.

04/20/77	WA	Crop affected (alfalfa)	2,4-D Drift from an aerial application of herbicide affected alfalfa which was to be used as livestock feed.
04/21/77	CA	1 human received medical attention	2,4-D 2,4,5-T A man living in a forest area became ill after an aerial pesticide application (low-level spraying) was made. Pesticide poisoning was suspected.
04/23/77	UT	1 human affected	2,4-D (amine) 2,4,5-TP (ester) A 3-year-old child ingested a small amount of the herbicide while playing at home. He developed no illness or symptoms of pesticide poisoning.
04/23/77	UT	1 human affected	2,4-D (amine) 2,4,5-TP (ester) A child (over 5 years of age) played on a recently hand-treated lawn. Her feet became red and irritated but cleared after she was washed with water.
04/25/77	UT	1 human affected	2,4-D (amine) 2,4,5-TP (ester) In a home incident, a mother found her small son (under 5 years of age) with the pesticide on his hands and in his hair. It was suspected he might have ingested a small amount. He did not develop any illness or symptoms of pesticide poisoning.
04/25/77	UT	1 human affected	2,4-D (amine) 2,4,5-TP (ester) A child under 5 years of age developed swollen, red eyes and a rash on her legs after playing on the front lawn of the apartment building in which she lived. The landlord had hand-treated the lawn the previous day with the chemical. The mother washed the girl and irrigated her eyes. The symptoms eventually disappeared. It was possible that either the fertilizer or the herbicide could have caused the discomfort.

04/26/77

CA

1 human received
medical attention

2,4-D (ester)
2,4-DP (ester)

A 21-year-old male ground applicator was spraying brush in a park and accidentally sprayed the calf of his leg. The doctor was not able to determine whether the observed skin inflammation reaction was from the herbicide or poison oak.

04/27/77

IN

Pavement
contaminated

2,4-D (amine)

In a transportation incident, a 55-gallon drum of herbicide fell off a truck, resulting in a spill. Since the area adjacent to the spill was stripmined, no environmental damage was expected. The nearest residence was located $\frac{1}{2}$ mile from the spill. It appeared that most of the herbicide soaked into the pavement.

04/28/77

UT

3 humans received
medical attention

2,4-D (ester)
2,4,5-TP (ester)

A woman who allowed her three grandchildren (less than 5 years old) to play on her lawn was unaware that the trailer court had been hand-sprayed with herbicide. When the woman found out about the application, she bathed the children and called a poison control center. The children remained asymptomatic.

04/30/77

IN

1 dog treated

2,4,-D (amine)
Dicamba (amine)
MCP (amine)

After a certified commercial applicator made a ground application of herbicide to a home lawn, a pet dog (Great Dane) displayed abdominal pain, shaking, and emesis. A veterinarian administered atropine and BAL. The dog recovered with few or no aftereffects. The exact cause of illness could not be determined. The dog's owner felt that the dog had not been poisoned by any other means as it had been confined to the yard.

04/30/77

UT

1 human received
medical attention

2,4-D (amine)
2,4,5-TP (ester)

A boy was helping to apply (by hand) the herbicide in a field when he was hit in the eye with a pellet of the granular formulation.

Several hours later the eye became irritated and red and the boy's vision was blurred. The eye was irrigated and antibiotics administered at an emergency room of a local hospital. No further problems developed after discharge.

5/01/77	UT	1 human affected	<p>2,4-D (ester) 2,4,5-TP (ester)</p> <p>A 2-year-old splashed some of the herbicide into his eye at home. The eye was irrigated for several minutes but still became slightly red and irritated. The eye was irrigated later in the evening and the eye eventually returned to normal.</p>
5/01/77	TX	Crop damaged (cotton)	<p>2,4-D</p> <p>Herbicide was ground-applied along a fence row by the owner of an 81-acre cotton crop. Phenoxy herbicide symptoms were most severe adjacent to the treated fence row, and less severe away from the fence.</p>
5/02/77	UT	1 human received medical attention	<p>2,4-D (ester) 2,4,5-TP (ester)</p> <p>In a home incident, a 16-month-old girl spilled the pesticide from its can. Ingestion was not determined. The child was given ipecac (advised by a pesticide control center); she vomited, and showed no ill effects.</p>
5/02/77	UT	1 human received medical attention	<p>2,4-D</p> <p>A 3-year-old girl developed a high fever and rash after having been in a home garden being sprayed (non-certified applicator) the day before. Exposure was not certain. A poison control center referred the parents to their family physician.</p>
5/04/77	UT	1 human affected	<p>2,4-D (ester) 2,4,5-TP (ester)</p> <p>An 18-month-old girl was suspected of putting a treated plant leaf into her mouth at home. Later in the day she developed a fever. Because she had had prior cold symptoms, it was judged unlikely that the pesticide was the cause.</p>

5/04/77	W A	Crop damaged (peas)	2,4-D (amine) Dicamba (amine) Herbicides were the suspected cause of damage to a pea field. Plants were curling and small plants dying.
5/04/77	W A	Crops damaged (grapes)	2,4-D The source of herbicide damage to a 50-acre vineyard could not be determined. Terminal leaves appeared to have been hit recently.
5/06/77	W A	Ornamental, fruit trees, bushes damaged	2,4-D In an agricultural incident, ornamental trees, fruit trees, and surrounding neighbors' bushes were damaged in an undescribed manner by herbicide.
5/07/77	UT	1 human affected	2,4-D (amine) A woman was squirted in the eye as she was spraying the herbicide by hand. The eye became slightly irritated. There were no other symptoms.
5/08/77	W A	1 human received medical attention	2,4-D (sodium salt) A 6-year-old girl claimed that she had poisoned herself accidentally with a 2,4-D cartridge when her grandmother left her unattended for a moment during a lawn application (hand). A poison control center advised that she be washed and given milk and clear fluids. No symptoms or problems developed.
5/09/77	W A	1 human received medical attention	2,4-D (ester) 2,4,5-T A 27-month-old child put the contaminated nozzle of a spray bottle (attached to a garden hose) in her mouth. She later developed a bloody nose and her temperature rose to 102°. At a hospital emergency room, ipecac was administered with good results. A physician indicated later that the child had a sinus/ear infection which caused the symptoms.

11/77	MN	1 human received medical attention	2,4-D	An adult apparently inhaled the herbicide during a ground application around a home area. The applicator was not certified.
12/77	WA	Crop damaged (alfalfa)	2,4-D (amine) Dicamba (amine)	Drift from an aerial application of herbicide damaged 3 acres of alfalfa.
1/9/77	MN	1 dog affected	2,4-D	A pet dog was orally exposed to the herbicide in an undescribed home incident.
5/19/77	MO	Ornamental trees killed (1 golden rain), damaged (1 catalpa, 6 walnut, Chinese elms, spruce) shrubbery, home gardens damaged, crops damaged (corn, wheat)	2,4-D	A property owner reported that on the morning of 5/19 (7 - 8 a.m.) a certified aerial applicator sprayed 2,4-D at a rate of 1 lb/acre on a neighbor's pasture located across the road to the south. The target pest was musk thistle. According to the property owner, wind was blowing from the southeast at 5 mph at 7 a.m. and had increased to 10 mph by noon, resulting in "considerable" drift damage to walnut, elm, spruce trees, garden crops, shrubbery, and field crops such as corn and wheat. He also stated that the applicator had continued to spray while making turns over his yard. Based upon the opinion of a local extension agent, the property owner expected that the corn would recover (if it did not break off), and that some of the garden plants, shrubs and shade trees would die. An investigation identified damage on most of the trees in the property owner's yard. A golden rain tree was dead; a catalpa and six walnut trees were severely injured. Some refoitation was evident, with new growth appearing around the bases of dead branches. Several other neighbors incur-

red tree damage as a result of spraying, including damage to Chinese elms and walnuts. One neighbor reported that the spray plane was flying too high (200 feet) during application. The outcome of the investigation was not reported.

120/77

NJ

4 humans involved,
bird kill

2,4-D
2,4,5-T (ester)

A resident near a power company's right-of-way area reported several dead birds following a herbicide application to the area. The spray contained 2 lb 2,4-D/2 lb 2,4,5-T/gal. Approximately 50 gallons were used per day on 3 to 6 running acres. The application was a spot treatment to brush vegetation with a backpack sprayer. A strong odor which lasted several hours was apparent in the complainant's home. The resident was advised to wash children's toys exposed in the application 50 to 60 feet from the play area. A family dog was seen catching and injuring two birds. A follow-up investigation confirmed a negative impact. Children were playing near the area but did not appear affected.

123/77

UT

1 human affected

2,4-D (ester)
2,4,5-TP (ester)

A 10-month-old girl sucked on a green apricot that "may" have been exposed to the herbicide. About 5 hours later, she began vomiting. Because of the time lag and the low dosage, it was felt that the pesticide was not the causative agent.

123/77

TX

Crop damaged
(cotton)

2,4-D

A 36-acre cotton field was damaged by a ground application of herbicide to a pasture. Cotton nearest the treated pasture exhibited moderate to severe effects.

124/77

WA

Crop damaged
(carrot seed)

2,4-D
Dicamba (amine)

An entire field (1½ acres) of carrot seeds was damaged by an aerial application of herbicides.

05/24/77	UT	1 human received medical attention	2,4-D	A child played on a lawn previously hand-treated earlier in the day with a pressurized herbicide product. He developed a rash on his face and legs, but no other symptoms. A poison control center advised that he be bathed thoroughly.
06/01/77	TX	Crop damaged (cotton)	2,4-D (ester)	Herbicide was ground-applied to a fence row adjacent to a neighbor's 20-acre cotton field. Severe phenoxy herbicide effects were present on 1/8 acre of the cotton. The person who applied the herbicide also incurred an unspecified amount of cotton damage on his own property.
06/01/77	WA	Crop affected (grapes)	2,4-D Dicamba (amine)	Drift from an undescribed herbicide application affected the terminal shoots of 30 acres of Concord grapes.
06/02/77	FL	Ornamental trees damaged (40 acres oak), ornamental bushes, garden damaged	2,4-D (amine) Monocrotophos	When a certified aerial applicator sprayed a corn field, herbicide drift damaged 40 oak trees, a garden, and ornamental bushes on adjacent property.
06/03/77	WA	1 human hospitalized	2,4-D Dicamba	An agricultural spray rig operator inhaled the chemical for approximately 1 hour while spraying in a wind. The exact time or amount of exposure was not known. The worker was hospitalized with a sore throat, sore face, and newly developed cough, and was discharged after 10 days. He was back at work at the last report (7/20).
06/03/77	WA	Crop damaged (alfalfa)	2,4-D	Drift from an undescribed herbicide application to a wheat field was suspected of damaging a neighbor's alfalfa crop (3 - 4 acres). Because the alfalfa had already been harvested by the time the incident was reported,

an investigation was unable to locate any phenoxy-hormone herbicide symptoms. It was thought that the damage might have been due to heavy frosts which had occurred around 5/1.

104/77	UT	1 human affected	2,4-D (amine) Dicamba (amine) M CPP (amine) A 3-year-old male licked a spoon that had been used to measure the pesticides in the home. His mouth and face were washed and he was given liquids. He was asymptomatic and remained so on follow-up (6/9/77).
106/77	UT	1 human affected	2,4-D (ester) 2,4,5-TP (ester) A 27-year-old woman worked in a home garden which had been treated 2 days earlier. She forgot to wash her hands and became nauseated and vomited some time later. On follow-up, it was found that she had had the "flu" at the time. Also, she had been wearing gloves; they had small holes. Evidence of pesticide exposure was minimal.
106/77	UT	1 human affected	2,4-D (ester) 2,4,5-TP (ester) An 8-year-old male drank "less than one swallow" from a container of dilute pesticide (1 lbs/gal). The container was empty except for a few drops of residue when the child gained access to it in a neighbor's garage. The child reported that he spit out most of the solution and that his mouth and throat burned. He was given fluids and observed. No symptoms developed on follow-up (6/10/77).
107/77	UT	1 human received medical attention	2,4-D A 1-year-old male drank from a cup which had been used to measure 63% 2,4-D and to add water to the solution. The child was asymptomatic but a poison control center advised emesis which was successful 15 - 30 minutes after the incident. The child was asymptomatic on follow-up.
108/77	UT	1 human affected	2,4-D 2,4,5-T A 24-year-old man got a small amount of herbicide in his left eye during a hand application in an unspecified location. He irrigated

the eye and experienced mild "stinging and blurred vision." On 6/23/77 in a follow-up phone call, it was determined that his eye was in good condition and there had been no other symptoms.

