

# **Health Consultation**

**Central Garden and Pet Supply**  
**August 2, 2000 Warehouse Fire**  
*38<sup>th</sup> Place and Broadway Road*  
**Phoenix, Arizona**

**Prepared by**

**Arizona Department of Health Services**  
**Office of Environmental Health**  
**Environmental Health Consultation Services**

**Under Cooperative Agreement with the Agency for Toxic Substances and Disease Registry (ATSDR)**

**October 18, 2000**

## **1.0 Introduction**

A fire began on August 2, 2000 at approximately 5:00 pm at the Central Garden and Pet Supply Warehouse located near 38<sup>th</sup> Street and Broadway Road in south central Phoenix, Arizona. The facility contained a variety of lawn and garden supplies including pesticides, herbicides, and pool maintenance chemicals.

The fire also involved a portion of a pharmaceutical supply firm which contained medical supplies ranging from liquid and pill-form medicines to sterile syringes and other physical supplies. Together, these facilities incorporated approximately 90,000 square feet of stored products.

## **2.0 Purpose**

The purpose of this report is to document the evaluation of the public health effects of the air emissions from the Central Garden and Pet Supply Warehouse fire that was verbally provided during the response efforts to the fire event.

## **3.0 Background**

The Central Garden Supply fire lasted for several hours, and smoke was reported to visibly extend for several miles to the east. The immediate area surrounding the facility consists of warehouses and light industrial businesses. The closest residential neighborhood east of the former facility is located approximately 0.5 miles from the site.

On August 2, the Phoenix Fire Department issued an evacuation advisory for the residential area shortly after the fire began. Police and fire department officials notified area businesses and residents of the evacuation advisory using a variety of methods including going door-to-door in the residential neighborhood.

The following actions were taken by the Arizona Department of Health Services (ADHS) and the Arizona Department of Environmental Quality (ADEQ) during and after the fire event:

- The ADEQ Hazardous Materials Response Team was on-scene during the fire event and collected two air samples from inside the “hot-zone” (the area inside the fire department exclusion zone) and near the residential neighborhood inside the evacuated area. The samples were analyzed for 150 hydrocarbons and halogenated hydrocarbons.
- ADHS staff conducted a door-to-door survey for a portion of the residential area just east of the fire location. The survey was conducted in the Villas East residential area to provide ADHS with information regarding any health conditions experienced by residents of the closest area impacted by the smoke. In conjunction with the survey, ADHS staff provided a fact sheet to local residents and local media regarding the available information and actions residents could take to benefit their own health.
- ADHS staff collected eight dust wipe samples from the metal wall air duct grates from

residences in the evacuation area. All samples were analyzed by the ADHS State Laboratory for 72 common pesticides.

- ADHS staff contacted three local hospital emergency rooms to determine if any local residents sought urgent medical care due to the smoke.

#### **4.0 Methods**

This public health evaluation was prepared using air sampling data, surface wipe samples, the health survey results, and reports from local emergency rooms.

The ADHS evaluates environmental sampling data by comparing the analytical results to established screening levels to determine which chemicals are of potential public health concern. Those chemicals of concern which exceed screening values are then evaluated on a site-specific basis to provide an assessment of potential public health concerns.

The most common screening values ADHS uses are the media specific Comparison Values maintained by the US Agency for Toxic Substances and Disease Registry (ATSDR) for use in evaluating environmental public health concerns. ATSDR's Comparison Values are derived from a review of the scientific research on the effects of exposure to the chemical and standard assumptions regarding human exposure pathways (breathing rate, typical daily food intake, etc.). Chemical levels below ATSDR's comparison values are considered to be safe for all public health exposures. Chemical levels above ATSDR's comparison values are not predictors of adverse health effects. They are used to focus concern on chemicals which need to be evaluated for the specific amounts, pathways, and time frames of exposure from a specific site. When ATSDR comparison values were not available, Occupational Safety and Health Administration (OSHA) occupational exposure standards were used as reference comparisons.

The Health Survey and hospital emergency room reports were tabulated and summarized to record observations and report any adverse health effects in the nearby residential neighborhood. The health survey results have been reviewed and evaluated.

#### **5.0 Data**

##### **5.1 Air Samples**

The ADEQ collected two air samples from inside the "hot-zone" and one near the residential neighborhood during the fire event. The samples were analyzed for 150 hydrocarbons and halogenated hydrocarbons using USEPA methods TO-14 and TO-15.

The air sample from near the residential neighborhood east of the facility was collected at approximately 7:30 pm on August 2. There was smoke visible at the time the residential air sample was collected. One air sample from the "hot zone" was collected over a 1-hour period. A final air sample was a 30-second grab sample collected in "hot zone". Table 1 provides a

summary of the analytical results and comparison values.

