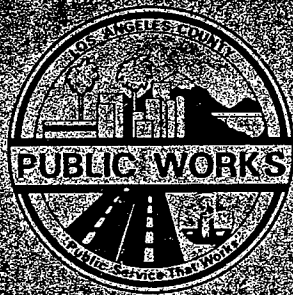


# LOS ANGELES COUNTY HAZARDOUS WASTE MANAGEMENT PLAN

## VOLUME II TECHNICAL SUPPLEMENT



SEPTEMBER 1988

LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS

LOS ANGELES COUNTY HAZARDOUS WASTE MANAGEMENT

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## GLOSSARY

Absorption - A process for removing low concentrations of organic materials from gaseous and liquid waste streams. The organics are attracted to the surface of a substance, usually carbon.

Acid - A large class of substances that form solutions having a low pH. Stronger acids are corrosive to metals and other materials. Acids may be neutralized by being mixed with bases or alkalis to form salts.

Acid Waste - A waste with a pH less than 7.0. (The pH scale shows increasing acidity as numbers decrease from 7.0 toward zero. Anything above 7.0 is alkaline, or "basic"). An acid waste is hazardous when its pH is 2.0 or less. See "pH".

Activated Sludge Treatment - A process which exposes wastes to microorganisms and air. A portion of the organic matter is oxidized to carbon dioxide and new microbial cells.

Acute - Effects which are manifested soon after exposure to a hazardous material.

Aerobic - Occurring in the presence of free oxygen.

Alkaline Waste - A waste with a pH between 7.0 and 14.0. An alkaline waste is hazardous when its pH is 12.5 or greater.

Alternative Technology - Defined by the Department of Health Services to mean the application of technology to the reduction of waste generation, recycling, or reuse of waste produced, as alternatives to land disposal of hazardous waste.

Ambient - Existing conditions of air, water and other mediums at a particular time.

Amendment - Formal change to an adopted County Hazardous Waste Management Plan (CoHWMP). The CoHWMP amendment process includes revision of the CoHWMP at either scheduled intervals or as often as deemed necessary. All or part of the CoHWMP may be revised and amended as needed.

Anaerobic - Occurring in the absence of oxygen.

Appropriate Agreement - Appropriate Agreements are defined by the State Department of Health Service as legally binding agreements between jurisdictions that differ from the common arrangement prescribed by the County Hazardous Waste Management Plan. These individually arranged agreements are developed to satisfy goals of unique hazardous waste management issues.

Aqueous - Having a water base.

Aquifer - A geological formation, group of formations or part of a formation capable of yielding a significant amount of ground water to wells or springs. (CAC, Title 22, Section 66011.1)

At-Sea Incineration - The combustion of wastes in a conventional single-chamber incinerator which is mounted on a ship.

Authority to Construct - An authorization issued by Air Pollution Control Districts and Air Quality Management Districts. These are required prior to construction of proposed facilities which will emit a significant amount of pollutants into the atmosphere.

Base - A substance which forms a salt when it reacts with an acid. Bases have a pH greater than 7.0.

Bill of Lading - A manifest issued by a common carrier listing goods shipped.

Binding Arbitration - A process for the resolution of disputes. Decisions are made by an impartial arbitrator. The decisions of the arbitrator are final and an agreement to accept them must be made in advance.

Biological Treatment - Treatment processes utilizing living microorganisms to decompose organic hazardous waste into simpler organic or inorganic substances. The five principal techniques include activated sludge, aerated lagoons, trickling filters, waste stabilization ponds, and anaerobic digestion.

Bioaccumulative - Substances that increase in concentration in living organisms as they breathe contaminated air, drink contaminated water, or eat contaminated food and that are not readily metabolized or excreted.

Biosludge - Sludge generated in the course of biological treatment of organic wastes, and composed primarily of microorganisms.

Boiler - A pressure vessel designed to produce vapor from liquid by the application of heat.

BTU (British Thermal Unit) - The quantity of energy required to raise the temperature of one pound of water by one degree Fahrenheit (°F) at or near 39° F.

California Administrative Code (CAC) - California Administrative Code is to be changed to Code of California Regulations (CCR).

Buffer Zone - An area of land which surrounds a hazardous waste activity area on which certain land uses are restricted. This is to protect the public health and safety, and to protect the environment from the migration of hazardous waste constituents.

Cap - A layer of clay or other highly impermeable material installed over the top of a closed landfill to prevent entry of rainwater and minimize production of leachate.

Carcinogen - Substance or agent which causes the production of cancer cells.

Capacity Excess or Shortfall - The needs assessment compared to the existing capacity.

Catalyst - A substance, usually present in small amounts relative to the reactants, that increases the rate of a chemical reaction without being consumed in the process.

Caustics (Bases, alkalis) - A large class of substances which form solutions having a high pH. Strong caustics are corrosive to many materials. Caustics react with acids to form salts.

Cell - A portion of compacted solid wastes in a landfill that is enclosed by natural soil and/or cover material during the course of filling.

Cement Kiln Incineration - The burning of organic wastes as a supplementary fuel at very high temperatures during the production of cement.

Chemical Abstracts Service (CAS) Number - The unique identification number assigned by the Chemical Abstracts Service to a specific chemical substance.

Chemical Name - The scientific designation of a substance in accordance with the International Union of Pure and Applied Chemistry or the system developed by the Chemical Abstracts Service.

Chemical Oxidation - Adding strong oxidizing chemicals to a waste-stream to reduce its toxicity. (Cyanide can be detoxified by reaction with hypochlorite or some other oxidizing agent.)

Chemical Reduction - The addition of chemicals to wastes which cause partial or complete decomposition of particular waste components into their basic nontoxic parts.

Chemical Treatment - Treatment processes which alter the structure of hazardous waste constituents to produce an innocuous or less hazardous material. Principal techniques include neutralization, precipitation, ion exchange, chemical dechlorination, and chemical oxidation/reduction.

Chronic - Effects which are manifested following repeated exposures over a period of time or long-term exposure. Also refers to effects which are on-going.

Class I Land Disposal Facility - Land disposal facilities which conform to regulations of the State Water Resources Control Board for Class I units. They shall be located where natural geologic features provide optimum conditions for the isolation of wastes from the waters of the State. Currently, these facilities may accept solid and dry hazardous waste. After 1990, they will be precluded from accepting any untreated hazardous wastes.

Class II Land Disposal Facility - Land disposal facilities which must be located where site characteristics and contaminated structures isolate wastes from the waters of the State. They may not be located in areas subject to flooding by 100 year floods, rapid geologic changes, or tsunamis, seiches and surges. They are designed, constructed and maintained to preclude failure in protecting the waters of the State. Class II land disposal facilities are suitable for wastes which have been granted a variance from hazardous waste management requirements pursuant to CAC, Title 22, Section 66310. (See definition of Designated Waste.)

Common Name - Any designation or identification, such as a code name or number, trade name, or brand name, used to identify a hazardous substance other than by its chemical name.

Compensation - Payments awarded either through the courts or a government administered fund to cover injury or damage caused by exposure to hazardous substances. In the case of hazardous materials, awards usually cover lost income, out-of-pocket medical expenses, and pain and suffering.

Composting - A controlled microbial degradation of organic waste yielding a humus-like product of potential value as a soil conditioner.

Conditional Use Permit (CUP) - A discretionary permit, issued by cities and counties, which is required for certain projects that are allowable by special permit only. A conditional use permit imposes conditions on a project which are designed to assure that the project is compatible with the local general plan and zoning ordinances and that impacts on neighboring land uses are minimized.

Corrosive - Any substance which can, upon contact, dissolve standard materials and toxic contaminants, and/or cause destruction of living tissue by chemical action.

