

CHAPTER 5: HAZARDOUS MATERIALS MANAGEMENT

5.1 Introduction

A high standard of living has driven society's increasing dependence on chemicals. Hydrocarbon fuels that power the transportation industry, chlorine used to clean our drinking water, and pesticides used in the agricultural sector to grow our foods are all chemicals used on a daily basis and in large quantities. This demand requires the manufacturing, transportation and storage of chemicals. As we will discuss throughout this chapter, these activities provide opportunities for the release of chemicals into the environment, often with negative consequences. As our dependence on chemicals has increased, scientists have discovered that exposure to many of these substances is hazardous to human health and to the environment. As a result, beginning in the late 1960's, Federal, State, and local regulations have been implemented to dictate the safe use, storage, and transportation of hazardous materials and wastes. These regulations help to minimize the public's risk of exposure to hazardous materials.

The United States Environmental Protection Agency (EPA) defines a hazardous waste as a substance that 1) may cause or significantly contribute to an increase in mortality or an increase in serious, irreversible, or incapacitating reversible illness; and 2) that poses a substantial present or potential future hazard to human health or the environment when it is improperly treated, stored, transported, disposed of or otherwise managed. Hazardous waste is also ignitable, corrosive, explosive, or reactive (U.S. EPA 40 CFR 260.10). A material may also be classified as a hazardous material if it contains defined amounts of toxic chemicals. The EPA has developed a list of specific hazardous substances that are in the forms of solids, semi-solids, liquids, and gases. Producers of such substances include private businesses, Federal, State, and local government agencies. The EPA regulates the production and distribution of commercial and industrial chemicals to protect human health and the environment. The EPA also prepares and distributes information to further the public's knowledge about these chemicals and their effects, and provides guidance to manufacturers in pollution prevention measures, such as more efficient manufacturing processes and the recycling of used materials.

The State of California defines hazardous materials as substances that are toxic, ignitable or flammable, reactive, and/or corrosive. The State also defines an extremely hazardous material as a substance that shows high acute or chronic toxicity, carcinogenicity (causes cancer), bioaccumulative properties (accumulates in the body's tissues), persistence in the environment, or water reactivity (California Code of Regulations, Title 22). 

This chapter discusses some of the hazards associated with the use, generation, storage, and transport of hazardous wastes and materials in the City of Glendale, with emphasis on the impact these substances can have on the air we breathe or the drinking water supply. There are hundreds of Federal, State and local programs that regulate the use, storage and transportation of hazardous materials. Some of these programs are discussed in this chapter. However, the environmental regulatory scene is in a constant state of flux as new findings are published and new or modified methods for studying and cleaning contaminants are developed. Therefore, for recent updates, the reader is encouraged to contact the Glendale or Los Angeles County Fire Departments, the Department of Health Services, and/or the Environmental Protection Agency (EPA). This chapter also addresses the potential for hazardous materials to be released during a natural disaster, such as an earthquake, since these events have the potential to cause multiple releases of hazardous materials at the same time, taxing the local emergency response agencies. 

5.2 Air Quality

Each one of us breathes about 3,400 gallons of air every day. Unfortunately, our air is contaminated on a daily basis by human activities such as driving cars, burning fossil fuels, and manufacturing chemicals. Natural events, such as wildfires, windstorms, and volcanic eruptions also degrade air quality. Nevertheless, during the last three decades, the United States has made impressive strides in improving and protecting air quality despite substantial economic expansion and population growth. However, as any resident of the Los Angeles metropolitan area can attest, additional improvements in air quality can and should be made.

5.2.1 National Ambient Air Quality Standards

The Clean Air Act requires the Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards for pollutants considered harmful to public health and the environment. The EPA uses two types of national air quality standards: Primary standards set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly, and secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.

National Ambient Air Quality Standards have been set for six principal pollutants called "criteria" pollutants. These pollutants include:



- Carbon monoxide (CO)
- Nitrogen dioxide (NO₂)
- Particulate matter (PM₁₀)
- Ground-level ozone (O₃)
- Lead (Pb)
- Sulfur dioxide (SO₂)

For each of these pollutants, the EPA tracks two kinds of air pollution trends: air concentrations based on actual measurements of pollutant concentrations in the ambient (outside) air at selected monitoring sites throughout the country, and emissions based on engineering estimates of the total tons of pollutants released into the air each year. The standards or allowable concentrations for these six pollutants are known as National Ambient Air Quality Standards (NAAQS). These are listed in Table 5-1.

Peak air quality statistics for the six principal pollutants measured in the Los Angeles-Long Beach metropolitan area for the year 2000 are listed in Table 5-2. The data show that the peak values for ozone and particulate matter exceed the national ambient air quality standards for those pollutants (values shown in bold), while all other pollutants are below the national standards. Ozone and particulate matter are discussed in detail below.



Ozone is an odorless, colorless gas that occurs naturally in the Earth's upper atmosphere – 10 to 30 miles above the Earth's surface – where it forms a protective layer that shields us from the sun's harmful ultraviolet rays. Man-made chemicals are gradually destroying this beneficial ozone. In the Earth's lower atmosphere, near ground level, ozone is formed when pollutants emitted by cars, power plants, industrial boilers, refineries, chemical plants, and other sources react chemically in the presence of sunlight. Ozone at ground level is a harmful pollutant. Ozone pollution is a concern during the summer months, when the weather conditions needed to form it – lots of sun and hot temperatures – normally occur.

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Table 5-1: National Ambient Air Quality Standards

Pollutant	Allowable Concentration		Type
	In parts per million*	In mg/m ³ or µg/m ³	
Carbon Monoxide			
8-hour average (U.S.)	≥9.5		Primary
8-hour average (CA)	>9.0		
1-hour average (U.S.)	>35		Primary
1-hour average (CA)	>20		
Nitrogen Dioxide			
AAM (U.S.)	>0.0534		Primary and Secondary
1-hour average (CA)	>0.25		
Ozone			
1-hour average (U.S.)	>0.12		Primary and Secondary
1-hour average (CA)	>0.09		
8-hour average	>0.08		Primary and Secondary
Lead			
Quarterly average (U.S.)		>1.5 µg/m ³	Primary and Secondary
Monthly average (CA)		≥1.5 µg/m ³	
Particulate (PM 10)			
AAM (U.S.)		>50 µg/m ³	Primary and Secondary
AGM (CA)		>30 µg/m ³	
24-hour average (U.S.)		>150 µg/m ³	Primary and Secondary
24-hour average (CA)		>50 µg/m ³	
Particulate (PM 2.5)			
AAM (U.S.)		>15 µg/m ³	Primary and Secondary
24-hour average (U.S.)		>65 µg/m ³	Primary and Secondary
Sulfur Dioxide			
AAM (U.S.)	>0.03		Primary
24-hour average (U.S.)	>0.14		Primary
24-hour average (CA)	>0.045		
3-hour average (U.S.)	>0.50		Secondary
1-hour average (CA)	>0.25		

* Parts per million, ppm, of air, by volume

AAM = Annual Arithmetic Mean; AGM = Annual Geometric Mean

PM 10 refers to particles with diameters of 10 micrometers or less.

PM 2.5 refers to particles with diameters of 2.5 micrometers or less.

The ozone 8-hour standard and the PM 2.5 standards are included for information only, since a 1999 Federal court ruling blocked implementation of these standards, and the issue has not yet been resolved.

mg/m³ = milligrams per cubic meter; µg/m³ = micrograms per cubic meter

U.S. = Federal (or National) Standard; CA = California Standard

Roughly one out of every three people in the United States is at a higher risk of experiencing ozone-related health effects. Sensitive people include children and adults who are active outdoors, people with respiratory disease, such as asthma, and people with unusual sensitivity

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to ozone. People of all ages who are active outdoors are at increased risk because, during physical activity, ozone penetrates deeper into the parts of the lungs that are more vulnerable to injury. Ozone can irritate the respiratory system, causing coughing, throat irritation, and/or an uncomfortable sensation in the chest, and aggravating asthma. Ozone can also reduce lung function, making it more difficult to breathe deeply and vigorously, and can increase susceptibility to respiratory infections.

The term “particulate matter” (PM) includes both solid particles and liquid droplets found in air. Many man-made and natural sources emit PM directly or emit other pollutants that react in the atmosphere to form PM. These solid and liquid particles come in a wide range of sizes. Particles less than 10 micrometers in diameter tend to pose the greatest health concern because they can be inhaled into and accumulate in the respiratory system. Particles less than 2.5 micrometers in diameter are referred to as “fine” particles. Sources of fine particles include all types of combustion (motor vehicles, power plants, wood burning, etc.) and some industrial processes. Particles with diameters between 2.5 and 10 micrometers are referred to as “coarse.” Sources of coarse particles include crushing or grinding operations, and dust from paved or unpaved roads.

Both fine and coarse particles can accumulate in the respiratory system and are associated with numerous health effects. Coarse particles can aggravate respiratory conditions such as asthma. Exposure to fine particles is associated with several serious health effects, including premature death. Adverse health effects have been associated with exposures to PM over both short periods (such as a day) and longer periods (a year or more).