Date	Code	Incident Description	Chemical	Details
06/10/77	TX	Crop damaged (cotton)	2,4-D	A ground application of herbicide to an adjacent corn field was suspected of causing slight to severe hormonal-type effects in a 50-acre cotton crop.
06/11/77	UT	1 human affected	2,4-D (ester) 2,4,5-TP (ester)	A 2-year-old male child was found spraying the herbicides from a prepared mix (dilute) onto a lawn. The aerosol mist contacted his face and lips and he said that it "tasted funny." The child was asymptomatic for any poisoning and he and his clothes were washed thoroughly. A follow-up telephone call determined that the child had no ill effects or complaints.
06/11/77	WA	Home garden affected	2,4-D	Drift from an aerial application of herbicide affected a home garden in an undescribed incident.
06/13/77	WA	Home garden damaged	2,4-D	Drift from an aerial application of herbicide (certified applicator) damaged a 3/4-acre home garden. Approximately 2% of the garden was severely damaged; the remaining 98% recovered.
06/13/77	CA	1 human received medical attention	2,4-D Glyphosate	A 21-year-old male spray rig operator sprayed weeds on a farm with herbicides for 8 - 10 hours per day throughout the summer. The worker wore all required safety equipment, including coveralls, a hat and gloves. He

developed nausea and a headache which he felt might be related to pesticides. The worker's physician attributed the symptoms to flu. The worker lost no time from the job and received no treatment.

06/16/77

W A

1 human
hospitalized

2,4-D

A woman was hospitalized on 6/18/77 following drift of the herbicide from a neighbor's yard (hand spray application on 6/16/77). Her doctor felt that her advanced restrictive and obstructive pulmonary disease had been worsened by exposure to the pesticide. He cautioned that she should avoid any exposure to all noxious elements to protect her lungs. Follow-up indicated that her condition was worsened after the exposure. The physician advised the woman to avoid further contact with sprays and other noxious elements in the air in order to prevent aggravation of her lung disease. No laboratory tests were conducted. The woman's respiratory condition worsened after the incident although there was no further exposure.

06/21/77

W A

1 human
hospitalized

2,4-D

A 41-year-old woman became ill after a neighbor hand-sprayed his yard with 2,4-D (4 lb/gal) mixed at 2 tsp/gal in a liquid stream from a window spray bottle. The woman had multiple sclerosis and severe allergies. Her physician felt that it was an allergic response to the pesticide. Her symptoms were numbness, loss of speech coordination, and muscle spasms to such an extent that she had to be restrained by the responding ambulance attendants. There was no evidence of physical drift or infraction of pesticide regulations.

06/24/77

ID

Home vegetable
garden affected,
shrubs affected

2,4-D (ester)

Alleys were being sprayed by a ground applicator when the combination of the herbicide and weather conditions caused the chemicals to

volatilize, resulting in plant damage to a 2-acre home vegetable garden and shrubs around the house area. Samples were taken by an agricultural department; results were not available.

7/77	UT	2 humans affected	2,4-D In a home incident, two 6-year-old children ingested weeds which had been treated with herbicide earlier in the day. The herbicide had been diluted at a rate of 4 tbs/gal water. Each child consumed 4 - 6 "cheese weeds." The children remained asymptomatic.
7/77	WA	Home yard affected	2,4-D Herbicide drift from an undescribed application was suspected of having affected a home yard.
11/77	TX	Crop damaged (cotton)	2,4-D A 34-acre cotton crop displayed slight to severe hormonal-type herbicide effects which were thought to have resulted from a ground treatment of an adjacent cornfield.
9/77	WA	1 human hospitalized	2,4-D (ester) Bromacil PCP Petroleum distillate An industrial grounds worker developed nausea and vomiting after hand-spraying a herbicide product for 3 weeks. He was hospitalized 3 days; a physician noted that his clothes smelled of herbicide. The physician felt that the worker was not poisoned by the herbicide but that it may have aggravated an already-existing ulcer.
10/77	MN	1 human affected	2,4-D 2,4,5-TP In this undescribed home-related incident, a female (5 to 16 years old) was exposed to an unknown amount of the herbicides.

7/00/77	ID	Crop damaged (28,125 Idaho Russet potato plants)	2,4-D (amine) Dicamba (amine)	During the first part of July a county agency ground-applied herbicides to a pasture containing thistles and along a fence row bordering a potato field. The field was just reaching the blooming stage; plants along the fence and 75 rows (75 meters long) inward never developed beyond this stage. Affected plants were a darker green than normal with twisted growth and curled, separated leaves.
7/02/77	ID	1 human hospitalized	2,4-D	A farmer (non-certified applicator) applied herbicide to weeds for 3 days by ground rig. Two or 3 days after completing the job he experienced breathing difficulty and intense chest pain. The first physician he consulted recommended he avoid pesticides for awhile. When pain continued, a second physician hospitalized him for 1 week whereby he improved daily. The worker, a heavy smoker, also quit smoking during his hospitalization. He continued to improve after discharge and was working (not with pesticide) at last report.
07/02/77	WA	Crop affected (grapes)	2,4-D 2,4-D (amine)	Herbicide symptoms, but no damage, were observed on grapes after a ground application.
07/02/77	WA	Crop affected (grapes)	2,4-D	Herbicide symptoms, but no damage, were observed on grapes after a ground application of the pesticide.
07/02/77	IN	Soil contaminated	2,4-D 2,4,5-TP Dicamba	A tank truck containing the pesticide mixture overturned enroute to service a helicopter. Approximately 400 - 500 gallons of the mixture spilled into a dry creek bed. The liquid was retained by a dike, pumped into another

truck, and later applied by helicopter. Environmental problems were judged to be minimal and were restricted to the immediate area.

03/77

TX

Crop damaged
(cotton)

2,4-D (amine)

After herbicide was applied by ground rig to adjacent milo, a 68-acre cotton crop displayed slight to severe symptoms.

104/77

MO

Crop damaged
(cotton)

2,4-D

A cotton crop was damaged by a herbicide spray application to an adjoining soybean field.

105/77

CA

1 human received
medical attention

2,4-D (amine)

A 17-year-old male used a hand-sprayer mounted on a motorcycle to apply herbicide to weeds in an agricultural incident. The application rate was $1\frac{1}{2}$ pt/20 gal/acre. The worker wore all required safety equipment, including gloves and coveralls, and had worked approximately 2 weeks. It was reported that no pesticide came into direct contact with the worker. While spraying, he developed painful eye irritation. The pain worsened as he continued spraying for the remainder of the day. By evening, the pain was extreme, and the worker sought medical attention. A physician made the diagnosis of irritation and inflammation in both eyes, and injection of the conjunctiva. Treatment included irrigation with saline, Decadron drops, and an eye patch. It was learned that the worker had splashed gasoline in his eyes 2 days previously. A violation notice was issued for use of 2,4-D on an expired permit.

7/06/77

UT

1 human affected

2,4-D (ester)
2,4,5-TP (ester)

A 2-year-old boy was found with a container of the product. He had rubbed his eyes with his pesticide-contaminated hands. His mother washed his eyes, which had become red. There were no indications that he had swallowed any or had any of it in his mouth. The mother

continued eye irrigation and observation. No other symptoms were noted.

7/08/77

CA

1 human received
medical attention

2,4-D (amine)
Dicamba (amine)
M CPP (amine)

A 45-year-old city gardener drove a pickup truck with a 50-gallon bean sprayer in the back while his partner sprayed a park lawn with a hand spray wand at the end of a 25 - 30 foot hose. The driver, who had worked for 6 weeks with an assortment of pesticides, wore rubber boots; no safety equipment was required. There was reportedly little or no wind movement that day, and the weather was not hot. The primary route of exposure was inhalation. The driver began to itch and became nauseated, and also reported that he had previously experienced headaches while working with this product. A physician made the diagnoses of chemical exposure and contact dermatitis, and administered an injection of 1.5 cc Decadron. There was no recurrence of symptoms after the worker was switched to another job. It was suspected the driver had an allergic reaction.

7/09/77

UT

1 human affected

2,4-D (ester)
2,4,5-TP (ester)

A 2-year-old boy was watching his mother spray weeds. When the sprayer was empty, his mother laid down the sprayer and hose. The child picked up the sprayer and proceeded to suck on the end of the tubing which goes into the container. The child's mother washed his mouth, gave him milk, and kept him under observation. The child remained asymptomatic.

7/11/77

WA

Crop affected
(alfalfa)

2,4-D (amine)
Dicamba (amine)

Drift from an undescribed application of herbicide affected an alfalfa field.

7/15/77

ID

1 human received
medical attention

2,4-D
2,4,5-T

In an agricultural incident, a licensed chemical sprayer was mixing the pesticides when some

splashed onto him and into a cut on his finger; he washed immediately after the exposure. During the afternoon he developed a rash from his waist to his knees. He was treated by a physician; the rash lasted approximately six days.

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en-

W A Crop damaged
(grapes)

2,4-D

Drift from an undescribed application of herbicide damaged one row of grapes.

ction
by a
were

W A 1 human affected;
berry bushes
(1 row raspberries,
1 elderberry bush),
trees damaged (con-
ifers, cherry)

2,4-D
2,4,5-T
Dicamba

A pipeline company with an easement through private property had the right-of-way sprayed with a ground spray rig. Raspberry, elderberry and cherry trees were showing minor damage. A child returned from picking berries itching extensively. The itching was later determined to be caused by insects or other factors than the herbicide. The residents of the area complained of spray drift. Phenoxy damage was observed on a five-foot-long swath in the middle of the row of raspberries nearest the fence at one residence. Damage was evidenced in twisted tips, dead leaves and curled petioles. The bushes were recovering and would probably be normal the following year. The damage was on the side of the row facing the fence. Tips and branches on conifers farther down the right-of-way on other residential property displayed herbicide effects. A large elderberry tree was severely damaged. Berries had been picked and made into jelly before and after spraying. Whether the damage was caused by dicamba movement to the root zone or by direct physical drift could not be judged. No action against the company was recommended.

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IN Water contaminated

2,4-D (amine)

Water from a reservoir was mixed with 9 gallons of 2,4-D (amine) to make 1,200 gallons of spray solution which was loaded onto a lawn service truck. Two full 55-gallon barrels of 4

s was
part-

1/00/78

TN

Home garden
affected, soil
contaminated

2,4-D
2,4,5-T
Picloram

A homeowner reported that a railroad right-of-way spraying was adversely affecting his garden area. Laboratory analysis from soil samples indicated that 2,4-D and 2,4,5-T were present.

1/26/78

CA

1 human received
medical attention

2,4-D (amine)

While mixing and loading the chemical, a 29-year-old male Hispanic mixer/loader dropped an unlidded container on its base, and the material squirted out of the spout over his face shield. He was taken to a hospital for emergency treatment to the eye. Chemical burn in right eye was the diagnosis. The employee used the required safety equipment.

1/31/78

CA

Water, soil
contaminated

2,4-D (ester)

A spill occurred at a chemical plant some time after the end of the workday on 1/30/78 and 7:30 a.m. on 1/31/78. The plant had been transferring 10,444 gallons of 68.9% 2,4-D from a rail car to an underground tank with a capacity of 10,000 gallons. Either a valve on the rail car was left open or it was opened sometime during the night by parties unknown. The plant supervisor stated that there were two underground tanks with the same capacity but only one was being used at the time of transfer. He also stated it took approximately 4 - 5 hours to complete a transfer. The supervisor further stated that the watchman had sworn he turned off and properly secured all the necessary valves before leaving the area. The spilled herbicide contaminated the soil around the car area and that from the tank car to a drainage pipe. The pipe ran approximately 250 feet and emptied into a rock and red rock base on the bank of a creek. This resulted in the spilled herbicide contaminating the creek bank (approximately 400 gallons of the material spilled). The chemical was insoluble in water and had a specific gravity of 1.228 (at 20°C) which made it sink. The water level was lowered in the canal by 2½ feet to make it easier to clean up. A cleanup was initiated by the chemical plant. The Coast

Guard, the state fish and game authorities and the local water quality board became involved and monitored the decontamination. Between 1/31/78 and 2/6/78, the following was accomplished: 1) pumped and mopped up in the area below the drainage pipe; 2) removed the contaminated mud and soil in area of creek bottom and 3) replaced base and rock on creek bank. A total of 560 cubic yards of rock, soil and mud was removed. A total of 16,000 gallons of contaminated water was pumped and removed. The cost of the whole operation was approximately \$37,500. An additional cost of \$6,200 was charged by the local county water district for water lost to replenish their aquifer.