**Table 1. Air sampling data and public health comparison values**

Chemical	Residential Sample	Hot Zone 1-hr Sample	Hot Zone Grab Sample	ATSDR Comparison Value	OSHA 8-hr Exposure Limit
acrolein	ND	<b>0.3</b>	<b>42.4</b>	0.05	100#
trichlorofluoromethane	0.6	0.2	0.6	130	--
Freon 113	ND	0.1	ND	--	1000000
carbon disulfide	ND	4.2	ND	300	10000
chloroform	ND	0.8	1.4	100	10000
1,1-dichloropropene	ND	0.1	ND	2	1000
benzene	1.6	168.2	68.1	50	500
n-heptane	ND	7.9	4.8	--	400000
toluene	5.8	82.1	45.9	4000	50000
octane	0.5	4.7	3.2	--	300000
dibromochloromethane	ND	0.2	ND	--	--
tetrachloroethene	0.1	0.1	0.8	200	25000
ethylbenzene	0.6	16.2	12.7	1000	100000
m & p-xylene	1.0	15.1	13.3	1000*	100000
styrene	1.3	29.3	20.3	60	20000
o- xylene	0.4	6.1	6.7	1000*	100000
4-ethyltoluene	0.9	28.2	40.3	--	--
1,2,4-trimethylbenzene	0.2	13.0	6.6	--	25000
1,4- dichlorobenzene	0.6	0.1	0.6	800	10000
chloromethane	0.5	ND	ND	500	--
1,3- butadiene	0.92	ND	28.79	--	2000

All data in parts per billion (ppb)

ND = not detected in sample

\* = CV used is for total xylenes (adding m - & p- xylene data with o-xylene data)

Items in bold exceed the ATSDR CV

# = NIOSH TWA

The results of the residential downwind air sample found that none of compounds for which

analyses were conducted were present at a concentration that represents a long-term public health hazard. Concentrations in the samples collected from the “hot zone” were generally higher than those in the residential downwind sample. Acrolein was present in excess of the ATSDR Comparison Value in the “hot zone” samples. Acrolein is a strong irritant of mucous membranes and the respiratory system. This compound may be responsible for causing burning eyes, cough, and other symptoms.

Fires also produce smoke and fine particulate matter that can cause adverse health effects. Several studies have found an association between exposure to fine particulate matter and asthma episodes, cough, and hospital admissions for respiratory causes. It is likely that elevated particulate matter was present near the fire and in the residential neighborhoods east of the facility. Symptoms of exposure may have included respiratory irritation and/or cough.

These health effects are common from smoke inhalation from almost any fire source and can be very irritating to members of the public or to emergency personnel exposed to the smoke. Sensitive persons (for example those with pre-existing respiratory conditions) may even need to seek urgent medical care when exposed to smoke. However, *the available data do not indicate any chemicals present in the smoke that would be of long-term public health concern.*

## 5.2 Dust wipe samples

ADHS staff collected eight dust wipe samples from the metal wall air duct grates in residences within the evacuation area. All samples were analyzed by the ADHS State Laboratory for 72 common pesticides. The objective of the wipe analyses was to determine whether smoke from the fire deposited pesticides in neighborhood homes. Only three of the 72 pesticides were found in any of the samples. The wipe sample results are shown in Table 2.

**Table 2. Analytical results from residential dust wipe samples.**

Chemical	site a	site b	site c	site d	site e	site f	site g	site h
permethrin	1.1	0.86	5.4	ND	ND	ND	ND	ND
piperonyl butoxide	ND	ND	ND	ND	ND	0.2	ND	ND
chlorpyrifos	ND	ND	ND	0.1	ND	ND	ND	ND

ND= Not Detected

All other sample compounds analyzed were not detected.

All data reported in units of micrograms per 100 square centimeters sample area.

These results suggest that no significant deposition of pesticides occurred in any of the homes tested. The pesticides that were detected are present in over-the-counter home pest control products and are present at very low levels that do not represent a public health hazard.

## 5.3 Community Health Survey

The door-to-door survey was conducted in the Villas East residential area to provide ADHS information regarding any health conditions experienced by residents of the closest area impacted by the smoke. ADHS staff also contacted several local hospital emergency rooms to determine if any local residents sought urgent medical care due to inhalation of smoke. In conjunction with the survey, ADHS staff provided a fact sheet in English and Spanish to local residents and local media regarding the available information at that time and actions residents could take to benefit their own health (see appendix).

Table 3 displays the results of the survey. The table displays whether or not a symptom was reported by any individual in the household.