**Table 5-2: Year 2000 Peak Air Quality Statistics for Criteria Pollutants
in the Los Angeles-Long Beach Metropolitan Area**

Pollutant	National Air Quality Standard	Peak Concentration in Los Angeles-Long Beach Area
Carbon Monoxide		
8-hour average	9 ppm	10 ppm
Nitrogen Dioxide		
Annual Arithmetic Mean	0.053 ppm	0.044 pp
Ozone		
1-hour average	0.12 ppm	0.17 ppm
8-hour average	0.08 ppm	0.11 ppm
Lead		
Quarterly maximum	1.5 µg/m ³	0.06 µg/m ³
Particulate (PM10)		
Annual arithmetic mean	50 µg/m ³	46 µg/m ³
24-hour average	150 µg/m ³	93 µg/m ³
Particulate (PM2.5)		
Annual arithmetic mean	15 µg/m ³	23.9 µg/m³
24-hour average	65 µg/m ³	83 µg/m³
Sulfur Dioxide		
Annual arithmetic mean	0.03 ppm	0.003 ppm
24-hour average	0.14 ppm	0.010 ppm

ppm = parts per million

µg/m³ = micrograms per cubic meter

Source: <http://www.epa.gov/airtrends>

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5.2.2 Air Quality Index

There are two indicators that are typically used to assess the air quality of a given area. These indicators are the Air Quality Index and the quantity of pollutant emissions. In 1976, EPA developed the Pollutant Standards Index (PSI), which was a consistent and easy to understand way of stating air pollutant concentrations and associated health implications. In June 2000, the EPA updated the index and renamed it Air Quality Index (AQI). EPA's AQI provides accurate, timely, and easily understandable information about daily levels of air pollution. The Index provides a uniform system for measuring pollution levels for five major air pollutants regulated under the Clean Air Act.

The AQI is reported as a numerical value between 0 and 500, which corresponds to a health descriptor like "good," or "unhealthy" (see Table 5-3). AQI values are reported daily in the local news media (TV, radio, internet (<http://www.epa.gov/airnow>), and newspapers) serving metropolitan areas with populations exceeding 200,000. The AQI converts daily measured pollutant concentration in a community's air to the numerical value and color code. The most important number on the scale is 100. An AQI level in excess of 100 means that a pollutant is in the "unhealthy for sensitive groups" range for that day. An AQI level at or below 100 means that a pollutant reading is in the satisfactory range with respect to the National Ambient Air Quality Standard (NAAQS).



Table 5-3: Air Quality Index (a measure of community-wide air quality)

Index Values	Levels of Health Concern	Cautionary Statements
0-50	Good	None
51-100*	Moderate	Unusually sensitive people should consider limiting prolonged outdoor exertion.
101-150	Unhealthy for Sensitive Groups	Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged outdoor exertion.
151-200	Unhealthy	Active children and adults, and people with respiratory disease, such as asthma, should avoid prolonged outdoor exertion; everyone else, especially children, should limit prolonged outdoor exertion.
201 - 300	Very Unhealthy	Active children and adults, and people with respiratory disease, such as asthma, should avoid all outdoor exertion; everyone else, especially children, should limit outdoor exertion.
301 - 500	Hazardous	Everyone should avoid all outdoor exertion

Source: <http://www.epa.gov/airnow/aqibroch/aqi.html#8>

The EPA determines, on a daily basis, the index value for each of the measured pollutants, and reports the highest figure as the AQI value for the day. The pollutant with the highest daily value is identified as the Main Pollutant. The pollutants indexed by the AQI are the criteria pollutants discussed earlier. The Clean Air Act directs the EPA to regulate criteria

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pollutants because of their impact on human health and the environment. The standards or allowable concentrations for these six pollutants are known as National Ambient Air Quality Standards (NAAQS).

The South Coast Air Quality Management District (SCAQMD) has provided NAAQS air quality data for the Los Angeles, Orange, Riverside, and San Bernardino counties. The most recent year for which these data are available is 1999. The last column in Table 5-4 provides the number of days that Criteria Air Pollutant concentrations for the area around Glendale were in excess of federal and state standards for the year 1999.

Table 5-4: Air Quality in the Glendale Area in 1999

Pollutant	Measurement Location	# Days in excess
Ozone	Eastern San Fernando Valley	9*
Carbon Monoxide	Eastern San Fernando Valley	0**
Nitrogen Dioxide	Eastern San Fernando Valley	0***
PM10	Eastern San Fernando Valley	35‡
PM2.5	Eastern San Fernando Valley	1‡

* 8-hour average federal standard

** 8-hour average state standard

*** 1-hour average state standard

‡ 24-hour average federal standard

Source: <http://www.aqmd.gov>

Historical data for the years 1991-2000 show that the Los Angeles-Long Beach metropolitan area has more days with AQI values for ozone over 100 than most other monitored metropolitan areas in the United States. The values do show that there have been substantial improvements – in 1991, AQI values for ozone greater than 100 were measured 126 days out of that year, while in 2000, the number of days had decreased to 46.

Facilities that release emissions into the air are required to obtain a permit to do so from the EPA. The more recent data available indicate that there are approximately 180 facilities permitted to release emissions into the air in Glendale. These facilities include a variety of businesses such as restaurants, dry cleaners, tire shops, welding shops, car repair shops, hospitals, and industrial and manufacturing facilities. The South Coast Air Quality Management District (SCAQMD) is the local agency responsible for monitoring and enforcing air quality control with emphasis on emissions from stationary sources, such as the permitted facilities mentioned before. To reduce air emissions, SCAQMD staff conducts periodic inspections of permitted facilities to ensure continued compliance with Federal and State requirements, and provide training to help business owners understand these requirements and keep up with new rules. If necessary, SCAQMD takes enforcement action to bring businesses into compliance.

5.3 Drinking Water Quality

Most people in the United States take for granted that the water that comes out of their kitchen taps is safe to drink. In most areas, this is true, thanks to the efforts of hundreds of behind-the-scene individuals that continually monitor the water supplies for contaminants, in accordance with the drinking water standards set by the EPA. Primary authority for EPA water programs was established by the 1986 amendments to the Safe Drinking Water Act (SDWA) and the 1987 amendments to the Clean Water Act (CWA).

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The National Primary Drinking Water Standard protects drinking water quality by limiting the levels of specific contaminants that are known to occur or have the potential to occur in water and can adversely affect public health. All public water systems that provide service to 25 or more individuals are required to satisfy these legally enforceable standards. Water purveyors must monitor for these contaminants on fixed schedules and report to the EPA when a Maximum Contaminant Level (MCL) has been exceeded. MCL is the maximum permissible level of a contaminant in water that is delivered to any user of a public water system. Drinking water supplies are tested for a variety of contaminants, including organic and inorganic chemicals (minerals), substances that are known to cause cancer (carcinogens), radionuclides (such as uranium and radon), and microbial contaminants. The contaminants for which the EPA has established MCLs are listed at <http://www.epa.gov/safewater/mcl.html>. Changes to the MCL list are typically made every three years, as the EPA adds new contaminants or, because, based on new research or new case studies, there are reasons to issue revised MCLs for some contaminants.

One of the contaminants checked for on a regular basis is the coliform count. Coliform is a group of bacteria primarily found in human and animal intestines and wastes. These bacteria are widely used as indicator organisms to show the presence of such wastes in water and the possible presence of pathogenic (disease-producing) bacteria. Pathogens in these wastes can cause diarrhea, cramps, nausea, headaches, or other symptoms. These pathogens may pose a special health risk for infants, young children, and people with severely compromised immune systems. One of the fecal coliform bacteria that water samples are routinely tested for is *Escherichia coli* (*E. coli*). To fail the monthly Total Coliform Report (TCR), the following must occur:

- For systems testing more than 40 samples, more than five percent of the samples test positive for Total Coliform, or
- For those systems testing less than 40 samples, more than one sample tests positive for Total Coliform.

Two water agencies provide retail drinking water to the residents of the City of Glendale. The two agencies are:

- Glendale Water and Power (96 percent of the City) and
- Crescenta Valley Water District (4 percent of the City)

As shown above, Glendale Water and Power (GWP) is the agency that provides water to the majority of the residents of the Glendale. Approximately 70 percent of the water distributed is bought from the Metropolitan Water District (MWD); the remaining approximately 30 percent comes from eleven groundwater wells in the Glorietta well field located within the City. Water from the wells is blended with MWD water and distributed to City residents by GWP. GWP sends approximately 3,500 water samples annually to a certified water quality laboratory to analyze for compliance with federal and state drinking water regulations (Glendale, 2000). 

Neither of these two agencies is listed in the EPA Safe Drinking Water Violation Report for Los Angeles County, found at http://www.epa.gov/enviro/html/sdwis/sdwis_ov.html. This means that the water provided by these agencies has not failed the total coliform report, nor has it exceeded the maximum contaminant levels for the contaminants routinely tested. However, some of the ground water beneath the City of Glendale has high levels of nitrates. This water is mixed with other water to reduce the concentration of nitrates to levels below the EPA-mandated water quality standards. For additional information regarding this, refer to Section 5.4.2.

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One facility in the Glendale area has EPA permits to discharge to local water sources. This facility is listed in Table 5-5.