2/17/78

W A

Trees, annual plants, grass affected, hay (baled), water contaminated.

2,4-D

Area residents were concerned that a herbicide sprayed from a helicopter over a nearby state forest land may have drifted onto their properties. The chemical was used to kill brush and alders. The supervisor of the state department of natural resources indicated that the spray helicopter seemed to have been on target and that winds were at 3 mph. He also stated that it appeared that the helicopter had not come any closer than approximately 1,500 feet from the private lands (they tried to maintain a 1,500 - 1,800 foot buffer zone around the spray area). Residents reported smelling the diesel oil, and some had heard the helicopter. Five water samples from five different sites on one resident's property were taken for analysis at different times on 2/17/78. The following results for 2,4-D in parts per billion were obtained: a) sample taken at approximately 3 p.m. from a stream just on the edge of the spray unit, 102 ppb; b) at 9:30 a.m. near a pump used for domestic water, 36 ppb; c) at 10:30 a.m. near the same pump, 32 ppb; d) at 1 p.m. approximately 100 feet above pump, 24 ppb; and e) at 6 p.m., water from below pump, just below a bridge to the resident's property, 13 ppb. From the same resident's property, eight plant samples were obtained and the results for 2,4-D in parts per billion were: a) rhododendron leaves, 37 ppb (based on weight of leaves); b) cedar

clippings, 50.8 ppb; c) hay (baled), near a pasture, 26.2 ppb; d) "salal" clippings, 95 ppb (estimated only); e) evergreen clippings from fir tree, 80 ppb; f) annual plants, 94.4 ppb; g) grass (fine), 132 ppb and h) grass (coarse), 202 ppb. No illness was reported.

2/08/78

CA

1 human received
medical attention

2,4-D

A 62-year-old male gardener from a public school was mixing the material using a 2-gallon hand sprayer when the solution splashed into his eye. He experienced a chemical burn which was diagnosed as a mild conjunctival chemosis. Protective gear was provided but not used; it was not required on the product label. The dilution rate was 59.7% 2,4-D, and the volume per acre was 25 gallons. The employer stated that he would continue to stress the use of safety gear by employees.

3/28/78

OK

1 human received
medical attention

2,4-D

A 2½-year-old boy drank a mouthful of the chemical in an undescribed home incident.

3/31/78

OK

Dog involved

2,4-D
2,4,5-T

A pet dog walked through the pesticides which were on a floor. Other details of the exposure were not reported. The dog exhibited no symptoms and no treatment was reported.

4/02/78

MN

Water
contaminated

2,4-D
2,4,5-T
Dalapon

Two cases of wettable powder dalapon (6 packages/case), 2 - 3 cases of 2,4-D (6 gal/case) and 2 - 3 cases of 2,4,5-T (6 gal/case) were consumed in a warehouse fire. Runoff water entered the city sewer system.

4/03/78

WA

Water
contaminated

2,4-D

A rancher reported that for 2 days his well water had tasted and smelled like 2,4-D. The area was predominantly a wheat growing region. The chemical had not been applied to his lands this season. A small creek flowed approximately 50 feet from the well which was 18 feet deep. The well was hand dug. The

rancher was advised to pump his well to exchange the water within the holding area and flush his water lines going into the house and in his home. The initial sample taken on 4/3/78 contained 12.6 ppb 2,4-D and samples obtained on 4/4/78 and 4/5/78, as well as a sample of creek water, contained no detectable residues. It was the first time the well had been contaminated. The nearest ranch was 1½ miles downstream. There had been some unusually high water in the creek just prior to the taste and odor problem, and the possibility existed that contaminated creek water had entered the well; no source for the contamination could be located and no illness was reported.

5/78

OK

1 human received
medical attention

2,4-D

A woman of unknown age developed swelling eyes and a rash on her neck after a light dermal exposure to the herbicide which was registered for general use. She was given an unspecified treatment at a physician's office.

11/78

WA

Unspecified
contamination

2,4-D

A helicopter carrying fertilizer and a low volatile 2,4-D for use on a wheat field hit a power line and crashed to the ground at approximately 8:30 a.m. There was no physical injury, nor contamination to persons, animals or plants.

12/78

CA

1 human received
medical attention

2,4-D (ester)

A male gardener of unknown age was spraying the chemical in a turf area to control dandelions. The material drifted into his face when he turned on the nozzle of a small Hudson-type sprayer (there was a light breeze at the time). The subject washed his face immediately and went to a hospital. The volume used was 3 pt/acre. A washing facility was available, and the individual was wearing glasses which protected his eyes. Allergic nasopharyngitis was diagnosed. A prescription for cough syrup was not filled or needed.

1/13/78	TX	1 human received medical attention	2,4-D (amine)	<p>A male of unknown age underwent supportive treatment at a hospital emergency room after he experienced accidental skin contamination while hand applying the chemical in a job-related incident. The herbicide solution was registered for general use.</p>
1/14/78	WA	1 human affected, soil, aircraft contaminated	2,4-D + others	<p>An aerial applicator was applying the herbicide to wheat when he hit a power line and crashed. Approximately 90 - 95 gallons of mixed spray was on board at the time of the crash. The pilot, who received only minor bruises and cuts, was contaminated by the pesticide. He was able to walk away from the crash and to decontaminate himself. There were no problems associated with the exposure. It was felt that contamination of ground under the aircraft did not appear to be a problem.</p>
1/14/78	OK	1 human received medical attention	2,4-D Dicamba	<p>In a home-related incident, an adult female got a mouthful of the product. It was unknown whether she ingested it. The subject was treated in an emergency room. No symptoms developed.</p>
1/17/78	CA	1 human received medical attention	2,4-D (ester) Bromacil Pentachlorophenol Petroleum distillate	<p>A male gardener of unknown age was spraying weeds along the track of a public building using a Hudson-type sprayer when the wind blew the spray into his eyes. He developed conjunctival injection and lacrimation. Bilateral chemical conjunctivitis was the diagnosis.</p>

7/78	TX	Home garden, ornamentals damaged	2,4-D (ester)	A ground rig application of the product to an adjacent pasture damaged 147 home garden plants and 8 ornamental plants. The damage was reported as: live oak - severe, pecans - moderate, tomatoes - severe, peppers - moderate, squash - severe, 4 rows of beans and 2 of potatoes - severe.
1/78	WA	Well contaminated	2,4-D 2,4,5-TP	Approximately 2 gallons of diluted spray mix were emptied on top of a well cover. A youth who took care of the homeowner's lawn did not realize that the cement lid was a well cap. The home owner was concerned about contamination of the well. There was no unusual taste or odor to the water from the well. A sample of the well water was taken for analysis one day after the incident. The results revealed no trace of the chemicals in the water.
8/78	NM	1 dog affected	2,4-D (ester) 2,4,5-TP (ester)	A pet Chihuahua exhibited symptoms of lethargy and pain after an accidental contamination with the product. An unspecified treatment was administered by a veterinarian. The insecticide emulsifiable concentrate was registered for general use.
12/78	CA	17 humans affected	2,4-D (ester) Pentachlorophenol Bromacil Petroleum distillate	The herbicide being sprayed outside of an industrial plant was inducted into the plant through a ventilation system. Workers complained of headache and nausea. A foreman sent the employees home. The plant nurse was not notified about the incident until later. The next shift which went to work 3 - 4 hours later experienced no ill effects.

4/24/78	UT	1 human affected	<p>2,4-D (ester) 2,4,5-TP (ester)</p> <p>A father measured the product (emulsifiable concentrate) with a spoon which he partially rinsed and laid down. His 18-month-old son put the spoon into his mouth. The child was observed; no symptoms developed.</p>
4/24/78	UT	1 human affected	<p>2,4-D (ester) 2,4,5-TP (ester)</p> <p>A 30-month-old boy was found with a bottle of the product concentrate. It appeared that the child was trying to open the bottle with his mouth; the odor of the product was on his hands and face. The child was washed and placed under observation. The subject remained asymptomatic.</p>
4/24/78	UT	1 human received medical attention	<p>2,4-D M CPP</p> <p>In a home incident, a 5-year-old boy played on the lawn that had been fertilized with the product that day; it had not been watered. The child developed a red rash and itchiness on his face, arms, legs and chest. The parents called a local poison control center and the family physician. The boy was bathed and treated with an unspecified lotion and an antihistamine for the itching. No other symptoms developed. The rash disappeared in 36 hours. It was believed that the child experienced an allergic reaction to the fertilizer.</p>
4/24/78	TX	1 human received medical attention	<p>2,4-D (ester) 2,4,5-TP (ester)</p> <p>In a home-related incident, an 18-month-old female ingested an unknown amount of the pressurized product. She was treated with ipecac, lavage and observation at a hospital emergency room. The child remained asymptomatic.</p>

125/78

LA

Ornamentals, fruit,
nut trees damaged,
pasture affected

2,4-D

Heavy phenoxy-type herbicide damage in ornamental plants and in a pasture was observed after the aerial application of the product to an adjacent field. The following plants were damaged: one pecan tree, five plum trees, 20 ligustrums, two camelias and 22 azaleas.

125/78

TX

Ornamentals
damaged

2,4-D

Pear, sycamore and pecan trees along a major river showed slight to severe effects of hormonal-type herbicide after an aerial application of 2,4-D to rangeland.

127/78

WA

1 human received
medical attention

2,4-D

Ipecac was administered to a 3-year-old boy who was suspected of ingesting a portion of a herbicide cartridge. He remained asymptomatic.

128/78

CA

1 human received
medical attention

2,4-D (amine)

A 42-year-old male construction worker found and picked up a 25-pound bag of the product along the freeway on his way home from work. He loaded it into the cab of the truck and until he got home (approximately 2 hours), he breathed the fumes. He felt "woozy" and thought it was from the fumes of the bag he had picked up. He did not see a physician. The subject burned his clothes and stayed home from work for one day.

4/28/78

NJ

Humans involved
(unspecified number), 9 affected,
1 received medical
attention, water,
debris, fish
contaminated

2,4-D
+ 27 others

Six people had symptoms including headaches, tiredness, nausea and weakness (alone or in combination) within 6 hours of their presence at a fire at a gardening supply store. Three other people had complaints 24 - 48 hours later. Fire fighters, who wore self-contained breathing apparatus and skin covering, were not affected; none of the affected persons used respiratory protection. All but one recovered completely within 24 hours. Cholinesterase levels were normal. No pesticide residue was found in blood. Of approximately 662 pounds of pesticide active ingredients in the store's inventory, approximately 20% had been sold before the fire, leaving approximately 530 pounds of active ingredients in the store at the time of the fire. An estimated 9 pounds of chlordane were unaccounted for after the fire, and were presumed to have been consumed in the fire or washed into a stream. A stream and lake adjacent to the store were contaminated and some fish (suckers, pickerel, and others) were killed. Samples of dead fish (5/1) contained 612 - 1,141 ppb chlordane and 460 - 746 ppb lindane. Live fish samples (carp, brown bullhead, golden shiner, black crappie, bluegill sunfish) contained concentrations of 160 - 1,141 ppm chlordane; these levels generated concern in view of the National Cancer Institute's recommended minimum daily intake of 1 ug/kg/day chlordane for humans. No FDA tolerance level was available for chlordane at the time of the incident; the previous standard (1974) was 0.3 ppm. Lindane concentrations in live fish samples ranged from 11 - 746 ppb. Lake sediment contained more than 50 ppb chlordane, compared to a control sample of over 25 ppm taken upstream. The lake was closed to fishing, boating and swimming on 4/28/78. Further testing was scheduled. Testing done at 11 - 11:30 a.m. on 4/28/78 revealed: 1) the fire site at point of fire water runoff - 4 ppb malathion, 9 ppb diazinon, 1.6 ppb lindane, 6 ppb chlordane; 2) upstream of fire water runoff - 3 ppb chlordane, no organophosphates detected; 3) intersection of creek

and lake - 7 ppb chlordanes, no organophosphate detected; 4) creek to road intersection - 11 ppb chlordanes, no organophosphates detected. 4/29/78 results 8 a.m. - 12 p.m.: 1) upstream - no chlorinated hydrocarbons detected, no organophosphates detected; 2) irrigation pond - no chlorinated hydrocarbons detected, no organophosphates detected; 3) creek - 0.22 ppb diazinon, 0.66 ppb chlordanes, 0.11 ppb lindane; 4) upper end of lower lake - 23.0 ppb diazinon, 17.0 ppb malathion, 6.1 ppb chlordanes, 6.39 ppb lindane.