Council of Governments (COG) - Chapter 1504 of the 1986 State Statutes (AB 2948, Tanner) references four specific COGs to receive funding for Regional Plan development. Associations of Governments, Joint Powers Agreements, etc, are mechanisms through which multi-jurisdictional hazardous waste management plans can be developed which will have the same validity as those COG Plans specifically funded under the legislation.

County - "...a county that notifies the State Department of Health Services (SDOHS) that it will prepare a hazardous waste management plan in accordance with this article and receives a grant pursuant to Section 25135.8. "County" also means any city, or two or more cities within a county acting jointly, which notifies the SDOHS that it will prepare a county hazardous waste management ..." (Chapter 1504 of the 1986 State Statutes (AB 2948, Tanner), Section 25135.1(a))

County Hazardous Waste Management Advisory Committee (CoHWMAC) - The CoHWMAC assists in the preparation of the County Hazardous Waste Management Plan (CoHWMP). The CoHWMP is required by Chapter 1504 of the 1986 State Statute (AB 2948, Tanner). The law specifies a minimum number of members to be appointed to the CoHWMAC and that the committee must include representatives from various interest groups.

County Hazardous Waste Management Plan (CoHWMP) - A hazardous waste management plan was prepared pursuant to Chapter 1504 of the 1986 State Statute (AB 2948, Tanner). This bill authorizes "... a county, in lieu of preparing the hazardous waste portion of the solid waste management plan, to adopt, by September 30, 1988, a county hazardous waste management plan pursuant to guidelines adopted by the State Department of Health Services ..." In this document, the term specifically refers to the Los Angeles County Hazardous Waste Management Plan.

County Solid Waste Management Plan (CoSWMP) - A plan which sets forth a comprehensive program for solid waste management pursuant to the California Government Code Section 66780.

Countywide - The area of a county, including the cities and other entities (such as Indian, Federal or State lands) within the boundaries of the county.

Criteria Pollutant - An air pollutant for which there is considered to be a safe level of exposure and for which standards have been set. Current criteria pollutants are sulfur oxides, particulate matter, carbon monoxide, nitric oxides, ozone, and lead.

Dechlorination - Removal or neutralization of toxic concentrations of chlorine from a substance.

Deepwell Injection - Disposal of wastes by injecting them into a geological formation deep in the ground. Wastes are often pretreated to prevent plugging of the injection equipment and underground disposal zone.

Designated Waste - Hazardous waste which has been granted a variance from hazardous waste management requirements pursuant to the CAC, Title 22, Section 66310. A variance may be granted if the waste is insignificant as a potential hazard to human health and safety, livestock or wildlife because of its small quantity, low concentration or, physical or chemical characteristics. Designated waste must be handled, stored or disposed in a manner which will not result in hazard to human health, livestock or wildlife.

Developer - A person, government unit, or company that proposes to build a hazardous waste treatment, storage, or disposal facility.

Discretionary Project or Permit - A project or permit whose approval depends on the judgment of a public agency or body

rather than on conformity with applicable statutes, ordinances, or regulations.

Disposal - The discharge, deposit, injection, dumping, spilling, leaking or placing of any hazardous waste into or on any land or water so that such hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including ground waters. (CAC, Title 22, Section 66042.)

Disposal Site - Location where any final deposition of hazardous waste occurs. (Health & Safety Code, Chapter 30, Article 1)

Dissolution - To dissolve in water or an organic solvent.

Distillation - A process for the separation of liquids with different boiling points by heating the mixture to produce vapor and retrieving certain components by recondensation. (An important application is solvent recovery.)

Drum Decantation - To pour the liquid material from a drum leaving settled solids inside.

Electrostatic Precipitators - Devices that remove particles from a gas stream by passing the gas through an electric field to charge the particles. The particles then adhere to the oppositely charged plate and are removed mechanically.

Eminent Domain - The right of a government to appropriate private property for public use, with compensation paid to the landowner.

Environmental Impact Report (EIR) - A detailed statement prepared pursuant to the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000 et seq.). An EIR describes and analyzes the significant environmental effects of a project and discusses ways to mitigate or avoid adverse effects. The term "EIR" may refer to either a draft or a final EIR, depending on the context. (CEQA Guidelines, Section 15362)

Environmental Protection Agency (EPA) Waste Stream Code - The identification number assigned to a specific chemical waste or type of chemical waste pursuant to the regulations of the EPA.

Epidemiology - The study of prevalent diseases in humans.

Evaporation - A process for concentrating non-volatile solids in solution by vaporizing the liquid portion, usually water. Solar evaporation utilizes uncovered ponds.

Exempt Waste - Wastes exempt from the permitting process and from reporting requirements, such as wastes which are recycled on-site and some wastes which are treated prior to discharge to the sewer.

Existing Off-site Facility - An existing off-site hazardous waste management facility that is now in operation and/or submitted

Part B of the application form in response to the Resource Conservation and Recovery Act.

Exposure - Contact with a hazardous material. The most common routes of exposure are dermal (skin), oral (mouth), and inhalation (breathing).

Filtration - Separating solids from liquids by passing suspensions through various types of porous materials to collect the solid residue.

Fixation - A process whereby waste is made unchangeable and/or stationary.

Flammable - Materials which will burn below 140° F, either spontaneously or through contact with already flaming material.

Fluidized-Bed Incineration - Combustion of wastes that are injected into agitated beds of inert granular material. The process is suitable for sludges and liquid wastes; solid waste may need grinding.

Generator - The person or facility who by nature of ownership, management, or control, is responsible for causing or allowing to be caused, the creation of hazardous waste.

Geology - This term refers to:

- (1) The composition and structure of the earth's crust.
- (2) The study of the earth's crust.

Groundwater - Defined by the State Water Resources Control Board to mean water found below the land surface and the vadose zone; it is distinct from surface water.

Halogenated - Substances having a chlorine, bromine, fluorine, or iodine atom in their structure.

Halogenated Organics - A broad class of synthetic organic chemicals characterized by the addition of halogens (mainly chlorine, bromine, or fluorine) to hydrocarbon compounds.

Hazardous Material - A substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may either:

- (1) Cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or
- (2) Pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed.

Unless expressly provided otherwise, the term "hazardous material" shall be understood to also include extremely hazardous material. (CAC, Title 22, Section 66084)

Hazardous Substance - This term means:

(1) Any substance designated pursuant to Section 1321 (b) (2) (A) of Title 33 of the United States Code.

(2) Any element, compound, mixture, solution, or substance designated pursuant to Section 102 of the Federal Act (42 U.S.C. 9602).

(3) Any hazardous waste having the characteristics identified under or listed pursuant to Section 6921 of Title 42 of the United States Code, but not including any waste the regulation of which under the Solid Waste Disposal Act has been suspended by act of Congress.

(4) Any toxic pollutant listed under Section 1317 (a) of Title 33 of the United States Code.

(5) Any hazardous air pollutant listed under Section 7412 of Title 42 of the United States Code.

(6) Any eminently hazardous chemical substance or mixture with respect to which the Administrator of the United States Environmental Protection Agency has taken action pursuant to Section 2606 of Title 15 of the United States Code.

(7) Any hazardous waste or extremely hazardous waste as defined by Section 25117 and 25115, respectively, unless expressly excluded. (Health and Safety Code, Section 25316)

Hazardous Substances Account - A state fund derived from fees paid by persons who submit more than 500 pounds per year of hazardous or extremely hazardous waste to on- or off-site hazardous waste disposal facilities. This is the primary funding source for the state Superfund program.

Hazardous Waste - See Appendix 1D, Vol. III.

Hazardous Waste Control Account - An on-going state fund, derived from fees paid by operators of on or off-site hazardous waste disposal facilities, which is the basic funding source for the State Department of Health Services' hazardous waste management program.

Hazardous Waste Control Act - A California law enacted in 1972 that established the State's hazardous waste management program within the State Department of Health Services.

Hazardous Waste Element - That portion of a County Solid Waste Management Plan which addresses hazardous waste management.