Table 5-5: Facility with EPA Permits to Discharge to Water in the Glendale Area

NPDES ID	EPA Facility ID	Facility Name	Address
CAP000033	CAD008337099	Drilube Co.	711 W. Broadway

Source: http://www.epa.gov/enviro/html/pcs/pcs_query_java.html

One of the products most often used as a disinfectant by swimming pool, drinking water and wastewater facilities is chlorine, making chlorine one of the most prevalent extremely hazardous substances. Chlorine is typically found in the form of a colorless to amber-colored liquid, or as a greenish-yellow gas with a characteristic odor. The liquid solutions are generally very unstable, reacting with acids to release chlorine gas (such as bleach mixed with vinegar or toilet bowl cleaner containing hydrochloric acid). Mixing bleach with other products is the largest single source of inhalation exposure reported to poison control centers (<http://www.emedicine.com/EMERG/topic851.htm>). Chlorine gas is heavier than air and therefore stays close to the ground, where it can impact individuals. Exposure to chlorine gas generally impacts the respiratory system, with cough, shortness of breath, chest pain, and burning sensation in the throat reported as the most common symptoms. Respiratory distress can occur at even low concentrations of less than 20 parts per million (ppm). At high concentrations (> 800 parts per million – ppm) chlorine gas is lethal.

Chlorine pellets and chlorine solutions can be found at supermarkets, hardware stores and other locations that sell pool supplies. Bleach solutions can be found in almost every household and in commercial and industrial facilities, including hotels, hospitals, medical and veterinary facilities, etc. Proper storage and usage practices are required at all of these locations to reduce or eliminate the potential for a toxic release of chlorine. Chlorine is used by the City at some of its water storage facilities to disinfect the water. At these facilities, proper operations and maintenance procedures are followed to prevent equipment and process failures that could lead to the unauthorized release of chlorine at concentrations that could impact the surrounding areas. These facilities maintain a comprehensive program of personnel training, security enforcement and equipment monitoring to reduce the risk of an accidental or intentional (terrorist) release.

5.4 Regulations Governing Hazardous Materials and Glendale’s Environmental Profile

Various Federal and State programs regulate the use, storage, and transportation of hazardous materials. These will be discussed in this chapter as they pertain to the City of Glendale and its management of hazardous materials. The goal of the discussions presented herein is to provide information that can be used to reduce or mitigate the danger that hazardous substances may pose to City of Glendale residents and visitors.

Although several of these programs are summarized below, this is not meant to be an all-inclusive list. Hazardous materials management is extensively legislated, and the laws governing hazardous waste management are complex and diverse. Several of the agencies involved in this process are identified below. Additional information can be obtained from their web pages.

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5.4.1 National Pollutant Discharge Elimination System (NPDES)

“Out of sight, out of mind” has traditionally been a common approach to dealing with trash, sediment, fertilizer-laden irrigation water, used motor oil, unused paint and thinner, and other hazardous substances that people dump into the sewer or storm drains. What we often forget is that these substances eventually make their way into the rivers and oceans, where they can sicken surfers and swimmers, and endanger wildlife. The Clean Water Act of 1972 originally established the National Pollutant Discharge Elimination System (NPDES) to control wastewater discharges from various industries and wastewater treatment plants, known as “point sources.” Point sources are defined by the EPA as discrete conveyances such as pipes or direct discharges from businesses or public agencies. Then, in 1987, the Water Quality Act amended the NPDES permit system to include “nonpoint source” pollution (NPS pollution). NPS pollution refers to the introduction of bacteria, sediment, oil and grease, heavy metals, pesticides, fertilizers and other chemicals into our rivers, bays and oceans from less defined sources. These pollutants are washed away from roadways, parking lots, yards, farms, and other areas by rain and dry-weather urban runoff, entering the storm drains, and ultimately the area’s streams, bays and ocean. NPS pollution is now thought to account for most water quality problems in the United States. Therefore, strict enforcement of this program at the local level, with everybody doing his or her part to reduce NPS pollution, can make a significant difference.

The National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point and nonpoint sources that discharge pollutants into waters of the United States. The City of Glendale is a member of the Los Angeles County Stormwater Program. This program regulates and controls storm water and urban runoff into the Los Angeles River, San Gabriel River, Santa Clara River, tributaries to these rivers, and ultimately, the Pacific Ocean. The Los Angeles County Stormwater Program is the local enforcer of the NPDES program. In the Glendale Area, NPDES permits are filed with the California Regional Water Quality Control Board, Los Angeles Region. This permit was required by all counties with a storm drain system that serves a population of 100,000 or more. On October 29, 1999, Phase II of NPDES was signed into law. Under this phase of NPDES, areas with 50,000 or more residents, and construction sites one acre or more in size, must file for and obtain an NPDES permit. Under NPDES, the local regulator is responsible for the following control measures:

- Public education and outreach on storm water impacts,
- Public involvement/participation,
- Illicit discharge detection and elimination,
- Construction of site storm water runoff control,
- Post-construction storm water management in new development and redevelopment, and
- Pollution prevention/good housekeeping for municipal operations.

The NPDES permit area that includes Glendale is 3,100 square miles in area, with a population of 11.4 million. In conformance with the Federal requirements listed above, one of the major tasks of the Los Angeles County Stormwater Program is to educate the local population about keeping the water that flows into our rivers and ocean clean by eliminating discharges of hazardous materials into storm drains and other point sources. Signs are typically painted by storm drains that drain to the local rivers and ultimately into the Pacific Ocean to encourage people from not disposing motor oil or other potentially hazardous

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substances into the drains. Displays are often presented in local libraries, and presenters visit elementary and high schools.

5.4.2 Comprehensive Environmental Response, Compensation and Liability Act

The Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) is law developed to protect the water, air, and land resources from the risks created by past chemical disposal practices. This act is also referred to as the Superfund Act, and the sites listed under it are referred to as Superfund sites.

According to the EPA, there are nine Superfund sites in the Glendale area, three of which are active (see Table 5-6). The other six are “archive” Superfund sites, meaning they are listed on the “archive” or “No Further Remedial Action Planned (NFRAP)” database and have been removed and archived from the inventory of Superfund sites. Archive status indicates that to the best of the EPA's knowledge, the EPA has completed its assessment of the site and has determined that no immediate or long-term risks to human health or to the environment are associated with the site, or that no further steps will be taken to list that site on the National Priority List (NPL).



Table 5-6: CERCLIS Sites in the Glendale Area

Facility Name	Facility Address	EPA ID	Status
PRC-Desoto Inter. (California Zonolite Co.), (W.R. Grace & Co.)	5430-5454 San Fernando Rd.	CAN000905637	Not on NPL, preliminary assessment ongoing
San Fernando Valley (Area 2)	Crystal Springs Wellfield Area	CAD980894901	On Final NPL
San Fernando Valley (Area 3)	Glorietta Wellfield	CAD980894984	On Final NPL
Air Products & Chemicals Inc.	6505 San Fernando Rd.	CAD982005282	NFRAP
Drilube Co.	711 W. Broadway	CAD008337099	NFRAP
Glendale Public Service Department	800 Air Way	CAD980735864	NFRAP
Newell	940 Allen Ave.	CAD982339400	NFRAP
Pacific Airmotive #1	6265 San Fernando Rd.	CAD980636567	NFRAP
Pacific Airmotive #2	926 S. Brand Blvd.	CAD980636575	NFRAP

Source: <http://www.epa.gov/superfund/sites/arcsites/index/htm>

Of the three sites listed as active Superfund sites, only two are actually on the NPL: The San Fernando Valley (Area 2) and San Fernando Valley (Area 3) are portions of the larger San Fernando groundwater basin where groundwater is contaminated with chlorinated volatile organic compounds (VOCs) and nitrate. Area 2 is an area of contaminated groundwater covering approximately 6,680 acres near the Crystal Springs Well Field. Prior to the discovery of groundwater contamination, the aquifer had provided drinking water to over 800,000 residents in the area. In 1980, concentrations of trichloroethylene (TCE) and perchloroethylene (PCE) were found to be above the Federal Maximum Contaminant Levels (MCLs) and State Action Levels (SALs) in several production wells in the area. In order to protect the public, water suppliers have provided the area with alternate drinking water supplies, including imported water or ground water mixed with imported water. Contaminated water in Area 2 is currently being treated using the pump-and-treat method.

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San Fernando Valley Area 3 is part of the Verdugo groundwater sub-basin and covers an area of approximately 4,400 acres. The ground water in the area is minimally contaminated with VOCs in small isolated areas in concentrations near or below the maximum allowable levels. PCE, the most prevalent of the organic contaminants in the area, is found near the Glorietta Well Field at concentrations of less than 1.1 ppb (parts per billion). The MCL for PCE is 5 ppb, so these concentrations are well below the EPA-mandated limits. Nitrate contamination of ground water in excess of the 45 ppm (parts per million) State-mandated MCL has been detected near the Glorietta Well Field. Drinking water providers have taken steps to ensure the quality of the drinking water provided to the public. The City of Glendale blends ground water containing nitrate with imported water prior to distribution to customers. The blending of ground water and imported water ensures that nitrate levels are in the 22-28 ppm range. Treatment for VOC contamination has not been a concern due to the low concentrations present.