78

UT

1 human affected

2,4-D (butoxypropyl)
2,4,5-TP (butoxypropyl)

A 39-year-old female was spraying the product when she got some of the product on her hands. Her hands and arms began to burn and some slight shaking occurred. She washed her hands and arms; within an hour she felt fine and finished spraying wearing disposable gloves.

1/78

TX

Crop damaged
(8 acres cotton)

2,4-D

Cotton that was adjacent to a herbicide-treated pasture had moderate to severe effects. The product had been applied by a ground rig.

0/78

OR

1 human received
medical attention

2,4-D

A 43-year-old male was using granular 2,4-D without gloves; 2 weeks later he became ill. A serum analysis revealed no 2,4-D.

11/78

WA

Humans involved
(unspecified number), soil, vegetation contaminated

2,4-D

A number of residents were concerned about chemicals applied for weed control at the school their children attended. Investigation of the incident revealed that some excess, unwanted floor finishing (wax) had been applied to some weeds as a means of disposing of the compound. The school custodians had been

dissatisfied with the wax, and the company, not wanting to pay return freight charges on a 35-gallon drum of wax, suggested that it might prove effective in retarding weed growth. In addition to the floor wax, the custodians, on or about 5/1/78, applied herbicides in two areas on the school grounds; in one location a ready-to-use herbicide was used and in the other area a concentrate without dilution. The containers had been disposed of by 5/17/78, and it was unknown what type of herbicides had been applied. Vegetation and soil samples were analyzed obtaining the following results (ppm 2,4-D): 1) kindergarten area, vegetation - 13.0 and soil - 9.1; 2) parking lot area, vegetation - 120.0 and soil - 59.0. The suspected 2,4,5-T was not found in any samples.

2/78

NJ

1 human received
medical attention

2,4-D
MCPP

This was an undescribed home-related incident in which a child less than 5 years of age was orally exposed to the granular pesticide.

3/78

UT

1 human affected

2,4-D (amine)
Disodium methanearsonate
Heptachlor
Dimethyl tetrachloroterephthalate
MCPP (amine)

A 2-year-old boy went outside to play on a freshly fertilized lawn. After playing for 30 - 60 minutes he developed an itchy skin (head and ear). The affected skin was red and there appeared to be a rash. After examining the boy, the family physician concluded that the child had four insect bites. The fertilizer had not affected the boy.

10/4/78

CA

1 human received
medical attention

2,4-D (amine)
Dalapon (sodium salt)
Dalapon (magnesium salt)

A 24-year-old male groundskeeper was helping spray a weed killer and some of the product got in both eyes and on his face. After the application, he pulled in the hose. Symptoms appeared some hours later after he got home from work and took a shower. After examining the subject, a physician concluded that the worker had developed chemical conjunctivitis. The visual acuity of the left eye without

correction was 20/25; it went down to 20/40 and returned to 20/25. The cornea and the "A/C" were clear; the conjunctiva was injected with papillary "fx." The subject was treated with Neodecadron. The foreman stated that workers who did not come in contact with any pesticides also developed similar but less severe symptoms. These workers, including the affected individual, had been hand pulling weeds during the day.

5/78

LA

Orchard damaged
(270 navel, 30
satsuma orange
trees)

2,4-D (amine)
Dicamba (amine)

Drift from an aerial application of the product damaged orange trees. The extent of the damage could not be determined.

5/78

LA

120 citrus trees
damaged

2,4-D (amine)
Dicamba (amine)

The extent of damage by drift from an aerial application of herbicide was not determined.

5/78

LA

Orchard damaged
(190 orange trees,
100 satsumas, 35
mixed variety
citrus)

2,4-D (amine)
Dicamba (amine)

Drift from an aerial application (6 - 7 miles away) caused slight damage. Phenoxy symptoms were apparent in surrounding vegetation and in some new citrus growth.

05/78

LA

Orchard damaged
(4,500 navel, sat-
suma orange trees)

2,4-D (amine)
Dicamba (amine)

Herbicide drift from an aerial application caused undetermined damage to the surrounding area.

05/78

LA

Orchard damaged
(1 tangerine, 1
grapefruit, 13
satsumas, 3 navel
orange trees)

2,4-D (amine)
Dicamba (amine)

The severity of the damage from a pesticide aerial drift was not determined.

5/78 LA Home garden, orchards damaged 2,4-D (amine)
Dicamba (amine)
A herbicide drift from an aerial application caused damage to 70 navel and 350 satsuma orange plants as well as to a home garden. Two rows (approximately 110 yards long) of tomatoes, beans, peppers and eggplants were affected.

5/78 LA Orchard damaged (140 satsuma orange plants) 2,4-D (amine)
Dicamba (amine)
The severity of the damage by a herbicide drift from an aerial application was undetermined.

5/78 LA Home garden, orchard damaged 2,4-D (amine)
Dicamba (amine)
A herbicide drift from an aerial application caused damage to 250 navel and 25 satsuma orange plants, 250 tomato plants and 250 eggplant plants. The severity of the damage was undetermined.

5/78 LA Crop damaged (13,780 tomato plants) 2,4-D (amine)
Dicamba (amine)
Slight phenoxy-type herbicide effects were noted after a pesticide drift resulted from an aerial application. The severity of the damage was not determined.

5/78 LA Crop damaged (tomatoes) 2,4-D (amine)
Dicamba (amine)
The extent of the damage to tomatoes caused by a herbicide drift from an aerial application was not determined.

5/78 LA Crop, orchard damaged (770 navel, satsuma orange trees, 11,573 tomato plants) 2,4-D (amine)
Dicamba (amine)
The severity of the damage of a herbicide drift from an aerial application was not determined.

6/78	LA	Crop, orchard damaged (1,006 navel, satsuma orange plants, 5,170 tomato plants)	2,4-D (amine) Dicamba (amine)	This incident resulted from a herbicide drift after an aerial application in which the severity of the damage was not determined.
7/78	LA	Orchard, home garden damaged (217 navel, 127 satsuma orange plants, 12 grapefruit trees, 160 tomato plants)	2,4-D (amine) Dicamba (amine)	This incident resulted from a herbicide drift after an aerial application in which the severity of the damage was not determined.
7/78	LA	Orchard damaged (250 navel, 250 satsuma orange plants)	2,4-D (amine) Dicamba (amine)	This was a herbicide drift after an aerial application in which the severity of the damage was not determined.
7/78	LA	Orchard damaged (500 navel, 100 satsuma orange plants)	2,4-D (amine) Dicamba (amine)	This incident resulted from a herbicide drift from an aerial application in which the severity of the damage was not determined.
7/78	LA	Home garden damaged	2,4-D (amine) Dicamba (amine)	Twenty-seven rows (approximately 1,000 feet) of eggplants and tomatoes were damaged after a herbicide drift occurred from an aerial application. The extent of damage was undetermined.

5/08/78	LA	Crop damaged (2,467 tomato plants)	2,4-D (amine) Dicamba (amine)	Slight phenoxy-type herbicide effects were noted on a tomato crop after a herbicide drift occurred from an aerial application. Severity of the damage was undetermined.
5/08/78	LA	Home garden damaged (2,682 peppers, corn, peas, tomatoes, cucumber plants)	2,4-D (amine) Dicamba (amine)	Twenty-two rows (130 yards each, approximately) of the plants were damaged from a herbicide drift after an aerial application. The severity of the damage was undetermined.
5/09/78	ID	1 human received medical attention	2,4-D Bromacil	A male of unknown age was working with a spray rig and tractor applying herbicides. As the wind changed in direction, he was sprayed with a fine spray. He was wearing protective clothing and goggles. The subject did not change clothing or shower until evening. The next morning, he did not work and called in sick. He was examined by a physician.
5/09/78	LA	Home garden damaged	2,4-D (amine) Dicamba (amine)	Six rows (approximately 800 yards) of okra, eggplants, tomatoes, potatoes and peppers were damaged from a herbicide drift after an aerial application. The extent of damage was undetermined.
5/10/78	LA	Orchard damaged (1,134 citrus plants)	2,4-D (amine) Dicamba (amine)	A herbicide drift from an aerial application damaged 550 navel, 550 satsuma orange plants, 17 grapefruit, and 17 lemon trees. The severity of the damage was not determined.

LA	Crop, orchard damaged	2,4-D (amine) Dicamba (amine) Damage to 4,616 tomato plants, 225 navel, 275 satsuma orange plants was observed after there was a drift from an aerial application of herbicide. The severity of the damage was not determined.
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MI	1 human affected	2,4-D 2,3,6-Trichlorobenzoic acid The product was being applied to grass at a shopping mall and a male passerby came in contact with the drift of the spray. The man claimed he was not feeling well thereafter. An investigation did not confirm ill effects from the exposure.
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TX	1 human received medical attention	2,4-D In a home-related incident, a 46-year-old male of unknown occupation ingested the herbicide. He was treated with milk, demulcents and was observed at the local clinic.
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1/78

LA	Orchard damaged (235 navel, sat- suma orange plants, 2 fig trees, 3 pear trees)	2,4-D (amine) Dicamba (amine) Herbicide drift from an aerial application af- fected orchard plants and trees. The severity of the damage was not determined.
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11/5/78

AR	Crop damaged (20 acres cotton)	2,4-D (amine) The chemical was applied to a ditch bank 1/5 of a mile from the affected cotton. The symp- toms were described as severe.
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05/18/78

WA	Family affected; 2 received medical attention, soil, plants contaminated	2,4-D (ester) 2,4-D (salt) 2,4,5-T Picloram (salt) A family found it necessary to leave their home overnight due to drift from an applica- tion of the herbicides. The application was made by a department of natural resources to
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control brush. The family received a written notice on 5/16 that the application would be made in late May or early June; the application was made on 5/18 ($\frac{1}{4}$ to $\frac{1}{2}$ mile from the house). The applicator did not call the residents, post signs, or in any way make the residents of the area aware that spraying was to be done. The drift formed visibly and settled in the valley. Relatively dry and warm air in the evening of 5/18 cooled off significantly after mixing with the chemical-water solution. With the additional downwash of a helicopter, a substantial mass of air with spray mist sank along a 20° to 50° slope to the bottom of the valley, which filled completely to the entry road to the residential area. One family had house windows open and fumes entered the house, making it necessary for the entire family to leave the house at midnight. A physician found that the mother had developed an irritated nasal mucous membrane and a red throat and the father had slight nasal congestion after the exposure to the drift. The major portion of the sprayed 40 acres was drained by a small stream which flowed (2 gal/sec in the wet season) eventually into a river. The stream water was used for domestic purposes at various farms in the valley. Tests of water samples indicated there were no residues in the water. The water and foliage samples were analyzed by both the USDA and the Department of Natural Resources; samples were taken by the USDA on 6/2, by the DNR on 6/1. The results were as follows: I. Area of spray application: (a) land uphill (DNR) 813 ppb 2,4-D and 7.6 ppm 2,4,5-T; (USDA) 2.34 ppb 2,4-D and 1.98 ppm 2,4,5-T; (b) maple tree (DNR) 147 ppm 2,4-D and 2,4,5-T 207 ppm; (no USDA figures); (c) sword fern (DNR) 33.4 ppm 2,4-D and 28.2 ppm 2,4,5-T; (no USDA figures). II. Vegetation outside the spray unit (vine, maple): (DNR 7.18 ppm 2,4-D and 13.8 ppm 2,4,5-T; (no USDA figures). III. 00 - 200 yards behind house: (no DNR figures); 107 ppb 2,4-D and 2,4,5-T, none detected. IV. Clearing near house (tree): (DNR) 2,4-D and 2,4,5-T, none detected; (no USDA figures). V. 15' - 20' from house: (no DNR figures); (USDA) 50 ppb 2,4-D and 20 ppb 2,4,5-T. VI. Vegetation near house (DNR) 2,4-D and 2,4,5-T, none detected; (no USDA figures). The claim was settled out of court per attorney's wishes. It was suggested that the brush control spray method be replaced.