Hazardous Waste Facility - All contiguous land, structures, other appurtenances, and improvements on the land, used for handling, treating, storing or disposing of hazardous wastes. (CAC, Title 22, Section 66096)

Hazardous Waste Management Facility - In this Plan, the definition of a hazardous waste management facility is the same as that of a hazardous waste facility.

Hazardous Waste Facility Permit - A document issued by the State Department of Health Services to implement the requirements of

Chapter 6.5 of Division 4, of the Health and Safety Code. (CAC, Title 22, CAC Section 66099)

Hazardous Waste Generator - An individual or entity who generates hazardous waste.

Hazardous Waste Management - The systematic control of the collection, source separation, storage, transportation, processing, treatment, recovery and disposal of hazardous waste. (CAC, Title 22, Section 66130)

Herbicide - A chemical used to kill plants.

High Priority Wastes - Wastes which have properties particularly hazardous to human health (toxicity), can accumulate in living organisms (bioaccumulation), remain hazardous for long time periods (persistence), pose increased potential for air emissions due to their volatility, or cause groundwater contamination due to seepage through soil (mobility). They are wastes which contain pesticides, PCBs, cyanides, toxic metals, halogenated organics, or non-halogenated volatile organics.

Hydrogeology - The geology of groundwater, with particular emphasis on the chemical composition and movement of the water.

Injunction - Court order to carry out or refrain from carrying out a particular activity.

Incentives - This term means:

(1) Measures which provide benefits to communities above and beyond the costs associated with hazardous waste management facilities. Incentives would make a community better off than it was before a hazardous waste management facility is sited;

(2) Certain measures (such as low interest loans, tax breaks, etc.) taken by government to stimulate the development and implementation of improved technologies for managing hazardous waste.

Incineration - A process for reducing the volume or toxicity of hazardous wastes by oxidation at high temperatures.

Inert - Exhibiting no chemical activity; totally unreactive.

Ions - Chemical constituents of a solution having a positive or negative electrical charge.

Irritant - Substances that can induce inflammation of living tissue.

Joint Powers Agreement (JPA) - An agreement between two or more public agencies for the joint exercise of any power common to the contracting parties.

Judicial Review - Refers to legal examination by the court of administrative agency decisions and actions.

Land Disposal - Disposal, storage or treatment of hazardous wastes on or into the land, including, but not limited to deepwell injection, land spreading, landfills, surface impoundments and waste piles.

Land Disposal Restrictions - Refers to the state and federal program to progressively ban the land disposal of untreated hazardous wastes.

Landfarming (Land Application, Land Spreading) - A treatment technique which involves spreading the waste on land and utilizing evaporation and microbial action to degrade the wastes. (Not the same as landfilling.) Used primarily for crude oil wastes.

Leachate - Liquid that leaks from a landfill. Leachate frequently contains contaminants dissolved from the waste in the landfill.

Leachate Collection System - A system that gathers leachate and pumps it to the surface for treatment.

Lead Agency - The public agency which has the principal responsibility for carrying out or approving a project. The lead agency will decide whether an Environmental Impact Report or Negative Declaration will be required for a hazardous waste management project and will cause the document to be prepared.

Lethal Concentration Fifty (LC<sub>50</sub>) - A calculated concentration of a substance in air or water, exposure to which for a specified length of time is expected to cause the death of 50 percent of a defined experimental animal population.

Lethal Dose Fifty (LD<sub>50</sub>) - A calculated dose of a substance which is expected to cause the death of 50 percent of an experimental animal population.

Liner - A relatively impermeable barrier designed to prevent leakage of leachate from a landfill. Liner materials include plastic sheets, dense clay, etc.

Listed Waste - Wastes "listed" by the Environmental Protection Agency as hazardous by definition, even in instances where the "characteristics" may not apply.

Local Assessment Committee - Review group created by a host or abutting community to analyze a proposed hazardous waste management facility.

Local Veto Authority - Within the context of hazardous waste management facility siting, the term refers to the power of cities and counties to unilaterally reject proposed facilities by denying local land-use approval.

Management - The systematic control of the storage, transportation, processing, treatment, collection, source

separation, recovery or disposal of hazardous wastes. It includes administrative, financial, legal, and planning activities as well as operational aspects.

Manifest (California Liquid Waste Hauler Record) - State form which indicates generator, transporter, disposer, operator, quantity and type of waste for each shipment of hazardous waste disposed of in off-site facilities.

Mediation - A voluntary negotiation process in which a neutral mediator assists the parties in a dispute to reach a mutual agreement.

Memorandum of Agreement (MOA) - A written record between administrative agencies which clarifies or establishes joint procedures or authority necessary to administer a program.

Microorganisms - In the context of biological treatment of wastes, microorganisms are microscopic bacteria, protozoa, fungi, and other living matter which degrade organic wastes.

Ministerial - A governmental decision made by a public official who exercises no personal judgement but simply applies the law to facts as presented. A ministerial decision involves only fixed standards or objective criteria in determining whether or how a project should be carried out. Common examples of ministerial permits include automobile registration, dog licenses, and marriage licenses.

Mitigation - Includes:

- (1) Avoiding the impact altogether by not taking a certain action or parts of an action.
- (2) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- (3) Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment.
- (4) Compensating for the impact by replacing or providing substitute resources or environments.

Monitoring Well - A well drilled near a hazardous waste management facility to allow groundwater to be sampled and analyzed for contamination.

Mutagenic - Causing alterations in the structure of genetic material of living organisms.

Multi-County - An area including two or more counties.

National Ambient Air Quality Standards - Specified maximum average concentration of pollutants over stated lengths of time, allowed by air quality regulations of local, state or federal agencies.

Needs Assessment - A determination of total required hazardous waste (treatment and/or disposal) capacity.

Negative Declaration - A written statement by the lead agency subject to formal public review which briefly describes the reasons why a proposed project, not exempt from California Environmental Quality Act, will not have a significant effect on the environment and, therefore, does not require the preparation of an Environmental Impact Report. (CEQA, Section 15371 Guidelines)

Negotiation - A process through which trade offs are made by parties to a dispute in order to reach an agreement satisfactory to all.

Neutralization - A treatment technology whereby acids and alkalis are reacted to form salts and water with a pH approaching neutral (7.0).

New Source - Within the context of air pollution control, this refers to a new facility or a modification of an existing facility which is a source of air pollution. (May limit development of additional air pollution sources including hazardous waste facilities.)

Non-Attainment Area - Area whose ambient air pollutants exceed federal or state standards. (May restrict approval of certain kinds of hazardous waste facilities, such as incinerators, in non-attainment areas.)

Nonhalogenated - Substances which do not contain halogens, such as chlorine, bromine, fluorine or iodine, and which evaporate at relatively low temperatures.

Offsets - Emission reductions required to be made at other facilities or on other equipment in order to mitigate the increased emissions caused by a new source. Offsets are intended to maintain or improve the quality of the air.

Off-site Hazardous Waste Facility - Operation involving the handling, treatment, storage or disposal of a hazardous waste in one or more of the following situations:

(1) The hazardous waste is transported via commercial railroad, a public owned road or public waters, where adjacent land is not owned by or leased to, the producer of the waste.

(2) The hazardous waste is at a site which is not owned by, or leased to, the producer of the waste.

(3) The hazardous waste is at a site which receives hazardous waste from more than one producer.  
(Title 2 Health & Safety Code, Chapter 30, Article 1)

In this Plan, all hazardous waste facilities can fall in 1 of 3 categories: existing, planned, and proposed.

Off-site Hazardous Waste Management Facility - In this Plan, the definition of an off-site hazardous waste management facility is the same as that of an off-site hazardous waste facility.