5.4.3 Emergency Planning and Community Right-To-Know Act (EPCRA)

The primary purpose of the Federal Emergency Planning and Community Right-To-Know Act (EPCRA) is to inform communities and citizens of chemical hazards in their areas. Sections 311 and 312 of EPCRA require businesses to report to State and local agencies the locations and quantities of chemicals stored on-site. These reports help communities prepare to respond to chemical spills and similar emergencies. This reduces the risk to the community as a whole.

EPCRA mandates that Toxic Release Inventory (TRI) reports be made public. The Toxics Release Inventory (TRI) is an EPA database that contains information on toxic chemical releases and other waste management activities reported annually by certain industry groups as well as federal facilities. This inventory was established in 1986 under the EPCRA and expanded by the Pollution Prevention Act of 1990. Sites on the TRI database are known to release toxic chemicals into the air. The EPA closely monitors the emissions from these facilities to ensure that their annual limits are not exceeded. TRI reports provide accurate information about potentially hazardous chemicals and their uses to the public in an attempt to give the community more power to hold companies accountable and to make informed decisions about how such chemicals should be managed.

Section 313 of EPCRA requires manufacturers to report the release to the environment of any of more than 600 designated toxic chemicals. These reports are submitted to the EPA and State agencies. The EPA compiles these data into an on-line, publicly available national digital TRI. These data are readily available on the EPA website at <http://www.epa.gov>. Facilities are required to report releases of toxic chemicals to the air, soil, and water. They are also required to report off-site transfers of waste for treatment or disposal at separate facilities. Pollution prevention measures and activities, and chemical recycling must also be reported. All reports must be submitted on or before July 1 of every year and must cover all activities that occurred at the facility during the previous year.

Facilities with ten or more full-time employees that meet the following criteria are required to report their activities to the EPA and the regulatory State agencies:

- That manufacture or process over 25,000 pounds of any of approximately 600 designated chemicals or twenty-eight chemical categories specified in regulations, or
- use more than 10,000 pounds of any designated chemical or category, or

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- are engaged in certain manufacturing operations in the industry groups specified in the U.S. Government Standard Industrial Classification Codes (SIC) 20 through 39, or
- are a Federal facility.

The seven facilities in the City of Glendale listed in the Toxic Release Inventory are summarized in Table 5-7. 

Table 5-7: Toxic Release Inventory of Facilities in the Glendale Area

Facility Name	EPA ID	Chemicals
Automation Plating Corp.	CAD008342784	Cyanide compounds, hydrochloric acid aerosols, nitric acid, sodium hydroxide (solution), sulfuric acid, zinc (fume or dust)
California Offset Printers	CAD981397425	1,1,1-trichloroethane
Drilube Co.	CAD008337099	Tetrachloroethylene, chlorine
GCC Corp.	CAD059240663	1,1,1-Trichloroethane, phosphoric acid, nitric acid, sulfuric acid aerosol, toluene, xylene (mixed isomers), sodium hydroxide (solution)
Librascope Corp.	CA0001913250	Freon 113
PRC-Desoto Intl. Inc. Courtaulds Aerospace Inc. Chem	000007647616 CAD008237596	Methyl ethyl ketone, toluene, manganese compounds, chromium compounds, antimony compounds, 1,1,1-trichloroethane, methylenebis(phenylisocyanate), xylene (mixed isomers), toluene-2,4-disocyanate, decabromodiphenyl oxide
Products Research & Chemical, Corp.	000007647616	Data not available

Source: Hazus 99SR-2 Data and http://www.epa.gov/enviro/html/tris/tris_query.html

5.4.4 Resources Conservation and Recovery Act

The Resources Conservation and Recovery Act (RCRA) is the principal Federal law that regulates the generation, management, and transportation of hazardous materials and other wastes. Hazardous waste management includes the treatment, storage, or disposal of hazardous waste. Treatment is defined as any process that changes the physical, chemical, or biological character of the waste to make it less of an environmental threat. Treatment can include neutralizing the waste, recovering energy or material resources from the waste, rendering the waste less hazardous, or making the waste safer to transport, dispose of, or store. Storage is defined as the holding of waste for a temporary period of time. The waste is treated, disposed of, or stored at a different facility at the end of each storage period. Disposal is the permanent placement of the waste into or on the land. Disposal facilities are usually designed to contain the waste permanently and to prevent the release of harmful pollutants to the environment.

Many types of businesses can be producers of hazardous waste. Small businesses like dry cleaners, auto repair shops, medical facilities or hospitals, photo processing centers, and metal plating shops are usually generators of small quantities of hazardous waste. Small-

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quantity generators are facilities that produce between 100 and 1,000 kilogram (Kg) of hazardous waste per month. Since many of these facilities are small, start-up businesses that come and go, the list of small-quantity generators in a particular area changes significantly over time. Often, a facility remains, but the name of the business changes with new ownership. For these reasons, small-quantity generators in the Glendale area are not listed in this report, but EPA data indicate that there are approximately 250 small-quantity generators of hazardous materials in the City. The general distribution of these sites by census tract is shown on Plate 5-1.

Larger businesses are sometimes generators of large quantities of hazardous waste. These include chemical manufacturers, large electroplating facilities, and petroleum refineries. The EPA defines a large-quantity generator as a facility that produces over 1,000 Kg of hazardous waste per month. Large-quantity generators are fully regulated under RCRA. The registered large-quantity generators in the City of Glendale are listed in Table 5-8. The general location of these sites is shown on Plate 5-1.

**Table 5-8:
EPA-Registered Large-Quantity Generator (LQG) Facilities in the Glendale Area**

Facility Name	EPA ID
Scholl Canyon Landfill	CA0000927426
PRC-Desoto International Inc., (Courtaulds Aerospace)	CAD008237596
Drilube	CAD008337099
Automation Plating Corp.	CAR000002089 CAD008342784

Source: *The National Biennial RCRA Hazardous Waste Report (Based on 1999 Data): List of Large Quantity Generators in the United States.*

5.4.5 Hazardous Materials Disclosure Program

Both the Federal Government and the State of California require all businesses that handle more than a specified amount of hazardous materials or extremely hazardous materials, termed a reporting quantity, to submit a business plan to its local Certified Unified Program Agency (CUPA). The CUPA with responsibility for the City of Glendale is the Glendale City Fire Department. The preparation, submittal and implementation of a business plan, on a yearly basis, is required if a business uses, stores, or manufactures an extremely hazardous material in any amount, or a hazardous material exceeding the reportable quantity of:

- 5 gallons or more of a liquid;
- 50 pounds or more of a solid; and/or
- 50 cubic feet or more of a gas at standard temperature and pressure.

The full business plan must include an inventory of the hazardous materials used in the facility, and emergency response plans and procedures to be used in the event of a significant or threatened significant release of a hazardous material. The plan must include the Material Safety Data Sheet (MSDS) for each hazardous and potentially hazardous substance used. MSDSs summarize, among other things, the physical and chemical properties of the substances, and their health impacts. The plan also requires immediate notification to all appropriate agencies and personnel of a release, identification of local emergency medical assistance appropriate for potential accident scenarios, contact information for all company emergency coordinators of the business, a listing and location of emergency equipment at the



NOTES:

This map is intended for general land use planning only. Information on this map is not sufficient to serve as a substitute for detailed geologic investigations of individual sites, nor does it satisfy the evaluation requirements set forth in geologic hazard regulations.

Earth Consultants International (ECI) makes no representations or warranties regarding the accuracy of the data from which these maps were derived. ECI shall not be liable under any circumstances for any direct, indirect, special, incidental, or consequential damages with respect to any claim by any user or third party on account of, or arising from, the use of this map.