CA 1 human received
medical attention

2,4-D
Didecyl dimethyl ammonium chloride
Hydrochloric acid
Bromacil

A 43-year-old male school custodian developed red, itchy eyes after getting the pesticides in his eyes while spraying weeds. The custodian also had cleaned toilets with a cleaning agent, and in the process his eyes again became irritated. Apparently the subject was never given permission nor proper instructions to spray pesticides. The employer, a priest, was willing to follow all laws and regulations; he was not aware of the need to train the employee in the use of pesticides. Rubber gloves had been provided and used. Conjunctivitis was the diagnosis and antibiotic drops were administered.

78 MS Crop damaged
(260 acres cotton)

2,4-D
2,4,5-T
Dicamba (amine)

The field owner reported that his crop was damaged by drift from a ground application of 2,4,5-T and dicamba and an aerial application of 2,4-D to nearby pastureland. Damage by these herbicides was not confirmed by chemical analysis.

1/78 MS Crop damaged
(204 acres cotton)

2,4-D
2,4,5-T
Dicamba (amine)

The cotton field owner reported that his fields were damaged by drift from a ground application of 2,4,5-T and dicamba and an aerial application of 2,4-D to nearby pastureland. Damage by the herbicides was not confirmed by chemical analysis.

0/78 MS Crop damaged
(41 acres cotton)

2,4-D
2,4,5-T
Dicamba

Cotton was damaged by drift from a ground application of 2,4,5-T and dicamba and an aerial application of 2,4-D to nearby pastureland. Damage by the herbicides was not confirmed by chemical analysis.

5/20/78	TX	Crop damaged (50 acres cotton)	2,4-D (ester) 2,4,5-TP (ester) A cattle guard and a culvert were treated with the pesticides. Cotton immediately adjacent to the treated area was severely affected.
5/20/78	WA	1 human received medical attention	2,4-D (ester) 2,4,5-TP (ester) A 6-year-old male rinsed out a herbicide container and then drank from it. His parents called a poison control center for advice. He remained asymptomatic. It was advised that the child be observed for hyperactivity, muscle twitching and unusual behavior.
5/20/78	MS	Crop damaged (221 acres cotton)	2,4-D 2,4,5-T Dicamba The cotton was damaged by drift from a ground application of 2,4,5-T and dicamba and an aerial application of 2,4-D to nearby pastureland. Damage by the herbicides was not confirmed by chemical analysis.
5/21/78	MI	1 human affected	2,4-D (ester) 2,4,5-T (ester) An individual who licked a spoon being used for measuring the herbicides remained asymptomatic.
5/22/78	AR	Crop damaged (cotton)	2,4-D (amine) A drift from an aerial herbicide application to corn (3½ - 4 miles distant) caused severe damage to 45 - 50 acres of cotton.
5/23/78	CA	2 humans received medical attention	2,4-D (ester) 2,4,5-TP (ester) This was a home incident in which two girls (under 5 years of age) were found playing with the pesticide solution. The oldest girl had put the material on the younger girl's feet and back, and on their chests. A poison control center advised the inquirer that the two be cleansed with alcohol and given a bath. The children remained asymptomatic.

1/24/78	OK	1 human hospitalized	<p>2,4-D 2,4,5-T Dicamba MCP</p> <p>An adult male drank one cup (240 g) of a weed killer in a suicide attempt. He developed no illness symptoms; he was treated with charcoal and stomach lavage was performed.</p>
1/26/78	MI	Water contaminated	<p>2,4-D Dicamba</p> <p>Fifty gallons of the chemicals were inadvertently spilled into a lake. Residue analysis showed the herbicides to be present in barely detectable quantities.</p>
5/26/78	AR	Crop damaged (75 acres cotton)	<p>2,4-D (amine)</p> <p>Cotton showed severe symptoms after a drift from an aerial herbicide application to a corn field ½ mile distant.</p>
5/26/78	TX	Crop damaged (75 acres cotton)	<p>2,4-D (amine)</p> <p>An apparent drift from a ground application to pasture resulted in slight to severe phenoxy herbicide symptoms in the top growth of cotton.</p>
5/26/78	AR	Crop damaged (45 acres cotton)	<p>2,4-D (amine)</p> <p>A drift following a herbicide ground application to corn 2½ miles distant caused severe symptoms in cotton.</p>
5/28/78	AR	Home garden damaged	<p>2,4-D (amine)</p> <p>Seven rows of squash, lettuce, cucumber, Kentucky Wonder beans, okra, peas and tomatoes exhibited severe effects after a fertilizer containing 2,4-D was applied to a garden.</p>

30/78	MI	1 dog affected	<p>2,4-D (ester) 2,4,5-TP (ester)</p> <p>A pet dog reportedly ate grass and flowers bordering a yard which had been sprayed with the herbicides. The dog became ill three days later. A veterinarian said the dog had no symptoms of pesticide poisoning.</p>
100/78	LA	Crop damaged (350 acres cotton)	<p>2,4-D (amine)</p> <p>This was an undescribed agricultural incident in which an aerial drift caused damage in the amount of \$19,153.71 to cotton (the assessment was made by inspectors).</p>
100/78	TX	Crop damaged (66 acres cotton)	<p>2,4-D</p> <p>Six acres of cotton showed severe effects and 60 acres had slight to moderate effects from a hormonal-type herbicide. The probable source was 2,4-D applied by ground rig to pastureland.</p>
100/78	MS	Crop damaged (soybeans)	<p>2,4-D (amine) Dicamba (amine)</p> <p>Twenty-two acres of soybeans were possibly damaged by drift of the product being applied (ground application) on a pasture across the road. The damage was not confirmed by chemical analysis.</p>
100/78	MS	Crop damaged (soybeans)	<p>2,4-D (amine) Dicamba (amine)</p> <p>Four acres of soybeans were possibly damaged by drift of the product being applied (ground application) on a pasture across the road. The damage was not confirmed by chemical analysis.</p>
101/78	AR	Crop damaged (36 acres cotton)	<p>2,4-D (amine)</p> <p>Drift of 2,4-D following an aerial application to a corn field (1/2 mile distant) caused severe symptoms on the lower part of cotton plants. At the time of inspection, the plants had overcome the damage.</p>

AR Home garden,
ornamentals damaged

2,4-D

Shade trees, tomatoes, and grapes in $\frac{1}{2}$ acre of a home garden were slightly damaged after an aerial application of 2,4-D to a pasture ($\frac{1}{2}$ mile distant).

IA Unspecified
contamination

2,4-D (amine)
Dicamba (amine)

A few gallons of a 200-gallon mixture (5 pt dicamba/5 pt 2,4-D/200 gal water) were spilled about 10 feet from a well. There was an inquiry about preventing contamination of the well water.

30/78

CA 1 human received
medical attention

2,4-D (ester)
Dichloroprop (ester)

A 57-year-old male pest control operator developed chemical irritation of throat, mouth, nose and lungs after spraying the product for approximately 2 weeks. The employee stated that occasionally the wind would change directions and he would be caught in the drift, at which time he would shut down the sprayer until the wind changed to a safe direction. He had used a spray rig for the roadside spraying and had worn the required safety equipment (hard hat, apron, face shield and rubber gloves). The employee had followed all the precautions on label; he seemed conscientious in his work.

14/78

KY 1 human
hospitalized

2,4-D (ester)
2,4,5-T (ester)

A 26-year-old farmworker sprayed the liquid herbicide with a tank sprayer without using protective clothing. Wind drifted the mist toward him; his clothes were saturated with the herbicides when he returned home in the evening. He changed clothes but did not bathe. He began vomiting in the morning and was taken to the emergency room. Other symptoms included dizziness, ataxia, weakness, nausea, and skin cold to touch. He appeared drowsy but responded to verbal and tactile stimulation. His temperature was 94°, pulse 48 (regular and bounding), respiration 20 and blood pressure 130/80. IV D5W 1,000 with

"intercath" in his left arm (slow drip) was administered and he became stable and slept well by evening. The following morning, he stated he was ready to go home and was released. The individual returned to the hospital complaining of nausea, vomiting and dizziness the following morning. His pulse was 70, respiration 24 and blood pressure 120/60. He was readmitted, IV fluids were administered, and he received general supportive care for three days. He did not return after his second dismissal.

14/78	AR	Crop damaged (650 acres cotton)	2,4-D (amine) Drift of 2,4-D following a ground application to milo caused slight to moderate herbicide symptoms to a cotton crop.
14/78	LA	Crop damaged (cotton, soybeans)	2,4-D Drift from a ground rig application of 2,4-D to sugar cane caused slight to moderate damage to 15 acres of cotton and 12 acres of soybeans.
14/78	CO	7 cattle dead	2,4-D The deaths of 7 cattle (Herefords) were first diagnosed as suspected herbicide poisoning because the cattle had been feeding in an area recently sprayed with the product. A further diagnostic work indicated no pesticide involvement. A final diagnosis of interstitial pneumonia was made.
15/78	AR	Crop damaged (75 acres cotton)	2,4-D (amine) Drift from a ground application of 2,4-D to a milo field caused moderate to severe damage to cotton.
15/78	LA	Home garden affected	2,4-D Drift from an aerial application of 2,4-D to an adjacent rice field brought about light damage to three pepper plants and 2 rows (100 feet) of okra and snap beans.

	WA	2 humans affected 1 received medical attention	2,4-D	A woman was reported to be poisoned by chemical drift after the herbicide application to a neighbor's barley crop. Her symptoms were dizziness, numbness and tingling, burning lips and tongue, depression and light-headedness. The woman and her husband stated that they could smell the odor of the pesticide 5 weeks after the application. The state agriculture department found no plant damage on property. Air samples taken for analysis were negative for 2,4-D. The attending physician felt there were emotional problems involved.
7/78	TX	Ornamentals damaged	2,4-D	Pasture adjacent to trees was treated with the herbicide. Fifty-two rows of trees were damaged. The smaller trees were dead; the larger trees showed slight to severe effects.
3/78	TX	Crop damaged (51 acres cotton)	2,4-D (amine)	Field cotton showed slight to severe hormonal-type herbicide effects after a ground application of the chemical to a pasture.
03/78	TX	Crop damaged (16.5 acres cotton)	2,4-D	Cotton had slight to severe symptoms of hormonal herbicide-type injury. The probable source was a ground application of 2,4-D to pasture.
11/10/78	AR	Crops damaged (10 acres cotton)	2,4-D	Cotton showed severe symptoms after the ground application of 2,4-D to a ditch bank (1/5 mile distant).
16/11/78	AR	Crop damaged (114 acres cotton)	2,4-D (amine)	Drift from ground application of the product to a milo field caused moderate damage to cotton.