On-site Hazardous Waste Facility - Operation involving handling, treatment, storage or disposal of hazardous waste on land owned by, or leased to, a waste producer, and which receives hazardous waste produced only by that producer. An operation that occurs after waste is transported by commercial railroad, or on public waters or on a public road shall be considered an on-site operation only if the producer of the waste owns at least 90% of the linear site and the area where the hazardous wastes are generated are on the same continuous property. (Health & Safety Code, Chapter 30, Article 1.)

On-site Hazardous Waste Management Facility - In this Plan, the definition of an on-site hazardous waste management facility is the same as that of an on-site hazardous waste facility.

Operator - A person, government unit, or company that conducts treatment, storage or disposal of waste.

Organics - Chemical substances of animal or vegetable origin, of basically carbon structure, including hydrocarbons and their derivatives.

Organometallic Compounds - Organic molecules (ingredients) which incorporate metal atom(s) into their molecular structure.

Permit - A document issued by a government unit that allows specified activities to proceed under specific conditions.

Permit Streamlining Act (AB 884) - A California law, enacted in 1977, which imposes time frames and requirements on governmental agencies' for the granting of permits to develop projects.

Permit to Operate - An authorization, issued by Air Pollution Control Districts and Air Quality Management Districts, which is required before operation of a facility. Receipt is contingent upon demonstration that the facility can comply with applicable rules and regulations and with conditions imposed in the Authority to Construct.

Pesticide - A chemical used to kill destructive insects or small animals.

pH - A measure of the acidity or alkalinity of a liquid. On a scale of 0-14, acidity is indicated by 0-7, alkalinity by 7-14 and neutrality at 7.

Physical Treatment - Treatment processes which separate components of a waste stream or change the physical form of the waste without altering the chemical structure of the constituent materials.

Pickling Liquors - Corrosive liquids used for removing scale and oxides from metals.

Planned Offsite Facilities - An off-site hazardous waste management facility that is not in operation but has filed for

all discretionary permits, specific site has been identified and the draft environmental impact documents has been prepared.

Ponding - The tendency of land to hold water in ponds, encouraging water to pass downward through the soil.

Post-Closure - The time period following the closure (shutdown) of a facility.

Precipitation - The solidification by chemical reaction of a substance held in solution, which allows the solids to be collected and removed from the liquid.

Prevention - Measures taken to minimize the release of wastes to the environment.

Proposed Off-site Facilities - An off-site hazardous waste management facility that is under consideration and/or information as to the inception has been made available to the Los Angeles County Department of Public Works, although not all of the appropriate permits have been filed.

Pyrolysis - Heating toxic materials in an enclosed oxygen deficient space, resulting in a residual material of lower toxicity.

Recharge Zone - An area where water from precipitation, surface streams, impoundment areas, or other sources percolates into the ground and enters an aquifer.

Recycle - To redirect or utilize a hazardous waste or a substance from a hazardous waste. Includes recovery of resources from a hazardous waste. (Health and Safety code, Section 25121)

Refractory Organics - Organic compounds which are resistant to decomposition through burning or high temperature treatment.

Refuse-Derived Fuel (RDF) - The combustible or organic fraction of municipal solid waste which has been prepared for use as a fuel by any of several mechanical processing methods.

Regional Facility - A hazardous waste management facility which accepts wastes from more than one county.

Regional Plan - A plan prepared by one of the Council of Governments designated under Chapter 1504 of the 1986 State Statute (AB 2948, Tanner), or by joint agreement between two or more counties under a legally constituted agency covering the planning area which has the delegated authority to prepare a Regional Plan.

Release - Any accidental spilling, leaking, discharging, or disposing into the environment.

Research, Development and Demonstration Units (RD&Ds) - Either:  
(1) State Department of Health Services designated

facilities located on-site, at the source of generation which are exempt from the County Hazardous Waste Management Plan (CoHWMP) consistency requirement; or

(2) State Department of Health Services designated facilities located in industrial or other zones where, because of their temporary and experimental nature, they are granted a limited-life conditional use permit by local government. Since they must be operated under the conditions of the local land use permit such facilities are consistent with the CoHWMP.

Residuals Repository - A storage facility which accepts solid materials resulting from the treatment of hazardous wastes to standards established by the State Department of Health Services or which accepts hazardous organic waste which is stabilized, solidified or encapsulated. No free liquids will be accepted. The residuals are solid, with relatively insoluble toxic material content and are to be kept dry by the design of the facility.

Resource Conservation and Recovery Act (RCRA) - A federal act which gives the Environmental Protection Agency the authority to develop a nationwide program to regulate hazardous wastes from "cradle-to-grave." Enacted in 1976, the Act was established to "protect human health and the environment from the improper handling of solid waste and encourage resource conservation."

Resource Recovery - The reuse or reclamation of any hazardous waste or any recyclable hazardous material (except those that are exempted by Section 25127.5 of the Health and Safety code). (CAC, Title 22, Section 66180)

Responsible Agency - A public agency which proposes to carry out or approve a project for which a Lead Agency is preparing or has prepared an Environmental Impact Report or Negative Declaration. For the purposes of the California Environmental Quality Act (CEQA), the term "responsible agency" includes all public agencies other than the lead agency which have discretionary approval power over the project. (CEQA Guidelines, Section 15381)

Risk - A measure of the likelihood and the severity of injury.

Rodenticides - A class of pesticide which kills, repels, or controls rodents (rats, mice, rabbits, etc.).

Rotary Kiln Incineration - The burning of liquid or solid wastes in large cylinders lined with fire-brick and rotated to improve turbulence in the combustion zone.

Sensitizers - Substances which produce allergic reactions.

Small Quantity Generator - Existing California regulations do not define small quantity generators. However, this Plan defines a small quantity generator as one who generates 1,000 kilograms (2,200 pounds) or less of hazardous waste per month.

Siting Criteria - Factors which must meet certain standards to determine whether an area is appropriate for the location of a hazardous waste management facility.

Sludge - A concentrated suspension of waste solids. One type of sludge is produced from the treatment of sewage.

Solid Waste - All putrescible and nonputrescible solid and semisolid wastes such as garbage, rubbish, paper, ashes, industrial wastes, demolition and construction wastes, abandoned vehicles and parts thereof, discarded home and industrial appliances, manure, vegetable or animal solid and semisolid wastes, and other discharged solid and semisolid waste; but excluding hazardous waste. (Section 66719 of the CA Government Code, as amended by Assembly Bill 1920, September, 1983)

Solid Waste Landfill - A solid waste disposal facility which meets the requirements of a Class III landfill pursuant to Section 2533 of Title 23 of the California Administrative Code.

Solidification - A treatment process for limiting the solubility of or detoxifying hazardous wastes by producing blocks of treated waste with high structural integrity.

Solvent - A substance, generally a liquid, which can dissolve another substance.

Solvent Extraction - Removing hazardous constituents from a solid or liquid waste so that it may be disposed of as non-hazardous waste.

Source Reduction - On-site practices which reduce, eliminate or avoid the generation of hazardous waste.

Special Wastes - Wastes classified as hazardous only because they contain inorganic substances chronically toxic to human health or the environment, and which meet all criteria and requirements of Section 66742 and have been classified Special Wastes pursuant to Section 66744. (CAC, Title 22, Section 66191)

Stabilization - A treatment process for limiting the solubility of or detoxifying hazardous wastes by adding materials which ensure that hazardous constituents are maintained in their least soluble and/or toxic form.

Standard Industrial Classification (SIC) Code - Identification system which assigns numerical classifications to U.S. businesses according to type of economic activity. The U.S. Government publishes The Standard Industrial Classification Manual which lists and describes all SIC code classifications.

State Preemption Override - Refers to preemption by the State of local hazardous waste facility siting authority.