Explanation

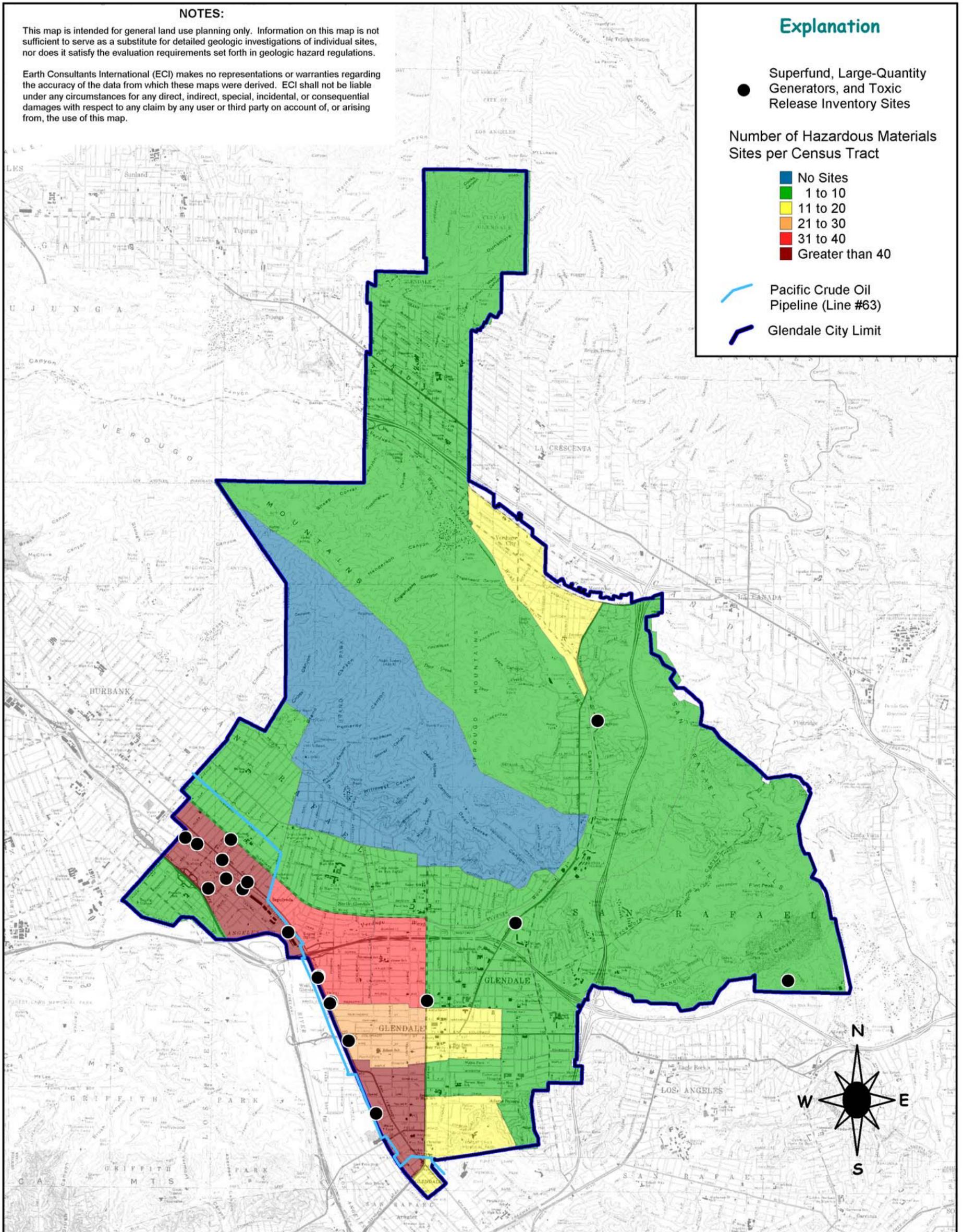
● Superfund, Large-Quantity Generators, and Toxic Release Inventory Sites

Number of Hazardous Materials Sites per Census Tract

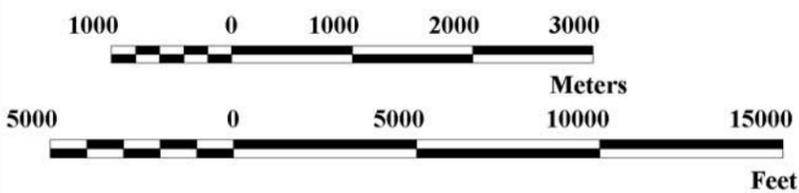
- No Sites
- 1 to 10
- 11 to 20
- 21 to 30
- 31 to 40
- Greater than 40

— Pacific Crude Oil Pipeline (Line #63)

— Glendale City Limit



Scale: 1:60,000



Base Map: USGS Topographic Map from Sure!MAPS RASTER
Sources: Environmental Protection Agency 2002; Federal Emergency Management Agency HAZUS, 1999.

Hazardous materials listings include: US Environmental Protection Agency, California Environmental Protection Agency, and Toxic Release Inventory. Some sites are included in more than one list, and may therefore be counted more than once.



Earth Consultants International
Project Number: 2103
Date: July, 2003

Hazardous Materials Site Map
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Plate 5-1

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business, an evacuation plan, and a training program for business personnel. Businesses that use, store, or manufacture hazardous materials below the reportable quantities listed above are required to submit an abbreviated business plan on a yearly basis with the local administering agency. The abbreviated business plan consists of emergency contact names and telephone numbers, as well as a chemical inventory list.

Business plans are designed to be used by responding agencies, such as the Glendale City Fire Department and the Los Angeles County Fire Department during a release to allow for a quick and accurate evaluation of each situation for an appropriate response. Business plans are also used during a fire to quickly assess the types of chemical hazards that fire-fighting personnel may have to deal with, and to make decisions as to whether or not the surrounding areas need to be evacuated. The Glendale Fire Department, Environmental Management Center (EMC), currently reviews annually submitted business plans.

5.4.6 Hazardous Materials Incident Response

There are thousands of different chemicals available today, each with its own unique physical characteristics; what might be an acceptable mitigation practice for one chemical could be totally inadequate for another. Therefore it is essential that agencies responding to a hazardous material release have as much available information as possible regarding the type of chemical released, the amount released, and its physical properties to effectively and quickly evaluate and contain the release. The EPA-required business plans are an excellent resource for this type of information. Other sources of information are knowledgeable facility employees present onsite.

In 1986, Congress passed the Superfund Amendments and Reauthorization Act (SARA). Title III of this legislation requires that each community establish a Local Emergency Planning Committee (LEPC). This committee is responsible for developing an emergency plan that outlines steps to prepare for and respond to chemical emergencies in that community. This emergency plan must include the following:

- an identification of local facilities and transportation routes where hazardous materials are present;
- the procedures for immediate response in case of an accident (this must include a community-wide evacuation plan);
- a plan for notifying the community that an incident has occurred;
- the names of response coordinators at local facilities; and
- a plan for conducting exercises to test the plan.

The plan is reviewed by the State Emergency Response Commission (SERC) and publicized throughout the community. The LEPC is required to review, test, and update the plan each year. The Glendale Fire Office of Emergency Services is the City entity that is charged with the coordination of the City's disaster operations. 

5.4.7 Hazardous Material Spill/Release Notification Guidance

All significant releases or threatened releases of hazardous materials, including oil, require emergency notification to several government agencies. The State of California, Governor's Office of Emergency Services (OES) has developed a Hazardous Material Spill/Release Notification Guidance to guide the public, industry, and other government entities in the reporting process for hazardous materials accidents. This Guidance can be found at the OES website (<http://www.oes.ca.gov/>) under the Hazardous Materials Unit link.

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To report all significant releases or threatened releases of hazardous materials, first call 911 (or the local emergency response agency), and then call the Governor's Office of Emergency Services (OES) Warning Center at 1-800-852-7550. In addition, written Follow-Up Reports may be required by some agencies. 

The Hazardous Material Spill/Release Notification Guidance summarizes pertinent emergency notification requirements and applies to all significant releases of hazardous materials. Refer to the Safe Drinking Water and Toxic Enforcement Act of 1986, better known as Proposition 65, and §9030 of the California Labor Code for additional reporting requirements.

Requirements for immediate notification of all significant spills or threatened releases cover: Owners, Operators, Persons in Charge, and Employers. Notification is required regarding significant releases from: facilities, vehicles, vessels, pipelines and railroads. Under Health and Safety Code §25507, State law requires Handlers, any Employees, Authorized Representatives, Agents or Designees of handlers to, upon discovery, immediately report any release or threatened release of hazardous materials. Federal law requires, under the Emergency Planning and Community-Right-to-Know Act (SARA Title III) (EPCRA) and the Comprehensive Environmental Response, Compensation, and Liability Act (Superfund) (CERCLA), that all Owners, Operators, and Persons in Charge report all releases that equal or exceed federal reporting quantities.

State law requires, at a minimum, the following information during the notification of a spill or threatened release: 

- Identity of caller
- Location, date and time of spill, release, or threatened release
- Substance and quantity involved
- Chemical name (if known, it should be reported; also if the chemical is extremely hazardous)
- Description of what happened.

Federal law requires the following additional information during the notification of spills (CERCLA chemicals) that exceed federal reporting requirements:

- Medium or media impacted by the release
- Time and duration of the release
- Proper precautions to take
- Known or anticipated health risks
- Name and phone number for more information

In the event of a release/spill, at a minimum, the following government agencies must be notified:

- Local Emergency Response agency (9-1-1 or Local Fire Department)
- The Certified Unified Program Agency (CUPA) (Glendale City Fire Department: 818-548-4030)
- Governor's Office of Emergency Services Warning Center (1-800-852-7550 or 916-845-8911)

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- California Highway Patrol (CHP) (9-1-1), only if the spill/release occurred on a highway.

In addition to these agencies, one or more of the following agencies may need to be notified, depending on the specifics of the incident:

- National Response Center (1-800-424-8802) if the spill equals or exceeds CERCLA Federal reportable quantities
- United States Coast Guard (Marine Safety Office LA/Long Beach: 310-732-7380) if the spill occurred in a waterway
- California Occupational Safety and Health Administration (Cal/OSHA) (Van Nuys Enforcement District Office: 818-901-5403) if serious injuries or harmful exposures to workers occurred during the spill
- Department of Toxic Substances Control (DTSC) (Glendale Regional Office: 818-551-2800) if the release is from a hazardous waste tank system or from a secondary containment system
- Department of Conservation, Division of Oil Gas and Geothermal Resources (DOGGR) (District 1, Cypress Office: 714-816-6847) in the case of an oil or gas release at a drilling site
- Public Utilities in the case of a natural gas pipeline release

For further information on the requirements for emergency notification of a hazardous chemical release, refer to the following statutes:

- Health and Safety Code §25270.7, 25270.8, 25507
- Vehicle Code §23112.5
- Public Utilities Code §7673, (PUC General Orders #22-B, 161)
- Government Code §51018, 8670.25.5 (a)
- Water Code §13271, 13272
- California Labor Code §6409.1 (b)10
- Title 42, U.S. Code §9603, 11004

The new California Accidental Release Prevention Program (CalARP) became effective on January 1, 1997, in response to Senate Bill 1889. The CalARP replaced the California Risk Management and Prevention Program (RMPP). Under the CalARP, the Governor's Office of Emergency Services (OES) must adopt implementing regulations and seek delegation of the program from the EPA.