16/78	OK	Home garden affected	2,4-D	A neighbor sprayed the product which allegedly drifted to the complainant's garden. The extent of damage was unknown.
20/78	AR	Crop damaged (soybeans)	2,4-D (amine) 2,4,5-T (amine)	There was drift from a rice field aerial application of the herbicide. Phenoxy symptoms (light to severe) appeared in the 188-acre soybean crop 20 to 30 yards away, including bent stalks, dead plants, strapping of leaves, and knots and scars on the stems.
21/78	WA	2 humans received medical attention	2,4-D (ester) 2,4,5-T (ester)	A 10-year-old boy and an 11½-year-old girl applied herbicide for their grandfather. The boy developed a rash the day of the application; it lasted three to four days. The girl developed a rash the day following the application; it lasted two weeks. A physician prescribed medication to relieve itching. After the rash cleared there were no further problems. The physician felt the rash was an allergic reaction rather than pesticide poisoning.
22/78	CA	Ornamentals damaged, soil, vehicle contaminated	2,4-D (amine)	A 5-gallon drum of 2,4-D fell from a truck; the container was struck and ruptured by another truck. The contents were splattered along the shoulder of a freeway (approximately ¼ mile long) by ensuing traffic, causing some damage to roadside ornamentals (ice plants, oleanders).
22/78	AR	Crop damaged (24 acres cotton, 7 acres soybeans)	2,4-D (amine) 2,4-D (lithium salt) Dicamba (amine)	Herbicide symptoms (slight to moderate) were determined to be present in cotton and soybean crops after there was drift from a ground application of the chemicals to pastureland (120 - 250 feet distant).

24/78	LA	Crop damaged (cotton)	2,4-D (salt)	A damage assessment of \$3,946.94 was made by an inspector after there was an aerial drift of 2,4-D to 269.6 acres of cotton.
24/78	AR	Home garden damaged (1 acre; peas, tomatoes, okra)	2,4-D (amine)	Moderate herbicide symptoms were observed after there was drift from an aerial application of the chemical to rice (1/2 mile distant).
24/78	AR	Crop damaged (cotton)	2,4-D	Slight herbicide symptoms were observed in a 20-acre cotton crop. No source of contamination was found. An adjacent field showed no symptoms.
25/78	LA	Crop damaged (140 acres cotton)	2,4-D (amine)	A damage assessment of \$7,318.18 was made by an inspector after there was drift following an aerial application of the product to cotton.
25/78	LA	Crop damaged (60 acres cotton)	2,4-D (amine)	An aerial drift of the product to cotton brought about a damage assessment (made by an inspector) of \$3,015.17.
25/78	LA	Crop damaged (79.6 acres cotton)	2,4-D (amine)	An aerial drift of the product to cotton caused assessed damages amounting to \$1,407.56.
26/78	AR	Crop damaged (40 acres cotton)	2,4-D 2,4,5-T	After the herbicide was applied to a rice field via helicopter, a storm occurred. It was uncertain if the unspecified slight damage was definitely caused by the herbicide.

6/26/78	IA	Soil contaminated	<p>2,4-D 2,4,5-T (ester)</p> <p>A 55-gallon drum of the herbicide was spilled when the transporting truck of a county spray crew was involved in an accident while traveling to the spray site. The spill occurred about 500 to 700 yards from a creek from which dairy cattle drink. The contaminated soil was to be removed and replaced.</p>
6/26/78	AR	Crop damaged (110 acres cotton)	<p>2,4-D (amine)</p> <p>Slight herbicide symptoms on cotton were observed after the alleged drift from a ground application of 2,4-D to a milo field.</p>
6/28/78	NM	Crop damaged (120 acres cotton)	<p>2,4-D</p> <p>The product was applied by air to a milo field adjacent to a cotton field on 6/6-7-26-28/78. The investigation conducted by an inspector from the division of pesticide management revealed that on the dates of the applications the prevailing winds were blowing toward the cotton fields. The extent of the damage was not reported.</p>
6/28/78	NM	Crop damaged (100 acres cotton)	<p>2,4-D</p> <p>Four aerial applications (6/6-7-27-28/78) of the chemical to a milo field caused damage to an adjacent cotton crop. An inspector from the division of pesticide management estimated that approximately 60% of the bolls were injured. It was also determined that on the dates of the applications the prevailing winds were blowing toward the cotton fields.</p>
6/29/78	LA	Crop damaged (210 acres cotton)	<p>2,4-D (amine)</p> <p>Damage to a cotton field from an aerial drift of the product was assessed to be \$1,690.00</p>

	AR	Crop damaged (95 acres cotton)	2,4-D (amine) 2,4,5-T (amine) Spray drift from an aerial application to rice 1 mile away caused moderate phenoxy herbicide symptoms to a cotton crop. Leaf strapping showed a new growth and leaves were crinkled around the edges.
3	LA	Crop damaged (120 acres cotton)	2,4-D (amine) Damage to the cotton crop (aerial drift of 2,4-D) was assessed at \$15,396.69.
78	LA	Crop damaged (105 acres cotton)	2,4-D (amine) Aerial drift of 2,4-D caused damages of \$10,296.83 to a cotton crop.
78	TX	Home garden damaged (1/2 acre tomatoes, peppers, peas, beans)	2,4-D 2,4,5-T A fence row adjacent to the affected garden was treated with the herbicides. Symptoms appeared in the garden plants (leaf cupping, curling of terminal growth). The severity was listed as "slight."
7/78	LA	Crop damaged (44 acres cotton)	2,4-D (amine) Aerial drift of the product caused damages of \$525.16 to a cotton crop.
7/78	AR	Crop damaged (watermelons)	2,4-D A fungicide contaminated with 2,4-D was applied aerially to 27.5 acres of watermelons which were moderately damaged. The plants were laid down with the leaves twisted. There was a little of the herbicide left in the mixing barrel of a spray tank which supposedly had been cleaned out.

1/78	TX	1 human affected	2,4-D (amine)	An adult male of unknown age developed symptoms of headache and drowsiness after inhaling fumes from a herbicide product. He was advised to go to an emergency room if symptoms became serious. His wife was a medical technician and was expected to recognize symptoms of severe poisoning.
9/78	AR	Crop damaged ($\frac{1}{2}$ acre okra, beans, squash, corn, tomatoes)	2,4-D (amine) Picloram	An aerial application of the product caused damage (slight to moderate burned foliage) to a crop. Snap beans were the most severely damaged.
9/78	LA	Crop damaged (40 acres cotton)	2,4-D (amine)	An aerial drift of the chemical caused damages of \$312.52 to a cotton crop.
11/73	OH	1 human affected, vegetation contaminated	2,4-D (amine) Picloram (amine)	An aerial applicator oversprayed a farmer's property while spraying a private right-of-way. The state agricultural department was investigating the incident.
15/78	TN	Humans affected; unspecified number received medical attention, soil, water involved	2,4-D 2,4,5-T	A 3,000-acre tract was aerially sprayed by a commercial applicator; drift occurred over a wide area. There were reports of coughs, skin rashes, and sore throats. The symptoms were diagnosed as possible pesticide poisoning. Soil, water and forage samples were taken for analysis but a state agency was unable to pinpoint a residue. A heavy rain fell after the application and before sampling.

15/78	LA	Crop damaged (99 acres cotton)	2,4-D (amine) Aerial drift of the product to cotton caused damages of \$270.48.
15/78	MI	Orchards damaged	2,4-D Three rows (100 feet long) of grapes exhibited herbicide-like damage. It was thought that there was a possible drift from nearby fields, or possibly the grower may have used a contaminated sprayer previously used for herbicide application. The farmer felt that a neighbor may have intentionally sprayed his grapes.
17/78	AR	Home garden damaged (tomatoes, peas, okra, watermelons, cantaloupe)	2,4-D 2,4,5-T Symptoms were slight in the garden produce. A ground application of the herbicide had been made to an unspecified area to control brush.
21/78	TN	Crop damaged (tobacco)	2,4-D 2,4,5-T Tobacco samples were analyzed for residues of the pesticides, and the laboratory results indicated both were present on samples from two farms. The incident was caused by spray drift during a field application.
28/78	MI	1 human affected	2,4-D In a home incident, a child less than 5 years of age remained asymptomatic after ingesting a small amount of the herbicide.
31/78	OH	Soil contaminated	2,4-D (ester) 2,4,5-T (ester) A tank truck carrying 400 gallons of herbicide mixture overturned and all but 40 gallons was spilled on the road. An EPA agency supervised removal of the contaminated top soil.

02/78	OK	1 human received medical attention	<p>2,4-D</p> <p>In a home incident, an adult male developed symptoms of chest pain, vomiting and dizziness after oral and dermal exposure to an undetermined amount of 2,4-D.</p>
04/78	IA	1 human affected	<p>2,4-D (ester) 2,4,5-TP (ester) Piperonyl butoxide Pyrethrins Petroleum distillate N-Octyl bicycloheptene dicarboximide</p> <p>A 12-year-old boy sprayed pesticide onto his fingers; the skin became white. He washed his hands several times. The subject remained asymptomatic.</p>
06/78	NM	1 human affected	<p>2,4-D</p> <p>Nineteen hours after a neighbor sprayed his yard, an individual over 65 years of age developed nausea. The subject had been undergoing radiation therapy for cancer.</p>
08/78	CA	2 humans received medical attention	<p>2,4-D</p> <p>A male and female, 24 to 30 years of age, developed diarrhea, burning throat, abdominal swelling, cramps, muscle tenderness and stiffness of their backs and extremities after eating blackberries that had been sprayed with the chemical. They visited a physician.</p>
08/78	OH	Soil contamination	<p>2,4-D 2,4-D (amine) M CPP (amine)</p> <p>A 2.5-ton truck overturned at the junction of an interstate expressway and a road, demolishing the tractor and spilling 10 gallons of a 300-gallon mixture of water containing 9 pints of M CPP and 6 pints of 2,4-D - 2,4-D (amine). An EPA agency supervised decontamination by spreading cement over the contaminated area.</p>

3/08/78	TX	Home garden damaged	2,4-D (amine)	A ground rig application of the product to pasture caused damage (slight to severe) to 2 acres of purple hull peas, blackeyed beans and cream peas.
3/17/78	SC	1 human received medical attention	2,4-D (ester) 2,4,5-TP (ester)	A 16-year-old male accidentally sprayed the herbicides into his eye. He reported that he irrigated his eye with water continuously for five minutes. He was advised by the poison control center to continue the eye irrigation and to seek medical attention if burning continued or if other symptoms developed.
8/18/78	MI	1 human affected	2,4-D	An adult developed a burning sensation in the mouth after the spray drifted into the face.
8/25/78	MI	1 human affected	2,4-D	In a home incident, a child less than 5 years of age remained asymptomatic after having a "taste" of diluted herbicide.
9/01/78	MN	1 human involved, soil contaminated	2,4-D (ester)	In an agriculture-related incident, an aerial applicator crashed in a corn field spilling 150 gallons of a mixture of 3/4 qt 2,4-D/3 gal water.
9/01/78	MI	1 human received medical attention	2,4-D 2,4,5-T	A housewife reached into a thicket and touched stinging nettle; she developed a local irritation, blistering and swelling. Her continued central nervous system reactions more than a month later led to questioning the possibility of pesticide involvement. A highway department crew had sprayed the area 2½ months earlier. The physicians who were contacted doubted the pesticide relationship. The individual was to undergo extensive testing for deep-seated neurological involvement. This incident was found not to be pesticide related.

1/15/78	TX	1 human hospitalized	<p>2,4-D (amine) MSMA</p> <p>A 51-year-old male crop duster developed emesis, muscle weakness, blurred vision and nystagmus after he experienced skin contamination with the chemicals. A hospital treatment consisted of an electrocardiogram, study of liver and renal function baselines, 30 minutes' central nervous system observation and 30 minutes of vital signs readings. In a follow-up the next day, the subject was found asymptomatic. He was hospitalized 2 days.</p>
1/18/78	NM	1 human received medical attention	<p>2,4-D (ester) 2,4,5-TP (ester) Malathion</p> <p>An individual who had been spraying with the pesticides developed abdominal cramps. The attending physician treated him with atropine (0.8 mg), and he was discharged without symptoms.</p>
1/20/78	OH	Water contaminated	<p>2,4-D-(amine)</p> <p>A truck was parked partially on a bridge sidewalk section of a creek while being filled. After the 1,200-gallon tank was filled with water plus 3 quarts of the product, the front wheels of the truck broke through the sidewalk spilling approximately 250 gallons of the mixture into the creek. The truck was removed several hours later. An EPA agency supervised the final disposition of this incident.</p>
1/01/78	HI	1 human affected	<p>2,4-D (ester) 2,4,5-TP (ester)</p> <p>A 50-year-old man was taken to a hospital for treatment of difficulty in breathing following the use of the product (emulsifiable concentrate) in his garden. The subject had a medical history of asthma. A physician from the hospital inquired about the toxicity of the chemicals. It was unknown whether the chemical precipitated the symptoms.</p>
1/12/78	NC	1 human involved	<p>2,4-D 2,4,5-T</p> <p>While employed as a sales representative in 1974 and 1975, a man was exposed to both</p>

chemicals. He had both dermal and respiratory exposure while working in 20 states. The individual became concerned as the date of his marriage approached about the possibility of genetic damage as the result of his exposure. He was reassured.