Storage - Containment of hazardous waste at an off-site hazardous waste facility for periods greater than 144 hours, or containment

at an on-site facility for periods greater than 90 days in such a manner as not to constitute disposal. (Health & Safety Code, Chapter 30, Article 1)

Storage Facility - A hazardous waste facility at which hazardous waste is contained for a period greater than 144 hours at an off-site facility or for a period greater than 90 days at an on-site facility. (Health and Safety Code, Section 25123.3)

Strong Sensitizers - Substances which produce allergic reactions.

Suggested Control Measures - Pollution control strategies necessary to attain federal and state ambient air quality standards.

Superfund - Refers to Federal Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) and the California Hazardous Substance Bond Act of 1984 (Article 7.5 of Division 20 of the California Health and Safety Code). These provide funding for cleanup of sites contaminated with hazardous waste.

Surface Impoundment - A hazardous waste facility or part of a facility which is a natural topographic depression, man-made excavation, or diked area designed to hold an accumulation of liquid wastes or wastes containing free liquids, usually in order to treat the wastes.

Synergistic - The action of two materials in combination which is greater in effect than the sum of their individual actions.

Technical Reference Manual (TRM) - A document issued by the State Department of Health Services to support their guidelines for the preparation of the County Hazardous Waste Management Plan.

Teratogenic - Causing malformation of a fetus.

Toxic - Capable of producing injury, illness, or damage to humans, livestock or wildlife through ingestion, inhalation, or absorption through any body surface; poisonous.

Toxicology - The science of toxics, their effects, antidotes, etc.

Toxic Air Contaminant - An air pollutant which may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health. (Health and Safety Code, Section 39655)

Toxic Substance Control Act - A federal law which, among other provisions, allows designated agencies to ban the sale, use, or manufacture of certain compounds such as polychlorinated biphenyls (PCBs).

Toxic Waste - A waste which can produce injury upon contact with, or by accumulation in or on the body of, a living organism.

Transfer Station - Any hazardous waste facility where hazardous wastes are loaded, unloaded, pumped, or packaged. (CAC, title 22, Section 66212)

Transportation - The movement of hazardous waste by air, rail, highway or water. (CAC, title 22, Section 661213.5)

Transportable Treatment Units (TTUs) - Hazardous waste treatment works which are designed to be moved either intact or in modules and which are intended to be operated at a given location for a limited period of time. TTUs are regulated as follows:

(1) Where TTUs are treating wastes at the site of generation, they shall be considered as on-site and therefore exempt from the consistency requirements of AB 2948;

(2) Where TTUs are treating wastes which have been removed from the generation site, such as a transfer station, they will be situated on property which is already permitted for the hazardous waste management by the state and local government. They shall be given consistency status with County Hazardous Waste Management Plans; and

(3) TTUs used at cleanup sites, either for site mitigation or for emergency response purposes shall be considered to be on-site units.

Treatment - Any method, technique, or process designed to change the physical, chemical or biological character or composition of any hazardous waste so as to neutralize, recover energy or material resources, reduce in volume and render such waste less hazardous so that it is safer to transport, store or dispose of. (CAC, Title 22, Section 66216)

Treatment Facility - Any facility at which hazardous waste is subjected to treatment or where a resource is recovered from a hazardous waste. (Title 22 Health & Safety Code, Chapter 30, Article 1)

Vadose - Refers to water lying in the zone between land surface and groundwater.

Variance - An exemption from the State Department of Health Services' permitting process which is granted under special, stated conditions. Notifications of variances are sent to local environmental health and land use planning departments; such facilities are still subject to local land use permits.

Waste - Any material for which no use or reuse is intended and which is to be discarded. For purposes of the County Hazardous Waste Management Plan, waste is considered to be any material for which no use or reuse can be found at the primary generation site and which must be managed in a process separate from the generation process.

Waste Exchange - Clearinghouse for transferring treated and untreated hazardous wastes to an industrial user for use as raw material.

Waste Minimization - Reduction of waste at the source; on-site reuse, recycling or treatment; or off-site recycling. (See Chapter 7).

Waste Stabilization Pond - A detention pond used to stabilize the composition of wastes over a long period of time.

Waste Stream - All waste coming into, through, or out of a facility.

# LIST OF ACRONYMS

AADT	Average Annual Daily Traffic
ARB	(California/State) Air Resources Board
BACT	Best Available Control Technology
CAA	Clean Air Act
CAC	California Administrative Code
CALTRANS	California Department of Transportation
CAS	Chemical Abstracts Service
CEPD	Consumer and Environmental Protection Division
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CHEMTREC	Chemical Transportation Emergency Center
CHP	California Highway Patrol
CMA	Chemical Manufacturers Association
COG	Council of Governments
CoSWMP	County Solid Waste Management Plan
CPSC	Consumer Product Safety Commission
CSD	County Sanitation Districts (of Los Angeles County)
CWA	Clean Water Act
CWE	California Waste Exchange
CWMB	California Waste Management Board
DFFW	(Los Angeles County) Department of Forester and Fire Warden
DFG	(California/State) Department of Fish and Game
DIR	(California/State) Department of Industrial Relations
DMV	(California/State) Department of Motor Vehicles
DOD	(United States) Department of Defense
DOHS	(Los Angeles County) Department of Health Services
DOT	(United States) Department of Transportation
DPW	(Los Angeles County) Department of Public Works
DRP	(Los Angeles County) Department of Regional Planning
EERU	Environmental Emergency Response Unit
EIR	Environmental Impact Report
EPA	(United States) Environmental Protection Agency
ERT	Emergency Response Team
FEMA	Federal Emergency Management Agency
HRS	Hazard Ranking System
HSA	Hazardous Superfund Account
IRM	Office of Information Resources Management
LAER	Lowest Achievable Emission Rate
NAAQS	National Ambient Air Quality Standards
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NESHAPS	National Emission Standards for Hazardous Air Pollutants
NETA	National Emergency Training Center
NIOSH	National Institute for Occupational Safety and Health
NOS	Not otherwise specified
NPDES	National Pollutant Discharge Elimination Standards
NPL	National Priorities List
NRC	National Response Center
NRT	National Response Team

OES	Office of Emergency Services
OSC	On Scene Coordinator
OSHA	Occupational Safety and Health Act
OTA	Office of Technology Assessment
PCB	Polychlorinated Biphenyl
PCE	Perchloroethylene
PNA	Polynuclear Aromatic hydrocarbon
PHI	Public Health Index
PHRS	Public Health Benefits/Cost Ranking System
ppm	Parts per million
PSD	Prevention of Significant Deterioration
RCRA	Resource Conservation and Recovery Act
RRT	Regional Response Team
RWQCB	Regional Water Quality Control Board
SAC	(California) State Agency Coordinator
SARA	Superfund Amendment and Reauthorization Act
SBE	(California) State Board of Equalization
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCHWMP	Southern California Hazardous Waste Management Project
SDOE	(California) State Department of Education
SDOHS	(California) State Department of Health Services
SIC	Standard Industrial Classification
STLC	Soluble Threshold Limit Concentration
SWRCB	(California) State Water Resources Control Board
TRM	Technical Reference Manual
TSDF	Treatment, Storage and Disposal Facility
TTL	Total Threshold Limit Concentration
TTU	Transportable Treatment Unit
UHW	Uniform Hazardous Waste Manifest
USCG	United States Coast Guard
WDR	Waste Discharge Requirements

## CHAPTER 1

### REGULATIONS AND ENFORCEMENT PROGRAMS

#### I. INTRODUCTION

This Chapter presents an overview of the major laws and regulations governing the management of hazardous waste and the agencies involved in the implementation of these regulations. Due to the occasional overlapping of responsibilities among the various agencies and the numerous programs involved in the implementation of these regulations, the enforcement programs are discussed in conjunction with the roles of the individual agencies (Appendix 1A). The responsibilities of the agencies specifically involved in the permitting of hazardous waste management facilities and emergency response are discussed in the Siting of an Off-site Hazardous Waste Management Facility (Chapter 6) and the Emergency Response (Chapter 10) Chapters, respectively.