The CalARP program is proactive because it requires businesses to prepare Risk Management Plans (RMPs), which are detailed engineering analyses of:

- the potential accident factors present at a business; and
- the mitigation measures that can be implemented to reduce this accident potential.

In most cases, local governments have the lead role for working directly with businesses in this program. The Glendale Fire Department, Environmental Management Center (EMC) is designated as the administering agency for hazardous materials for the City of Glendale. 

5.5 Leaking Underground Storage Tanks (LUST)

Leaking underground storage tanks (LUSTs) are one of the greatest environmental concerns of the past several decades. In California, regulations aimed at protecting against UST leaks have been in place since 1983, one year before the Federal Resource Conservation and Recovery Act (RCRA) was amended to add Subtitle I requiring UST systems to be installed in accordance with standards that address the prevention of future leaks. The Federal regulations are found in the Code of Federal Regulations (CFR), parts 280-281. The State law and regulations are found in the California Health and Safety Code, Chapter 6.7, and the California Code of Regulations (CCR) Title 23, commonly referred to as the "California Underground Storage Tank Regulations." Federal and state programs include leak reporting and investigation regulations, and standards for clean up and remediation. UST cleanup programs exist to fund the remediation of contaminated soil and groundwater caused by leaking tanks. California's program is more stringent than the Federal program, requiring that all tanks be double walled, and prohibiting gasoline delivery to non-compliant tanks. The State Water Resources Control Board (SWRCB) has been designated the lead regulatory agency in the development of UST regulations and policy.

The State of California now requires replacement of older tanks with new double-walled, fiberglass tanks with flexible connections and monitoring systems. Many older tanks were single-walled steel tanks that leaked as a result of corrosion and detached fittings. Extensive Federal and State legislation addresses LUSTs, including replacement and cleanup. UST owners were given a ten-year period to comply with the new requirements, and the deadline came due on December 22, 1998. However, many UST owners did not act by the deadline, so the State granted an extension for the Replacement of Underground Storage Tanks (RUST) program to January 1, 2002. The California Regional Water Quality Control Board (CRWQCB), in cooperation with the Office of Emergency Services, maintains an inventory of LUSTs in a statewide database.

According to the State Water Resources Control Board's (SWRCB) Leaking Underground Storage Tank (LUST) database (LUSTIS, 2001), 55 LUST cases have been reported in the Glendale area. Of these, only 25 are still considered "active" cases, either under investigation or remediation. These active sites are listed in Table 5-9. Note that it is likely that clean up at many of these facilities has been completed or deemed unnecessary by the regional office of the SWRCB. 

Table 5-9 shows that most underground storage tank leaks in the Glendale area have impacted only the surrounding soil. Only one site (Interstate Brands Corporation, 6841 San Fernando Rd.) in Glendale reportedly impacted a groundwater aquifer used for drinking water as a result of a leak from an underground storage tank. A remediation plan has been submitted to the lead agency for this case, but according to the database, remedial actions have not been started at this location.

5.6 Glendale Fire Department, Environmental Management Center and Glendale Fire Office of Emergency Services

A project of the Environmental Management Center (EMC) is to coordinate hazardous material planning and appropriate response efforts with city departments, as well as local, and State agencies. The Office of Emergency Services for Glendale is tasked with coordinating the City's disaster operations. The goal of these agencies is to improve public and private sector readiness, and to mitigate local impacts resulting from natural or technological emergencies. Both agencies are branches of the Glendale Fire Department that deals with the planning for and response to the natural and technological disasters in the City of Glendale. 

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The EMC is also charged with the responsibility of conducting compliance inspections for regulated facilities in the City. These facilities handle hazardous material, generate or treat a hazardous waste and/or operate an underground storage tank. All new installations of underground storage tanks require an inspection, along with the removal, of the old tanks.

Table 5-9: Sites in the Glendale Area with Leaking Underground Storage Tanks

Facility Name	Address	Case No.	Case Type	Status	Date Reported
500 North Brand Partnership	550 Brand Blvd N	R-10794	S	0	3/7/1986
Al Sal Oil #6	1501 Glenoaks Blvd W	I-10622	S	3b	8/14/1998
Brand Mobil	1100 Brand Blvd N	912070016	S	5c	11/1/1998
California Car Wash	3940 San Fernando Rd	912040089	S	3b	5/1/2000
Exxon #7-3678	825 Central St N	R-11989	S	3b	5/6/1992
Fueling Station Brock Bus Line	722 Wilson Ave W	113.0203	O	7	8/22/1995
Gay's Automotive & Towing	418 Glenoaks Blvd E	R-10555	S	0	9/19/1997
Glendale Adventist Med. Ctr.	1509 Wilson Terrace	912060061	S	5C	3/12/1990
Highland Arco	5800 San Fernando Rd	912020034	S	3A	3/1/2000
Hovik's Auto Repair	1020 E Chevy Chase Drive	912050025	O	3B	6/24/1998
Interstate Brands Corporation	6841 San Fernando Rd	915200025	A	5R	2/24/1987
Mcnamara & Peepe	1619 Glendale Drive	1NHU527	U	1	9/23/1994
Mobil #11-816	301 Verdugo Rd S	912050034	S	1	8/30/1991
Mobil #11-GHW	250 Glendale Ave S	R-11158	S	5C	4/30/1991
Mobil #11-JPL	3200 Foothill Blvd	912140016	S	1	4/4/1996
Mobil #11-KNL	800 Pacific Ave N	912030043	S	5C	5/14/1986
Mobil #18-GGL	900 Glenoaks Blvd W	912020025	O	5C	9/1/1987
Mobil #18-KR4	700 Glendale Ave N	912060016	S	3A	10/3/1983
Octo #1	1118 Glendale Ave N	912060070	O	5C	11/30/1998
Patrick's Texaco	2527 Canada Blvd	912080016	S	5R	5/8/1998
Products Research & Chemical Co.	5430 San Fernando Rd	R-10470	O	0	7/31/1996
Shell	350 Glendale Ave N	R-10603	S	1	11/10/1989
Shell	625 Pacific Ave N	912030034	S	0	6/11/1986
Texaco	401 Glendale Ave N	R-11012	S	3B	9/4/1991
Thrifty #013	3680 San Fernando Rd	912040070	O	5C	12/30/1986

Source: <http://www.swrcb.ca.gov/cwphome/lustis/index.html>

Abbreviations Used for Case Type: S = Soil Only; O = ground water not used for drinking water; U = undefined; A = aquifer used for drinking water supply.

Abbreviations Used for Status: 0 = No action taken; 1 = Leak being confirmed; 3A = Preliminary Site Assessment Workplan Submitted; 3B = Preliminary Site Assessment Underway; 5C = Pollution Characterization Underway; 5R = Remediation Plan Submitted; 7= Remedial Action Under Way.

5.7 Household Hazardous Waste and Recycling

According to FEMA (1999), most victims of chemical accidents are injured at home. These accidents usually result from ignorance or carelessness in using flammable or combustible materials. In an average city of 100,000 residents, 23.5 tons of toilet bowl cleaner, 13.5 tons of liquid household cleaners, and 3.5 tons of motor oil are discharged into city drains each month (FEMA, 1999)

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The Glendale Fire Department Environmental Management Center (EMC) is tasked with administering a household hazardous waste collection plan for the City of Glendale in accordance with the California Integrated Solid Waste Management Act of 1989 (AB 939). The EMC is located at 780 Flower Street.

A variety of household toxics are accepted. Acceptable wastes include used motor oil, used oil filters, pesticides, pool chemicals, paints, and items found in most homes. The EMC also runs a curbside used oil collection program. In this program, the EMC collects used motor oil and used oil filters from residents' homes. Over 6,300 gallons of used motor oil have been collected in this program, which is available to over 1,600 households citywide. The City of Glendale, like other California cities, has also implemented a recycling program. This program helps reduce the amount of waste that is being taken to the landfill sites.

5.8 Oil Fields

A review of the map "Oil, Gas, and Geothermal Fields in California, 2001" published by the California Department of Conservation, Division of Oil and Gas indicates that there are no current or abandoned oil fields in the Glendale area. The map is available in pdf format from the Division of Oil and Gas website at: <http://www.consrv.ca.gov/dog/>. Some of the concerns typically associated with oil fields, especially when they are abandoned and redeveloped (such as oil-impacted soils that need to be treated or disposed of offsite), are therefore not a concern in Glendale.