NM 2 humans affected

2,4-D (amine)

Two boys, 1 and 2 years of age, opened a pesticide container (non-safety) and spilled some of the product on their legs. They developed skin irritation. The area was decontaminated.

FL 1 human received medical attention

2,4-D (ester)
2,4,5-TP (ester)

An adult male accidentally sprayed the product into his face and eyes in a home incident. A physician washed the subject's eyes and decontaminated the skin. The man's eyes were inflamed for 2 days after the exposure. A dermatologist treated additional symptoms of skin blisters successfully.

TX 3-4,000 humans involved; unspecified number received medical attention, soil contaminated

2,4-D (amine)
2,4,5-T
+ 12 others

A warehouse located 1 mile out of town and owned and used by a chemical company burned and caused the evacuation of a portion of the city (3 - 4,000 people) when smoke from the fire drifted over the town. The fire alarm had sounded at 5:05 a.m. Water had been used at first and then changed to foam which was not successful either. The firemen wore self-contained breathing equipment throughout the fire and avoided the smoke as much as was possible. The smoke had a definite chemical odor. Crops growing in the area were endangered because of ash fallout. Crops sampled in the downwind area were negative for residues. Three people had heart attacks during the evacuation. Blood samples obtained from the firefighters and law enforcement personnel exposed to smoke were within normal cholinesterase limits. Detailed arrangements were made for removing the contami-

nated soil and the ash. The plant manager was instructed to put up warning signs and to rope off the fire area.

CA 1 human received
medical attention

2,4-D
MCPP

In a home incident, a woman was fertilizing her yard with the chemicals when her 2-year-old daughter got some of the product in her mouth. She removed the material and gave the child milk. The mother called the poison control center for advice. The child remained asymptomatic.

CA 1 human received
medical attention

2,4-D

This was an undescribed home incident in which a 12-year-old boy inhaled fumes of the product. The child developed chest pain (24 hours post exposure) and nausea (24 - 48 hours post exposure). "Accidental agricultural childhood poisoning" was the diagnosis.

CA 1 human received
medical attention

2,4-D
Sulfur

A crop duster was dusting sulfur on the south side of a sugar beet field when a breeze blew the dust across the field to the north side and into the eyes of a 27-year-old male who was spraying 2,4-D (ground application) on a drain ditch. The subject's eyes started burning and became sore; his eyes were irrigated with water on the site. Fluorescein stain was instilled in both eyes and examined with the ultra-violet light and the slit-lamp microscope; it was found there were fine erosions on the globes of both eyes and some inflammation in the lower parts of both eye globes. His visual acuity wearing glasses was 20/20 in his right eye and 20/30 in his left eye; his blood pressure was 104/80 and a urinalysis test was negative for glucose and protein. The man's eyes were irrigated with an unspecified solution and "Naphcon Forte" eyedrops.

NJ 1 human affected

2,4-D

This was an undescribed home incident in which a 34-year-old boy was exposed to the herbicide. The child remained asymptomatic.

	MN	1 dog treated	2,4-D In a home incident, a pet dog exhibited weakness, ataxia, depression, myotonia and had an elevated creatinine phosphokinase after a "repeated" exposure to the herbicide sprayed on dandelions in a lawn.
9	UT	1 human involved	2,4-D (ester) 2,4,5-TP (ester) The chemical was sprayed in a yard and there was concern that the fumes (drift) would injure a 1-year-old boy. The child remained asymptomatic.
79	UT	1 human affected	2,4-D Phosphorus An adult male was spreading the product when some blew into his eyes. Ten minutes later his wife called a medical center for information. The subject irrigated his eyes with water for 10 minutes. The man reported redness of the eyes and burning. The product was mixed with a fertilizer containing nitrogen, phosphorus and potassium.
5/79	UT	1 human affected	2,4-D (amine) Dicamba (amine) A 2-year-old girl was found with a small can of the product; she had one pellet by her lip which was bleeding. The mother washed off the contaminated skin; the child appeared asymptomatic. A medical center was contacted 5 minutes after the exposure.
07/79	UT	3 humans affected	2,4-D Dicamba Three girls (4, 8 and 9 years of age) ingested hailstones from a lawn that had recently been treated with the product. The children remained asymptomatic.
1/12/79	UT	1 human affected	2,4-D (amine) A 2-year-old boy was found with a bottle of the product at his lips. He may have ingested the material; he remained asymptomatic.

5/13/79	NM	1 human received medical attention	2,4-D	An adult male called the local poison center 1 hour after his exposure to the product. He had been spraying his lawn with the material and had a cut on his finger; he wanted to know if he could be contaminated with the herbicides. He experienced abdominal pain which may have been due to the exposure. It was recommended that he wash his hands thoroughly and observe for signs and symptoms of toxicity from this herbicide. A follow-up was not possible because the subject declined to leave his name or telephone number.
5/13/79	NM	1 human received medical attention	2,4-D (ester) 2,4,5-TP (ester)	A 12-month-old boy was found in a shed in back of the house holding an opened bottle of herbicides. It was unknown whether the child ingested any of the material. The boy was administered ipecac and given a bath at an emergency room. The child remained asymptomatic. In a 48-hour follow-up the subject was found unchanged in his condition.
5/13/79	UT	1 human affected	2,4-D	A 6-year-old girl was found with the spilled product on her hands. She remained asymptomatic.
5/13 - 15/79	MS	1 human hospitalized	2,4-D (amine) Dicamba (amine)	This 56-year-old male farmer had been spraying (ground application) his pasture with the chemicals when he developed chest pains and a high fever. He was admitted to a hospital where he was kept for observation for 4 days. After his condition improved he was released and told not to return to work until fully recovered. A diagnosis of "probable inhalation, lung injury" was made.
5/14/79	UT	1 human affected	2,4-D (ester) 2,4,5-TP (ester)	A 2-year-old girl was found with the product spilled on her hands and a herbicide odor on her breath. She remained asymptomatic.

5/14/79	UT	1 human affected	<p>2,4-D (amine) Dicamba (amine) MCPP (amine)</p> <p>A 3-year-old boy ingested bread 1 hour after it had been sprayed with the product. The child remained asymptomatic.</p>
5/15/79	UT	1 human affected	<p>2,4-D (ester) 2,4,5-TP (ester)</p> <p>A 24-year-old man was trying to fix a sprayer when the spray got into his eyes. He remained asymptomatic.</p>
5/16/79	UT	1 human affected	<p>2,4-D (ester) 2,4,5-TP (ester)</p> <p>A 2-year-old boy opened a can of the product with his mouth, spat, and put the can down. Some of the material remained on his hands. The child remained asymptomatic.</p>
5/16/79	UT	1 human affected	<p>2,4-D (ester)</p> <p>A 12-month-old boy spilled the herbicide onto his clothes. The child was bathed and the clothes decontaminated. He remained asymptomatic.</p>
5/18/79	UT	1 human affected	<p>2,4-D MCPP + others</p> <p>A 6-year-old girl ingested some snack food that had fallen on a lawn treated with the product a few days before. The child remained asymptomatic.</p>
5/18/79	UT	1 human affected	<p>2,4-D (ester) 2,4,5-TP (ester)</p> <p>An 18-month-old male was found with pesticide granules from a lawn around his mouth, probably not more than $\frac{1}{2}$ teaspoon. The child remained asymptomatic.</p>
5/19/79	UT	1 human affected	<p>2,4-D (ester) 2,4,5-TP (ester)</p> <p>A 2-year-old girl sucked on the side of a sprayer that had been in a bottle used for</p>

holding a concentrate solution of 1 tsp herbicides/1 qt water. The bottle was empty at the time. The subject remained asymptomatic.

12/21/79	Unknown	1 human affected	2,4-D (amine) Dicamba (amine) A 25-year-old female accidentally spilled the herbicide on herself (in hair, eyes and mouth). She was slightly nauseated in the morning at work.
1/21/79	CA	1 human received medical attention	2,4-D (C12 amine) 2,4-D (C14 amine) A 40-year-old female, public school teacher came in contact with a school lawn which had been sprayed with the herbicide. She developed dermatitis - welts on the skin which had touched the lawn itched like hives, lasted several hours and recurred the next day. "Florone" ointment was administered for the itching.
1/24/79	UT	1 human affected	2,4-D An 18-month-old female ingested 1½ tablespoon of the product. She was given milk. The child remained asymptomatic.
1/25/79	CA	8 humans received medical attention	2,4-D Seven males (8 - 26 years of age) and a 22-year-old female were exposed to the herbicide while swimming in a contaminated lake; the surrounding area had been sprayed for poison oak. They exhibited symptoms which included rashes, nausea/vomiting, epistaxis, dizziness, generalized itching and skin burns. The diagnosis was "exposure to 2,4-D herbicide." Blood and urine samples were submitted for analysis (CBC, lactic dehydrogenase, alkaline phosphatase, serum glutamic oxalacetic transaminase and myoglobin). Results of these tests were not reported.
1/26/79	UT	1 human affected	2,4-D 2,4,5-TP An individual of unknown age was spraying a lawn when he got some of the herbicide in the

eye. The eye was rinsed, and the subject remained asymptomatic.

UT 1 human affected 2,4-D (ester)
Four days after a pesticide application, a male child chewed on treated dandelion. He remained asymptomatic.

UT 1 human affected 2,4-D
A 3-year-old boy put water into the pesticide bottle cap and drank from it. He remained asymptomatic.

9 CA 1 human received medical attention 2,4-D.
M CPP
A 2½-year-old boy remained asymptomatic after putting a mouthful of fertilizer into his mouth while playing in his home yard. The mother was fertilizing the lawn. The woman washed her son's mouth as soon as she noticed and called a poison control center. "Accidental childhood poisoning" was the diagnosis.

1/79 MN 1 cat dead 2,4-D
A cat was exposed to the herbicide which had been applied to a lawn. The chemical was found in the urine and body fat. The animal was unable to walk, rolled to one side, and had dyspnea.

10/79 MN 1 dog treated 2,4-D
Two weeks before treatment, a pet dog was exposed to the herbicide in an undescribed incident. The animal had vomited and was depressed, had tremors and an increased muscle tone. Fluids, corticosteroids and prophylactic antibiotics were administered. The chemical was detected in the urine.

1/04/79 NV 1 human affected 2,4-D
An adult male remained asymptomatic after having a very large amount of 2,4-D spilled on him at a ranch. He was decontaminated and remained asymptomatic.

UT 1 human affected 2,4-D (ester)
 2,4,5-TP (ester)
A 3-year-old male ingested water from a lawn that had been fertilized with the product 2 days earlier. The lawn had been watered. The boy remained asymptomatic.

UT 1 human affected 2,4-D
A 2-year-old male stuck his hands into the herbicide product and then rubbed his eyes with his contaminated hands. The mother irrigated his eyes for 1 minute. The child cried; it was suspected that he had put his hands into his mouth.

9 LA 1 human affected 2,4-D (ester)
 2,4,5-T (ester)
A woman of 55 - 56 years developed slight skin burning and an unusual taste in her mouth after she was accidentally exposed to the herbicides. She drank water before calling a poison center. She was advised to contact a physician if symptoms persisted. On a follow-up, the person reported feeling better "after talking to someone."

/79 UT 1 human affected 2,4-D (ester)
A 16-year-old, 115-pound female was splashed on the face with a dilute solution of the herbicide. She reported watery eyes and burning in her nose. The subject rinsed her mouth before calling a medical center.

13/79 CA 1 human received
 medical attention 2,4-D (amine)
A 34-year-old male mixer/loader splashed the material into his eyes while opening a can of liquid concentrate 2,4-D with a screwdriver. He wore rubber gloves and "outer clothing." The subject received unspecified treatment at an emergency room. Chemical conjunctivitis was the diagnosis.