#### II. STATUTORY LAWS AND REGULATIONS

##### A. Existing Regulations

Table 1-1 lists the major Federal and State/Regional statutes and County ordinances governing the management of hazardous material/waste. Included in the table is a brief summary of the regulations as well as the agency(ies) responsible for their implementation. Table 1-2 lists some of the major statutes presented in Table 1-1 under specific topics for ease of reference.

Laws are specific rulings passed by the legislature or Congress, and regulations are guidelines developed by enforcement agencies to implement the laws. For example, the State Health and Safety Code is law, and the California Administrative Code is a regulation.

Some of the regulations are administered by a single agency while others, or parts thereof, are managed by several. The reasons for multiple lead agencies are, in part:

- o Overlapping of agency jurisdiction;
- o Transfer of authority to regional agencies through memorandums of understanding, such as from Federal to State or from State to County or regional agencies; and
- o Division of responsibility due to geographical location, i.e., the U.S. Coast Guard is responsible for the transport of waste in coastal and inland waters and the Department of Transportation is responsible for transport on land.

TABLE 1-1  
FEDERAL, STATE/REGIONAL AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

FEDERAL STATUTES

<u>LAW/REGULATIONS</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
Superfund Amendments and Reauthorization Act of 1986 PL 99-499 42 U.S.C. 9601 et seq. Regulations: 40 CFR 305	Increases Superfund revenues to \$8.5 billion; strengthens EPA authority to conduct removal and remedial and enforcement actions; increases state involvement in the cleanup process; establishes new statutory authorities, such as the Community Right-to-Know	EPA SDOHS
Comprehensive Environmental Response, Compensation, and Liability Act of 1980 PL 96-510 42 U.S.C. 9601 et seq. Regulations: 40 CFR 300	Creates the Superfund to finance governmental responses to actual or threatened releases of hazardous substances	EPA SDOHS
Used Oil Recycling Act of 1980 PL 96-463 42 U.S.C. 6901 et seq.	Provides incentives for recycling waste oils, and sets out to determine what hazardous waste regulations should apply to waste oils	EPA
Clean Water Act of 1977 PL 95-217 33 U.S.C. 1251 et seq. Regulations: 40 CFR 100-140 40 CFR 400-470	Sets emission limits on discharges of toxic substances to keep navigable waterways swimmable and fishable; permission to discharge is granted through the issuance of a National Pollutant Discharge Elimination Permit by a local agency	Army Corps of Engineers EPA RWQCB SWRCB

TABLE 1-1 (CONT.)  
FEDERAL, STATE/REGIONAL AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

<u>FEDERAL STATUTES</u>		
<u>LAW/REGULATIONS</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
Clean Air Act Amendments of 1977 PL 95-95 42 U.S.C. 7401 et seq. Regulations: 40 CFR 100 - 140	Ensures air quality is safe and healthy through identification and limitation or elimination of emissions	EPA ARB
Resource Conservation and Recovery Act of 1976 PL 94-580 42 U.S.C. 6901 et seq. Regulations: 40 CFR 240-271 122-124, 260-267, 270, 271	Establishes requirements for the recording, labeling, packing and transporting of hazardous waste; establishes standards for hazardous waste disposal facilities; allows delegation of authority to states through the EPA. 1984 Amendments establish 72 new major provisions to RCRA; provisions include: expanded coverage of small quantity generators; requirements for waste minimization; a ban on the land disposal of certain categories of hazardous waste; a ban on the landfill of bulk or non-containerized liquid hazardous waste; and many more	EPA SDOHS SWRCB
Toxic Substances Control Act of 1976 PL 94-469 15 U.S.C. 2601 Regulations: 40 CFR 700-799	Allows EPA to obtain information on new and existing chemicals and mixtures and to control their manufacture, distribution, and use	EPA SDOHS

TABLE 1-1 (CONT.)  
FEDERAL, STATE/REGIONAL AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

**FEDERAL STATUTES**

<u>LAW/REGULATIONS</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
Transportation Safety Act of 1974, Title I "Hazardous Materials Transportation Act" PL 93-633 49 U.S.C. 1801 Regulations: 49 CFR 106-107, 171-179, 45 CFR 51645	Regulates inter/intra state transportation of hazardous waste. Establishes criteria for safe handling, labeling, placarding, and routing procedures	DOT (USCG) EPA (through MOU)
Safe Drinking Water Act [1974] PL 93-523 42 U.S.C. 300f Regulations: 40 CFR 140-149	Controls levels of contaminants to ensure quality of drinking water supplies, both surface and subterranean	EPA
Federal Insecticide, Fungicide, and Rodenticide Act of 1972 PL 94-140 7 U.S.C. 136 Regulations: 40 CFR 162-180	Regulates the manufacture, distribution, and use of pesticides; sets limits on use and application; requires registration with the EPA before sale	EPA
Consumer Product Safety Act [1972] PL 92-573 15 U.S.C. 2051 Regulations: 16 CFR 1015-1402	Allows CPSC to set safety standards for consumer products, including toxic chemicals	CPSC

TABLE 1-1 (CONT.)  
FEDERAL, STATE/REGIONAL AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

<u>FEDERAL STATUTES</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
<u>LAW/REGULATIONS</u>		
Occupational Safety and Health Act of 1970 PL 91-596 1 29 U.S.C. 651 Regulations: 29 CFR 1910, 1915, 1918, 1926, 1980	Establishes standards for occupational health, including toxic chemicals	OSHA Dept. of Labor
Federal Hazardous Substances Labeling Act [1960] PL 86-613 15 U.S.C. 1261 Regulations: 16 CFR 1500-1512	Regulates the interstate distribution and sale of packaged consumer goods containing hazardous substances and intended or suitable for household use	CPSC
River and Harbor Act Chapter 425 55th Congress, Session III	Prohibits unauthorized construction and/or dredging without permit; provides authorization for removal and disposal of contaminated fill	Army Corps of Engineers

TABLE 1-1 (CONT.)  
FEDERAL, STATE/REGIONAL AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

RELATED FEDERAL STATUTES

A.	Uranium Mill Tailings Radiation Control Act of 1978	42 U.S.C.	7901	
B.	Outer Continental Shelf Lands Act Amendments of 1978	43 U.S.C.	1801	
C.	Air Pollution Control Act Amendments	42 U.S.C.	1857	
D.	Lead-Based Paint Poisoning Prevention Act of 1976	42 U.S.C.	4801	(Repealed)
E.	Intervention on the High Seas Act [1974]	33 U.S.C.	1471	
F.	[Federal] Disaster Relief Act of 1974	42 U.S.C.	5121	
G.	Deepwater Port Act of 1974	33 U.S.C.	1501	
H.	Marine Protection, Research, and Sanctuaries Act of 1972	33 U.S.C.	1401	
I.	Ports and Waterways Safety Act [1972]	33 U.S.C.	1221	
J.	Poison Prevention Packaging Act of 1970	15 U.S.C.	1471	
K.	Federal Food, Drug, and Cosmetic Act [1938]	21 U.S.C.	301	

Note:

ARB	- (California) Air Resources Board
CPSC	- Consumer Product Safety Commission
DOT	- (United States) Department of Transportation
EPA	- (United States) Environmental Protection Agency
OSHA	- Occupational Safety and Health Act
RWQCB	- (California) Regional Water Quality Control Board
SWRCB	- (California) State Water Resources Control Board
USCG	- United States Coast Guard
SDOHS	- (California) State Department of Health Services

1-1 (CONT.)  
FEDERAL, STATE/REGIONAL AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

STATE/REGIONAL STATUTES

LAW/REGULATIONS

INTENT

LEAD AGENCY(IES)