5.9 Hazard Analysis

The primary concern associated with a hazardous materials release is the short and/or long term effect to the public from exposure to the hazardous material, especially when a toxic gas is involved. The best way to reduce the liability for a hazardous material release is through stringent regulations governing the storage, use, manufacturing, and handling of hazardous materials.

The Glendale Fire Department and the County of Los Angeles Fire Department use modified versions of the 1997 Uniform Fire Code (UFC), which identify proper usage, storage, handling and transportation requirements for hazardous materials. Risk minimization criteria include secondary containment, segregation of chemicals to reduce reactivity during a release, sprinkler and alarm systems, monitoring, venting and auto shutoff equipment, and treatment requirements for toxic gas releases.

The "Significant Hazardous Materials Sites" in the City of Glendale included in Table 5-10, and shown on Plate 5-1, were compiled from the data reported in the sections above. The list includes facilities that are identified in the following State and/or Federal databases:

- Superfund-Active or Archived Sites (CERCLIS)
- RCRA/RCRIS-EPA Registered Large Quantity Generators
- Toxic Release Inventories (TRIs)

Notice that most of the Superfund sites have been archived and deemed to no longer pose a threat to the environment; they are included herein because the sites are still on the Federal Superfund Sites list. Other sites may be undergoing clean-up or remediation. There are a variety of techniques currently being used by the environmental remediation industry to clean up the soils and water. Therefore, some of the sites identified below may be taken off future lists issued by the appropriate Federal or

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State agency. Furthermore, and more importantly, the lists included in this section of the Safety Element are snapshots in time, and are often based on EPA data that date back to the 1990s. Facilities that use, store, generate or transport hazardous materials are expected to come and go; so these lists, or comparable lists, should be updated at least once a year.

Table 5-10: Significant Hazardous Materials Sites in Glendale

Facility Name	Facility ID	Source
Air Products & Chemicals Inc.	CAD982005282	CERCLIS
Automation Plating Corp.	CAD008342784, CAR000002089, CAD008342784	TRI, LQG
California Offset Printers	CAD981397425	TRI
Drilube Co.	CAD008337099	TRI, LQG, CERCLIS
GCC Corp.	CAD059240663	TRI
Glendale Public Service Department	CAD980735864	CERCLIS
Librascope Corp.	CA0001913250	TRI
Newell	CAD982339400	CERCLIS
Pacific Airmotive #1	CAD980636567	CERCLIS
Pacific Airmotive #2	CAD980636575	CERCLIS
PRC DeSoto Intl. Inc., Courtaulds Aerospace Inc. Chem, California Zonolite Co., W.R. Grace & Co.	000007647616, CAD008237596, CAN000905637,	TRI, LQG, CERCLIS
Products Research & Chemical, Corp.	000007647616	TRI
San Fernando Valley (Area 2)	CAD980894901	CERCLIS
San Fernando Valley (Area 3)	CAD980894984	CERCLIS
Scholl Canyon Landfill	CA0000927426	LQG

5.9.1 Earthquake-Induced Releases of Hazardous Materials

Isolated unauthorized releases of hazardous materials can occur at any time, but earthquakes have the potential to cause several linked incidents at the same time, generating worst-case scenarios for emergency response personnel. Strong seismic shaking can lead to the release of hazardous materials by damaging storage facilities and transport infrastructure. During an earthquake, chemical storage tanks could buckle or, if improperly secured and fastened could easily be punctured and/or tipped over. Improperly segregated chemicals could react forming a toxic gas cloud. Pipelines are especially vulnerable to damage as they can be pulled apart or ruptured by strong ground motion. Natural gas lines pose a significant hazard due to the high number lines in urban environments and because gas leaks from ruptured lines can lead to secondary fires. Train derailment during an earthquake can also lead to significant hazardous materials release.

As a result of the 1994 Northridge earthquake, 134 locations reported hazardous materials problems and 60 emergency hazardous materials responses were required. The majority of these events occurred where structural damage was minimal or absent (Perry and Lindell, 1995). The earthquake caused 1,377 breaks in the natural gas piping system and half a dozen leaks in a 10-inch crude oil pipeline (Hall, 1994).

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A train derailment in the Northridge earthquake included a train with 29 cars and one locomotive. One of 13 tankcars spilled an estimated 2,000 gallons of sulfuric acid, and 1,000 gallons of diesel fuel spilled from the locomotive. According to the California Public Utilities Commission (1994), it is standard operating procedure to stop all trains within one hundred miles of the epicenter of a magnitude 6.0 or greater earthquake. The stoppage of trains in the area of the 1994 Northridge earthquake took approximately 14 minutes to implement.

The 1987 Whittier Narrows earthquake, a significantly smaller event than the Northridge earthquake, caused 22 hazardous materials situations, including the collapse of a large chlorine tank that forced an evacuation in Santa Fe Springs. The Whittier Narrows earthquake also caused over 1,400 natural gas leaks, three of which caused subsequent fires.

A key point to remember regarding the management of hazardous materials spills in the aftermath of an earthquake is that it is substantially more difficult to respond to a spill immediately after an earthquake than it is to do so during non-earthquake conditions. Hazardous materials response teams responding to an earthquake-induced release have to deal with potential structural and non-structural problems of the buildings housing the hazardous materials, potential leaks of natural gas from ruptured pipes, and/or downed electrical lines or equipment that could create sparks and cause a fire. When two hazards with potentially high negative consequences intersect, the challenges of managing each are greatly increased. During an earthquake response, hazardous materials emergencies become an additional threat that must be integrated into the response management system.

5.9.2 *Chemical Fires*

Chemical substances are often unstable under high temperatures. Other chemicals are reactive to water or oxygen, and can self-ignite if exposed to water or air. For example, sulfuric acid, one of the most abundant and widely distributed chemicals produced in the U.S., is highly reactive when exposed in its concentrated form to water. Other substances if mixed together can also generate a fire. Therefore, when dealing with chemical fires it is important to know what type of chemicals are present in the area and where they are held. It is also important to note that when dealing with chemical fires, time is critical: the longer chemicals are exposed to extreme heat, the more likely they are to react violently, increasing the severity of the fire. Fire fighters can better respond to a situation with the appropriate equipment if they have the information needed to make these decisions immediately available to them. This is what the business plans and the Material Safety Data Sheets (MSDS) discussed in Section 5.4.5 are intended to provide.

Firefighters recognize four main different types of fires:

- Class A fires involve ordinary materials like paper, lumber, cardboard, and some types of plastics.
- Class B fires involve flammable or combustible liquids such as gasoline, kerosene, and common organic solvents.
- Class C fires involve energized electrical equipment, such as appliances, switches, panel boxes, power tools, and hot plates. Water is a particularly dangerous extinguishing medium for class C fires because of the risk of electrical shock.
- Class D fires involve combustible metals, such as magnesium, titanium, potassium and sodium, as well as pyrophoric organometallic reagents such as alkyllithiums,

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Grignards and diethylzinc. These materials burn at high temperatures and will react violently with water, air, and/or other chemicals.

It is not uncommon for fires to be a combination of the types discussed above. Therefore, it is typically recommended that fire extinguishers obtained for household and office use have an ABC rating, which means that they have the capacity to fight Class A, B and C fires. 

Common types of extinguishers include:

- Water extinguishers, which are suitable for class A (paper etc.) fires, but not for class B, C and D fires, because the water can make the flames spread.
- Dry chemical extinguishers, which are useful for class ABC fires and are the best all around choice. They have an advantage over CO₂ extinguishers because they leave a blanket of non-flammable material on the extinguished material that reduces the likelihood of re-ignition. There are two kinds of dry chemical extinguishers:
 - Type BC fire extinguishers contain sodium or potassium bicarbonate, and
 - Type ABC fire extinguishers contain ammonium phosphate.
- CO₂ (carbon dioxide) extinguishers are for class B and C fires. They don't work very well on class A fires because the material usually re-ignites. CO₂ extinguishers have an advantage over dry chemical in that they leave behind no harmful residue -- a good choice for an electrical fire on a computer or other delicate instrument. Note that CO₂ is a bad choice for flammable metal fires such as Grignard reagents, alkyllithiums and sodium metal because CO₂ reacts with these materials. CO₂ extinguishers are not approved for class D fires.
- Metal/Sand Extinguishers are for flammable metals (class D fires) and work by simply smothering the fire.

Not only is it imperative to control chemical fires as soon as possible, but two main “by-products” of these types of fires require special attention, including special handling and evacuation procedures. These “by-products” include the “smoke plume” and water run-off from the fire-extinguishing process. The smoke plume has the potential to pose a severe hazard to those exposed to it: chemicals in the vapor phase can be mildly to extremely toxic if inhaled, depending on the chemicals involved. Smoke inhalation is a hazard in itself, but when chemicals are part of the smoke, it can have severe negative impacts on the health of those nearby, including fire-fighting personnel and individuals not evacuated in time to prevent them from inhaling the smoke. Soot from some types of fires can also cause chemical burns on skin. Therefore, depending on the types of chemicals involved in the fire, an evacuation of the immediate area and especially of those areas down-wind should be conducted.