5/24/79 UT 1 human affected 2,4-D (ester)
A 2-year-old girl remained asymptomatic after putting a spray in her mouth.

06/25/79	MN	Water contaminated	2,4-D MCPP Niclofen	<p>A truck carrying agricultural chemicals overturned and spilled at least 15 gallons of 3 different chemicals into a road ditch. Some of the herbicides may have washed into a nearby slough. Cattle were moved to another pasture away from the contaminated area. Later investigation revealed that only 1 gallon of niclofen was spilled from the truck. No problems developed.</p>
06/27/79	TX	Humans affected, home garden, ornamentals damaged	2,4-D 2,4,5-T	<p>A woman concerned about health effects and whether crops from the area were edible contacted (6/27/79) a state department of agriculture to report a drift of the chemicals. An investigator was on the scene on 6/29/79. Her property had the most severe damage (defoliated trees and loss of a home garden) of any of the affected properties. A sample from a hibiscus tree was collected and analyzed. Results were 3.31 ppm 2,4-D and 0.1 ppm 2,4,5-T. An agriculture inspector could detect no drift pattern which would reveal the source of the herbicides. The woman alleged that there were three sources of herbicides: (1) the city herbicide applications, (2) a spray tank kept behind the city hall and (3) a disposal site behind the city hall for the herbicides used in 1975. She stated she lived in a straight line from the city hall and that a city councilman along with her had detected damage between the city hall and her home. According to the woman, the neighbors had diarrhea and nausea during the summer. The woman's symptom was a tightness in her chest; she admitted she had a heart problem.</p>
07/03/79	UT	1 human affected	2,4-D (ester)	<p>A 4-year-old male ingested herbicide from an empty can which was in a garbage can. The child had the product on his hands and around his mouth. He remained asymptomatic.</p>

1/07/79	UT	1 human affected	<p>2,4-D (ester) Phosphoric acid</p> <p>A 2-year-old boy was found playing with the product and had some around his mouth. The subject remained asymptomatic.</p>
7/07/79	UT	2 humans affected	<p>2,4-D (ester) 2,4,5-TP (ester) Phosphoric acid</p> <p>A boy and a girl (1 year of age) were found tossing the product at one another and had the material on themselves. They remained asymptomatic.</p>
7/07/79	ND	1 human affected	<p>2,4-D</p> <p>A 39-year-old male sprayed 2,4-D on his legs. He had experienced weakness, dizziness and paresthesia, but was feeling better. As he was 50 miles from the hospital, he was told to stay home if he was improving and to continue to be alert to symptoms.</p>
7/12/79	TX	1 human received medical attention	<p>2,4-D (amine) Malathion</p> <p>A female college student dropout reported symptoms of low grade fever, headache, nausea/vomiting, various aches (ribs, back and arms), blood pressure 85/60, elevated heart rate and blurred vision whenever neighbors applied malathion to pecans or 2,4-D for weed control. A physician diagnosed the subject's condition as a pesticide poisoning. The woman had a recent history of hypersensitivity to chemicals. First symptoms were noted in February 1978 when she was a student at college and worked part-time in a flower shop with a product containing unidentified chemicals. The college dormitory was sprayed for insects while she was away on vacation. She was hospitalized in February and March of 1979. Extensive tests showed allergy to phenols among others. Upon release she was confined to her home. The subject now lives in isolation at her parents' ranch.</p>

7/14/79	WA	1 human received medical attention	2,4-D (ester)	A 3-year-old boy was found playing with the product and may have eaten some. The mother followed poison control center advice and administered an emetic. She kept the child under observation at home; he remained asymptomatic.
7/16/79	UT	1 human affected	2,4-D	A 4-year-old boy found his grandfather's sprayer containing the chemical and sprayed the yard; next, he was seen to be spitting. It was thought he had the material in his mouth. The child remained asymptomatic.
7/17/79	NM	1 human hospitalized	2,4-D (ester) 2,4,5-TP (ester)	A 78-year-old male was admitted to a hospital after having ingested an unknown quantity of the herbicide; he had also slashed his throat. Surgery was performed to repair his carotid arteries. A follow-up 12 hours later found the subject asymptomatic of any pesticide poisoning (no signs or symptoms developed). The man was receiving Cimetidine for gastrointestinal irritation, Kefzol to prevent infection and Digitalis and Lasix for previous chronic pulmonary problems. His urine output was low but the liver functions were normal. On 7/20/79, he was transferred to another unit; he was kept in the hospital only for treatment of his throat and the pulmonary disease.
7/19/79	NE	Water contaminated	2,4-D (ester) 2,4-DP (ester)	Spray equipment fell into a small pool of water near a river; 3 - 4 gallons of the material (1 gal product/100 gal water) were spilled into the pool. The pool was drained and the water sprayed on vegetation nearby.
7/20/79	UT	1 human affected	2,4-D (ester)	A lawn had been sprayed with the product 2 days earlier. A woman watered the grass and changed the sprinkler from one hose to another; the hose may or may not have had

			pesticide residue on it. The woman's daughter (5 months old) touched the hose and then sucked on her fingers. The child remained asymptomatic.
07/23/79	UT	1 human affected	<p>2,4-D (amine)</p> <p>A female child of unknown age stuck her hand into the pesticide bag and then touched her eye. She complained of mild burning in her right eye.</p>
07/24/79	NM	1 human affected, food contaminated	<p>2,4-D MCP P</p> <p>A 2-year-old boy dropped his popsicle on the lawn that had just been treated (10 minutes earlier) with the product and, after picking it up, he ate it. The lawn had not been watered and the product was still in its powdered form. The child was treated at home with milk and observed for 24 hours; he remained asymptomatic.</p>
07/29/79	NM	1 human affected	<p>2,4-D (ester) 2,4,5-TP (ester)</p> <p>A 5-year-old boy was playing in a neighbor's garage and found an empty and dry pesticide plastic bottle. The child filled the container with water and drank from it. Approximately 1½ hours later, a neighbor discovered the child's action and called a poison control center. The subject remained asymptomatic. Milk was given to him to drink.</p>
08/04/79	UT	1 human affected	<p>2,4-D (ester) 2,4,5-TP (ester)</p> <p>A 3-year-old boy rubbed the product into his eyes. A medical center was contacted 1 hour later. The child's eyes were irrigated with water; he was still in pain.</p>
08/06/79	ID	Crop damaged (104 acres hay)	<p>2,4-D Dieldrin p,p'-DDE</p> <p>The chemical was aerially applied by accident to a hay field. Hay samples were submitted by an agricultural extension service agent. The following results were obtained: 2.8 ppm 2,4-D, 0.5 ppb dieldrin and 1 ppb p,p'-DDE.</p>

08/13/79	LA	Humans affected; 1 family received medical attention	2,4-D Azinphos methyl	<p>A person from a physician's office reported that a woman had reported that her family and other persons in her neighborhood had experienced illnesses which were believed to be associated with the applications of agricultural chemicals to sugar cane growing around their homes. These events had been occurring and recurring for more than a year and were related to the growing of the crop. The illnesses were present during three periods: (1) at the time of application of the chemicals, (2) when the soil in the field was being turned and (3) when the cane was being burned prior to harvest (homes were downwind of the crops). The latter period seemed to produce the most serious effects. The woman remarked that there was no apparent misuse of the chemicals. Her husband (a pathologist) agreed and believed that the problem was serious. Illnesses reported were: (1) a swollen, sore throat that lingered on, (2) persistent asthma-like symptoms and (3) cuts and scratches that would not heal. None of these maladies responded to antibiotics. A follow-up call on 1/2/80 revealed that the woman believed the problem still existed but seemingly to a lesser degree as her family did not react as seriously as they had the previous fall. The number of people exposed or affected had not been determined nor the number of people obtaining medical treatment.</p>
03/27/79	NM	2 dogs exposed	2,4-D (amine) Dicamba (amine) 2,4-DP (amine)	<p>Approximately 1 hour after a lawn had been sprayed, two dogs were found in the yard—one dog had rolled around in the wet grass and the other was lying in the wet grass. On a 24-hour follow-up, neither dog had experienced any problem. The animals remained asymptomatic.</p>
9/06/79	NM	1 human received medical attention	2,4-D (ester) 2,4,5-TP (ester)	<p>A 38-year-old woman went to an emergency room approximately 15 hours after a pesticide inhalation exposure. She exhibited symptoms of coughing, choking, headache and chest pain.</p>

A poison control center advised the emergency room personnel to treat the symptoms. A 5-hour follow-up found that the emergency room staff had concluded that the subject's symptoms were related to bronchitis and not to the herbicide. She was then released.

09/11/79	UT	1 human affected	2,4-D (amine) 2,4,5-TP (amine) A 2-year-old female was found playing with the product; she may have ingested some but there was no evidence. A medical center was called immediately after the exposure. The mother washed the child's hands and face. The subject remained asymptomatic.
09/12/79	Unknown	1 human affected	2,4-D (amine) Dicamba (amine) MCPP (amine) A 5-year-old boy ran in a lawn and nearby field that had been treated 3 days earlier. The child remained asymptomatic.
09/12/79	NM	1 human received medical attention	2,4-D (ester) Chlordane Heptachlor Xylene A 32-year-old male city employee was working with the products for approximately 1 hour. Thirty minutes post exposure, his wife called a poison control center to report that her husband was vomiting and had a colorless complexion. It was recommended that the subject shower thoroughly, get fresh air, and be observed for signs of toxicity related to the pesticides. On a 5-hour follow-up, it was reported that the man had eaten a bologna sandwich which may have been spoiled; he also had a spider bite on his arm. These factors may have contributed to his symptoms.
09/19/79	UT	1 human affected	2,4-D (amine) Dicamba (amine) A 3-year-old female dropped a sucker on a lawn (sprayed with the product 1½ hours before), and, after picking it up, she licked it a few times. The child remained asymptomatic.

09/22/79	UT	1 human affected	<p>2,4-D (ester) 2,4,5-TP (ester)</p> <p>This was a home incident in which a 2-year-old boy sprayed a dilute herbicide into his mouth. The dilution rate was 0.09 mg 2,4-D (ester)/cc plus 0.044 mg 2,4,5-TP (ester)/cc. The child remained asymptomatic.</p>
09/27/79	CA	1 human received medical attention	<p>2,4-D (amine) Dicamba (amine)</p> <p>A 44-year-old female secretary developed conjunctivitis after mist from the application got into her eyes. She was rounding a corner of a school building in which an applicator was spraying at the time. It was suggested that the applicator should improve his timing of application and employ an extra person to check areas for approaching people. It was also thought that this was an avoidable accident and it occurred due to subject not observing activity. The secretary's eyes were washed at a physician's office.</p>
10/01/79	ID	3 humans affected; 1 received medical attention	<p>2,4-D Dicamba MCP</p> <p>Three office workers (a 28-year-old male and two females, 23 and 26 years of age) were exposed to the product when fumes were brought inside a building by the duct system during a ground application of the pesticide. Symptoms included headache, body aches, dizziness, breathing difficulty, skin irritation, nausea and eye and throat irritation. Serum and urine were submitted for analysis; no pesticide residues were detected.</p>
10/08/79	NM	1 dog treated	<p>2,4-D Dicamba</p> <p>A veterinarian called a poison control center concerning a dog that was experiencing salivation. The owners were unsure when the ingestion occurred after a ground application was made. On a follow-up, the veterinarian had examined the dog completely and decided to discharge it from the clinic.</p>

10/12/79

UT

1 human affected

2,4-D

Ammonium sulfate

A 9-year-old, 80-pound boy was found playing with an unmarked sack the mother thought contained weed killer and fertilizer. The child was throwing the product into a sand box. She gave him a shower immediately. The boy ate a normal meal and shortly afterward became slightly sick with a mild burning sensation in his throat. His mother said that much of the product was on the ground, and the bag was almost full. A little ingestion was suspected. This incident was managed at home without any further complications.

12/11/79

ID

1 human received
medical attention

2,4-D

A 55-year-old male farmer was admitted to a hospital exhibiting symptoms of peripheral neuropathy and acute renal failure. "A history of use of 2,4-D was evident." Serum and urine samples were submitted for analysis; no 2,4-D, chlorinated hydrocarbon or organophosphorus pesticide residues were detected.