Hazardous Substance Release  
Liability and Business Plans  
AB 924 (1988)  
CA H & S Code  
Division 20, Chapter 6.8,  
Sections 25359.7 & 25360.2  
and Chapter 6.95,  
Section 25503.6

Requires a lessee or renter of real  
property to notify any buyer of that  
property for any release of hazardous  
substance. Requires any business which  
handles hazardous materials in specified  
amount and is located on leased or rented  
real property to submit a specified notice  
to the owner of real property

SDOHS

Enforcement

AB 1758 (1988)  
CA H & S Code  
Division 20, Chapter 6.5  
Section 25180

CHP

Land Use Control

AB 3205 (1988)  
CA H & S Code  
Sections 13872.5, 25534.1,  
25534.5, 25535, 25540, 42301.6  
thru 42301.9 and 42450.1  
Public Resource Code  
Sections 21151.3 & 21151.4  
Government Code  
Section 65850.2

Prohibit city/county to issue Certificate  
of Occupancy for buildings to be occupied by  
businesses handling hazardous material after  
July 1, 1989, unless applicant has met re-  
quirements of the Business Plan. Also pro-  
hibit construction of such businesses within  
1,000 ft of a school without the risk manage-  
ment and prevention program as specified

DPW

Hazardous Waste Mangement Plan

AB 3206 (1988)  
CA H & S Code  
Division 20, Chapter 6.5  
Sections 25135.3, 25135.6,  
25135.7, 25199.1, 25199.6,  
25199.7

Requires a city to act on the county  
hazardous waste management plan within  
90 days of receipt. If city does not act  
within that time period, the plan is  
deemed approved. Specifies procedures and  
schedule for local land use agency to act  
on the permit of hazardous waste research  
and development project

SDOHS

County  
Cities

TABLE 1-1 (CONT.)  
FEDERAL, STATE/REGIONAL AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

<u>STATE/REGIONAL STATUTES</u>		<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
<u>LAW/REGULATIONS</u>			
Transportation of Inhalation Hazards AB 2705 (1988), CA Vehicle Code Sections 290, 31302, 31618, 32002, 32100 through 32109 and 40000.19		Requires CHP to establish specific routes for transportation of certain type of hazardous materials, as defined, and restrict trucks carrying these materials to routes designated/approved by the CHP	CHP
Transportation of Hazardous Waste AB 3188 (1988) California Health and Safety Code Sections 25115.1, 25162 and 25191		Prohibits any person from transporting hazardous waste in California if 1) the final destination is a facility in a State, other than California, or in a territory of U.S. [unless the facility is permitted or authorized pursuant to the Federal RCRA] and 2) the final destination is a foreign country unless specified conditions are met. Imposes a criminal penalty for a violation of the above	SDOHS CHP
Hazardous Waste Facilities AB 3383 and 4636 (1988) Chapters 1632 and 1631 of the State Statutes of 1988, respectively		Specifies that definitions used in the RCRA apply to the California Hazardous Waste Control law. Requires any person managing or generating hazardous waste to comply with the notification requirements of RCRA, except as specified. Requires SDOHS to limit the term of a hazardous waste facilities permit and to review the permit every five years. Requires SWRCB to adopt standards and regulations for hazardous waste disposal sites to ensure compliance with the RCRA. Defines hazardous waste; reclaimable material; non-RCRA hazardous waste; reclaimed, recycled and used or reused material and recycled oil. Requires SDOHS action to be consistent with the Porter-Cologne Water Quality Control Act but not less stringent than law and regulations governing hazardous waste.	EPA SDOHS SWRCB RWQCB

TABLE 1-1 (CONT.)  
FEDERAL, STATE/REGIONAL AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

<u>STATE/REGIONAL STATUTES</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
<u>LAW/REGULATIONS</u>		
Funding Disbursement AB 3209 (1988) CA H & S Code Division 20, Chapter 6.5 Section 25135.8	Requires the SDOHS to make the July 1, 1988 disbursement only to counties and councils of government which have submitted their draft hazardous waste management to the SDOHS. County or Council of governments must submit an expenditure report to the SDOHS prior to approval of the plan by the SDOHS	SDOHS
Residuals Repositories SB 2093 (1988) CA H & S Code Sections 25115.2 and 25204	By May 1, 1990, the SDOHS in consultation with the SWRCB is required to adopt by regulations, standards for residuals repositories, as defined	SDOHS SWRCB
Funding Disbursement AB 46 (1987) CA H & S Code Division 20, Chapter 6.5 Section 25135.8	Requires the SDOHS to disburse specified funds to local governments based on the amount of hazardous waste produced and on its need for additional funding to complete a county's hazardous waste management plan	SDOHS
Sensitive Zones AB 222 (1987) CA H & S Code Division 26, Chapter 5.5 Sections 40402, 40462, & 40410.5	Establishes a "Sensitive Zone" over a specified area in which emissions from industrial facilities would be curtailed, so as to improve air quality within the zone	SCAQMD
Hazardous Waste Storage AB 395 (1987) CA H & S Code Division 20, Chapter 6.5 Section 25123.3	Revises the definition of hazardous waste storage facility to include facilities where hazardous waste is stored in tanks or in waste piles and excludes hazardous waste stored on-site, as specified	SDOHS (TSCD)

TABLE 1-1 (CONT.)  
FEDERAL, STATE/REGIONAL AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

<u>STATE/REGIONAL STATUTES</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
<u>LAW/REGULATIONS</u>		
Hazardous Waste Facility Permits AB 526 (1987) CA H & S Code Division 20, Chapter 6.5 Sections 25178, 25200.5, .7, .8	Restricts the operation of hazardous waste facilities with grants of interim status and establishes various requirements regarding the permit process	SDOHS (TSCD)
Air Pollution Fees AB 530 (1987) CA H & S Code Section 41512.5	Permits the SCAQMD to impose fees on sources not within the SCAQMD's permit system to cover the cost of evaluating specified plans	SCAQMD
Hazardous Waste Taxes and Fees AB 534 (1987) CA H & S Code Division 20, Chapter 6.5 Section 25173.5	Permits a city or county to impose a tax or user fee on off-site, multiuser hazardous waste disposal facilities	counties cities
Hazardous Waste Management Plans AB 617 (1987) CA H & S Code Division 20, Chapter 6.5 Sections 25135.6 and 25135.9	Extends various deadlines pertaining to state and county hazardous waste management plans	SDOHS DPW
Hazardous Waste Transportation AB 689 (1987) CA Vehicle Code Section 31304	Authorizes the CHP to determine that a highway is less safe than available alternatives for the transportation of hazardous waste, if certain conditions are met	CHP cities counties

TABLE 1-1 (CONT.)  
FEDERAL, STATE/REGIONAL AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

<u>STATE/REGIONAL STATUTES</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
<u>LAW/REGULATIONS</u>		
Underground Storage Tanks AB 853 (1987) CA H & S Code Division 20, Chapter 6.7 Section 25297.1	Mandates a program to abate releases of hazardous waste from underground storage tanks	SWRCB SDOHS
Air Pollution Emissions AB 1006 (1987) CA H & S Code Section 42301.5	Requires specified sources to reduce their emissions of air pollutants according to a specified schedule	SCAQMD
Hazardous Materials Contractors AB 1012 (1987) CA Civil Code Section 3181 CA Public Contracts Code Section 4107.7	Authorizes a subcontractor who is a hazardous waste hauler to serve a stop notice upon a public entity if the principal contractor fails to pay him/her within ten days after completion of work	-
Hazardous Waste Treatment Units AB 1037 (1987) CA H & S Code Division 20, Chapter 6.5 Section 25200.2	Requires the SDOHS to develop a permitting process for transportable hazardous waste treatment units	SDOHS
Hazardous Waste Transportation AB 1041 (1987) Division 20, Chapter 6.5 Section 25150.2	Requires SDOHS to adopt regulations for the transportation of hazardous waste across the California-Mexican border	SDOHS