**Table 3. Results of household community health survey**

Symptom	Yes	No	Percent of households affected
headache	26	36	42%
burning eyes	18	43	30%
cough	15	47	24%
difficulty breathing	14	49	22%
nausea	12	49	20%
dizziness	12	50	19%
skin itching	11	51	18%
stomach ache	10	50	17%
chest pain	9	53	15%
watery eyes	8	53	13%
vomiting	5	53	9%
skin rash	1	59	2%
fever	1	59	2%

The most common effects reported were headaches, burning eyes, cough and difficulty breathing. Other less frequent symptoms reported included nausea, dizziness, skin itch, and vomiting. Thirty-six households (58%) reported no specific symptoms.

A survey of three local emergency rooms the day after the fire and five days after the fire found

that one hospital had treated approximately 10 residents from the area whose symptoms may have been related to exposure to smoke from the fire.

## **6.0 Discussion**

Overall, the findings suggest that smoke from the Central Garden and Pet Supply Warehouse fire caused symptoms including cough, difficulty breathing, headache, burning eyes, and nausea in some area residents. A survey of hospital emergency rooms found that approximately 10 persons sought medical attention in emergency rooms with symptoms that may have been related to exposure to smoke from the fire.

It is likely that elevated particulate matter was present near the fire and in the residential neighborhoods east of the facility. Symptoms of exposure may have included respiratory irritation and/or cough. However, most people who breathe smoke containing particulate matter fully recover with no long-term health effects. Any individuals that continue to experience symptoms from smoke inhalation should see a primary care physician for medical attention.

The laboratory results of air samples found that none of the compounds for which analyses were conducted were present at a concentration that represents a long-term health threat. Acrolein was present in the samples from the “hot zone” near the fire at levels that may have caused irritation of mucous membranes and the respiratory system in exposed persons. This compound may be responsible for symptoms including burning eyes, cough, and other symptoms in exposed persons.

Finally, analyses of dust wipe samples in the residential neighborhood east of the former facility found no significant deposition of pesticides in any of the homes tested.

### **6.1 Child Health Initiative**

ATSDR’s Child Health Initiative recognizes that the unique vulnerabilities of infants and children demand special emphasis in communities faced with contamination of their water, soil, air, or food. Children are at greater risk than adults from certain kinds of exposures to hazardous substances emitted from waste sites and emergency events. They are more likely to be exposed because they play outdoors, they often bring food into contaminated areas, and the developing body systems of children can sustain permanent damage if toxic exposures occur during critical growth stages. ADHS has considered the special needs of children in the evaluation of the Central Garden Supply Warehouse fire event.

## **7.0 Conclusions**



Investigation and sample data collected by ADEQ and ADHS were used to evaluate the public health impact of the smoke from the Central Garden and Pet Supply Warehouse fire on August 2, 2000. The ADHS finds that:

- The smoke from the fire caused respiratory distress in some area residents consistent with smoke inhalation, suggesting that the fire represented an acute (short-term) public health hazard.
- Environmental sampling during and after the fire do not indicate that there is a long-term public health hazard.

## **8.0 Recommendations**

Any individuals that continue to experience symptoms from smoke inhalation should see a primary care physician for medical attention.

## **PREPARERS OF REPORT**

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August 3, 2000*

# **FIRE**

**A fire occurred at 5:00 pm, on August 2<sup>nd</sup> at 38<sup>th</sup> street and Broadway. The fire consumed commercial buildings containing chemicals and plastic materials.**

**As with any fire, smoke can cause:**

- ! breathing problems**
- ! burning eyes**
- ! cough**
- ! sore throat**
- ! headaches**

**These health problems should be mild and temporary.**

**If your symptoms are severe, or if your symptoms continue, please see your doctor and call us at 230-5830.**



*Bureau of Epidemiology & Disease Control Services  
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(602) 230-5830  
1-800-367-6412  
August 14, 2000*

# **INCENDIO**

**Un incendio ocurrió en un recipiente para almacenar que contenía diferentes materiales del incendio ocurrido el día 2 de Agosto, entre la calle 38 y Broadway. Este incendio ocurrió el 12 de agosto a las 12:30 am. Uno de los materiales consumidos en este último incendio son tabletas de cloro. Se sospecha que gases de cloruro se desprendieron como producto secundario.**

**El humo de un incendio puede causar:**

- ! problemas respiratorios**
- ! ardor en los ojos**
- ! tos**
- ! garganta irritada**
- ! dolores de cabeza**

**Estos problemas de salud pueden ser temporales y pasajeros.**

**Si sus síntomas son graves, o si continúan, por favor llame a su doctor y llame al 230-5830.**