If water is used to fight a fire, the runoff could include chemicals or substances that pose a hazard to the environment. Therefore, the runoff should be contained to prevent it from flowing into the storm drains. Containing the water runoff from a fire is difficult but possible. Special equipment is available to do so, but only a few fire response units have the equipment and necessary training. Fire Station #27 has been designated as the Hazardous Materials (HAZMAT) Unit headquarters for the City of Glendale. This station is responsible for the deployment of the necessary equipment to contain runoff from a chemical fire. All of the other units located throughout the City of Glendale have been trained as First Response 

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Units and can deal with the fire aspect of a chemical fire, but they lack the equipment available at Station 27. The next closest unit able to handle a chemical fire is located in Burbank.

5.9.3 *Hazards Overlays*

Plate 5-1 was used as an overlay to the other plates prepared for this Technical Background Report to assess the natural hazards vulnerability of the significant hazardous materials sites. The intent was to identify whether some of these sites are located in areas at risk of being impacted by the natural hazards discussed in previous chapter. This analysis indicates that no Significant Hazardous Materials sites are located within a Fault Hazard Management Zone. Given the City's location between the Sierra Madre (Rowley) fault zone to the north, the Verdugo fault through the center, and the Raymond and Hollywood faults to the south, the entire City is susceptible to strong to very strong ground motions. Due to the large quantities of hazardous materials used at the Significant Hazardous Materials facilities, strong ground shaking poses a special concern that needs to be addressed.

Several of the Significant Hazardous Materials sites are located within a liquefaction susceptible area and one facility (Scholl Canyon Landfill is in an area susceptible to slope movement in response to seismic activity. The facilities in the liquefaction susceptible zones include: Newell, Automation Plating Corp., Air Products & Chemicals Inc., GCC Corp., Librascope Corp., Pacific Airmotive #1, and San Fernando Valley (Area 2). Two of the sites (Pacific Airmotive #1 and San Fernando Valley (Area 2), are located within the dam inundation pathway zones identified in Chapter 3. No Significant Hazardous Materials sites are located in or near a high fire hazard area.

The City of Glendale has dozens of schools, as shown on Plate 1-4. These schools are distributed over most of the non-mountainous regions of the City, and a few are located within 1/2-mile of the significant hazardous materials sites identified herein. The Toxic Release Inventory sites are of most concern in this regard, since emissions into the air have the potential to impact a large geographical area. If any of the chemicals that these facilities have the potential to release into the air are toxic, evacuation of the surrounding area may be required. Since schools have special evacuation needs, these Significant Hazardous Materials sites should be required to prepare Risk Management Plans (RMPs) that identify the procedures by which the surrounding critical facilities will be evacuated, should it become necessary during an accidental release of hazardous materials. Alternatively, the schools in the immediate vicinity of the significant hazardous materials sites should consider implementing, as part of their School Safety Plans mandated by Senate Bill 187 (the Safe School Act of 1997), procedures for evacuation should a chemical spill occur in the area.

Some of the significant hazardous materials sites are located at or near the City's boundaries. These facilities may be located within a short distance of critical facilities located immediately adjacent but outside City limits that have not been identified herein. Similarly, there may be facilities located immediately outside City limits that use, store, or generate hazardous materials that could pose a risk to critical facilities within Glendale. Unauthorized releases of hazardous materials do not respect jurisdictional boundaries. Therefore, Risk Management Plans prepared by these facilities should address all critical facilities within a given radius, such as 1/2-mile or 1-mile from the hazardous materials site, so as to identify potential impact areas not within City limits.

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5.10 Summary of Findings

The primary concern associated with a hazardous materials release is the short and/or long term effect to the public from exposure to the hazardous material. The best way to reduce the liability for a hazardous material release is through stringent regulation governing the storage, use, manufacturing and handling of hazardous materials. These regulations are typically issued by the EPA, but various local agencies are tasked with the responsibility of monitoring those facilities that use, store, transport, and dispose hazardous materials for compliance with the Federal guidelines, or if applicable, with more stringent State guidelines. Some of these programs and regulations, and the local enforcement agency, are summarized below, as they pertain to the City of Glendale.

National Pollutant Discharge Elimination System (NPDES): The City of Glendale participates in the Los Angeles County Stormwater Program, the local enforcing agency of the National Pollutant Discharge Elimination System. NPDES permits are filed with the California Regional Water Quality Control Board, Los Angeles Region. On October 29, 1999, Phase II of NPDES was signed into law. Under this phase of NPDES, areas with 50,000 or more residents, and construction sites one acre or more in size, must file for and obtain an NPDES permit.

Superfund Sites: According to the EPA, there are nine Superfund sites in the City of Glendale, six of which are “archive” or No Further Remedial Action Planned (NFRAP) sites. Of the three sites designated as active Superfund sites, two are on the National Priority List (NPL). The NFRAP sites have been remediated to levels below National Priority List levels, but this does not guarantee that these sites have been completely remediated. The NPL sites still need to be remediated, while the active Superfund site not on the NPL is still undergoing preliminary assessment studies.

Hazardous Waste Sites: According to the data available, there are four large-quantity generators and approximately 250 small-quantity generators in the Glendale area. These numbers are not expected to change much, since the City is almost fully developed, and significant additional growth is not anticipated. Many of the small-generators are expected to change name with time, as these businesses come and go, or are taken over by new ownership. The City’s Fire Department should maintain a list, updated at least once a year, and preferably more often, showing the small generators in Glendale. This database should include the types of chemicals and quantities produced by these facilities.

Toxic Release Inventory: According to the EPA records, there are seven facilities in the Glendale area that are listed in the Toxics Release Inventory (TRI). These are sites that are known to release toxic chemicals into the air. The EPA closely monitors the emissions from these facilities to ensure that their annual limits are not exceeded. The EPA also issues permits to facilities that emit chemicals, both toxic and non-toxic, into the atmosphere. The EPA records list more than 170 facilities in the Glendale area that are permitted to release chemicals into the atmosphere.

Leaking Underground Storage Tanks: According to data from the State Water Resources Control Board, 55 underground storage tank leaks have been reported in the Glendale area, 25 of which are still listed as active in the database. The data indicate that only one leak has impacted a potable groundwater source. The Glendale Fire Department, Environmental Management Center (EMC) provides oversight and conducts inspections of all underground tank removals and installation of new ones.

Air Quality: Data from the South Coast Air Quality District show that in 1999 in the San Fernando Valley area, which includes the City of Glendale, the ozone levels were above the Federal standards for only 9 days, above the PM-2.5 levels for only 1 day, and only above the PM-10 levels for 35 days. Air quality criteria are expected to become even more stringent, as the results of recent studies that

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indicate that air quality in the southern California area is still poor. With increased enforcement, the concentrations of these air pollutants are expected to decrease further.

Water Quality: Two water agencies provide retail drinking water to the Glendale area. The two agencies are: Glendale Water and Power and the Crescenta Valley Water District. Both of these agencies rely on significant supplies from the Metropolitan Water District. Neither of these agencies is listed on the EPA Safe Drinking Water Violation Report. Well water that has high levels of nitrates is mixed with water from the Metropolitan Water District to reduce the nitrate concentrations to acceptable levels.

Hazardous Materials Disclosure Program: Both the Federal government and the State of California require all businesses that handle more than a specified amount of hazardous materials or extremely hazardous materials to submit a business plan to a regulating agency. Annually submitted business plans are currently reviewed by the Glendale Fire Department.

Household Hazardous Waste: The City of Glendale participates in a Household Hazardous Waste (HHW) collection program set up by the Glendale Fire Department, Environmental Management Center in accordance with the California Integrated Solid Waste Management Act of 1989. The Environmental Management Center is located at 780 Flower Street. The City also provides a recycling program in which recyclable materials are collected by the refuse collection agency. It is clear that outreach and education programs that encourage recycling and conservation are in place.

Hazards Overlays: In the older sections of Glendale, businesses and residential areas are often within short distances of each other, or they co-exist. This gives the City a strong sense of community, a quality unique to the older cities of southern California. Most “planned” communities that have sprung elsewhere in the last decades do not provide for this desirable mix of uses within short, walking distances of each other. Unfortunately, there are also some disadvantages to this development pattern - facilities that generate, use, or store hazardous materials are often located near residential areas or near critical facilities, with the potential to impact these areas if hazardous materials are released into the environment at concentrations of concern.

There are four large-quantity and more than 250 small-quantity generators of hazardous materials in the City. Given these numbers, it is impressive that the actual number of unauthorized releases of hazardous materials into the environment is fairly small, as documented in the Federal and State databases reviewed. There are eight sites that have released hazardous materials of concern into the air – the EPA monitors these facilities closely to reduce the potential of future emissions at concentrations above the acceptable limits.

Eight of the significant hazardous materials sites are located within or adjacent to a liquefaction susceptible area, or an unstable slope area. Furthermore, two of the sites are located within or adjacent to a dam inundation area. The one concern that applies to all sites is that the City of Glendale is susceptible to high to very high ground motions as a result of an earthquake on several nearby seismic sources, including but not limited to, the Sierra Madre, Verdugo, Raymond or Hollywood faults. Therefore, all sites should provide for, at a minimum, secondary containment of hazardous substances, including segregation of reactive chemicals, in accordance with the most recent Uniform Fire Code and City of Glendale Fire Department amendments to the code.