TABLE 1-1 (CONT.)  
FEDERAL, STATE/REGIONAL AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

<u>STATE/REGIONAL STATUTES</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
<u>LAW/REGULATIONS</u>		
Surface Impoundments AB 1046 (1987) CA H & S Code Division 20, Chapter 6.5 Section 25208.1 and 25208.17	Authorizes the RWQCB to exempt from specified reporting requirements persons who have ceased discharging hazardous wastes into surface impoundments, under specified conditions	RWQCB SWRCB
Acutely Hazardous Materials AB 1059 (1987) CA H & S Code Division 20, Chapter 6.95 Sections 25533, 34, 35, 37, 39 & Art. 1 (Sects. 25500, et seq.)	Provides various modifications regarding the preparation, submission, review, and approval of risk management and prevention programs for acutely hazardous material/waste; requires the OES to develop regulations and guidelines pursuant to these modifications	OES
Hazardous Substance Regulations AB 1191 (1987) CA H & S Code Division 20, Chapter 6.5 Section 25159.5 & 25356.1	Provides various changes in the relationship between state and federal regulations; permits the superseding of state statutes under specified conditions	EPA SDOHS
Clean Water AB 1285 (1987) CA H & S Code Sections 4030.6, .7, and .9	Restricts the expenditure of specified funds for corrective actions concerning the contamination of public water supplies; provides regulations for oral contracts	SDOHS
Hazardous Waste Storage AB 1293 (1987) CA H & S Code Division 20, Chapter 6.5 Section 25123.3	Revises the definition of hazardous waste storage facility to include any facility where hazardous waste is stored longer than a specified time; increases time which hazardous waste may be stored at a transfer station	SDOHS (TSCD)

TABLE 1-1 (CONT.)  
FEDERAL, STATE/REGIONAL AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

<u>STATE/REGIONAL STATUTES</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
<u>LAW/REGULATIONS</u>		
Household Hazardous Waste AB 1308 (1987) CA H & S Code Division 20, Chapter 6.5 Sections 25174.02, 25174.6, 25174.7, 25205.1, and 25205.8	Exempts state and local agencies that operate a household hazardous waste collection program, and pest control agencies or county agricultural commissioners meeting certain requirements, from specified hazardous waste fees	SDOHS DPW CAGC
Hazardous Waste Enforcement Unit AB 1410 (1987) CA H & S Code Sections 2519.1, .2, and .3	Requires the SDOHS to establish a Hazardous Waste Enforcement Unit; requires the establishment of a toll-free telephone number for reporting hazardous waste violations	SDOHS
Underground Storage Tanks AB 1413 (1987) CA H & S Code Sections 25281, 25284.4, .5, .7, 25291, 25292, and 25296 CA Water Code Sections 13173 and 13174	Establishes various regulations pertaining to integrity tests for underground hazardous waste storage tanks	SWRCB RWQCB DPW
Shredder Waste AB 1542 (1987) CA H & S Code Division 20, Chapter 6.5 Sections 25143.6 and .8	Requires the RWQCB to designate landfills for the disposal of shredder waste; permits disposal of such waste in Class III landfills, under specified conditions	RWQCB
Hazardous Substance Funding AB 1554 (1987) CA H & S Code Sections 25332 and 25333	Requires the SDOHS to make maximum use of federal funds; requires the state to partially reimburse the EPA for specified projects	SDOHS EPA

TABLE 1-1 (CONT.)  
FEDERAL, STATE/REGIONAL AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

<u>STATE/REGIONAL STATUTES</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
<u>LAW/REGULATIONS</u>		
Oral Contracts AB 1611 (1987) CA H & S Code Section 25354	Increases the value of contracts which the SDOHS may enter into orally to abate a release of hazardous waste from \$2,000 to \$5,000	SDOHS
Air Pollution Enforcement AB 1630 (1987) CA H & S Code Section 42404.5	Specifies that the time period allowed for the enforcement of specified air pollution penalties commences when the offense was, or reasonably could have been, discovered	SCAQMD
Land Treatment Units AB 1723 (1987) CA H & S Code Division 20, Chapter 6.5 Article 9.6 (25209, et seq.)	Prohibits persons from discharging hazardous waste into specified land treatment units; variances would be permitted, as specified	SDOHS (TSCD)
Remedial Action Liability AB 1855 (1987) CA H & S Code Section 25353	Requires a local agency which is responsible for a release of hazardous waste to reimburse the SDOHS for any funds expended in a removal or remedial action	SDOHS
Air Quality Assessment Report AB 1897 (1987) CA H & S Code Section 41805.5 CA Water Code Section 13273.1, .2, and .3	Requires the operator of a solid waste disposal facility to submit an air quality assessment test report to the SCAQMD	SCAQMD

TABLE 1-1 (CONT.)  
FEDERAL, STATE/REGIONAL AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

<u>STATE/REGIONAL STATUTES</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
<u>LAW/REGULATIONS</u>		
Hazardous Waste Reduction AB 1961 (1987) CA H & S Code Division 20, Chapter 6.5 Art. 11.6 (Sec. 25242.5, et seq.)	Requests the University of California to develop a program to provide private businesses with information and assistance on hazardous waste reduction methods	UC
Hazardous Waste Releases AB 2036 (1987) CA H & S Code Sections 25355.5 and 25356.1	Specifies the conditions under which the SDOHS may expend funds for response actions to unintentional releases of hazardous waste	SDOHS (TSCD)
Banking of Emission Reductions AB 2162 (1987) CA H & S Code Section 40709.5	Requires specified air quality management districts to determine various effects, as specified, of the existing emission reduction banking or crediting system	SCAQMD
Emergency Response Plans AB 2189 (1987) CA H & S Code Division 20, Chapter 6.95 Section 25503.1	Requires the OES to adopt regulations to conform business and area plans for emergency response to releases of hazardous materials with the Federal Emergency Planning and Community Right-to-Know Act of 1986	OES CFD
Haz. Waste Treatment Tech. AB 2233 (1987) CA H & S Code Division 20, Chapter 6.8 Art. 6.3 (Sec 25368, et seq.)	Requires the SDOHS to evaluate various hazardous waste treatment technologies, as specified. Authorizes the SDOHS not to recover monies for abatement actions if the release was attributable to the use of an alternative technology	SDOHS (TSCD)

TABLE 1-1 (CONT.)  
FEDERAL, STATE/REGIONAL AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

<u>STATE/REGIONAL STATUTES</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
<u>LAW/REGULATIONS</u>		
Hazardous Waste Information AB 2234 (1987) CA H & S Code Division 20, Chapter 6.5 Section 25172.7	Requires the SDOHS to hold industry-specific meetings with small quantity generators to inform them of hazardous waste laws and requirements, and provide assistance, as specified	SDOHS
Hazardous Substance Cleanup AB 2250 (1987) CA H & S Code Section 25351.1	Appropriates funds from specified sources to pay the principal and interest on bonds issued pursuant to the Hazardous Substance Cleanup Bond Act of 1984	-
Used Oil AB 2447 (1987) CA H & S Code Division 20, Chapter 6.5 Section 25180	Authorizes traffic officers and peace officers to enforce hazardous waste laws and regulations regarding used oil	CHP
Solid Waste Landfills AB 2448 (1987) CA Government Code Sections 66749, 66792.5, 66796.22, .52, .67, 66799.55, and Ch. 4 (Sec. 66799, et seq.) CA Revenue and Taxation Code Part 23 (Sec. 45001, et seq.)	Requires the approval of closure and post-closure plans to operate a Class III landfill. Authorizes the CWMB to take specified actions regarding the release of methane gas or other wastes from solid waste landfills. Creates the Solid Waste Disposal Site Cleanup and Maintenance Authority to issue grants for the purposes of the bill. Authorizes counties and cities to impose a tipping fee at solid waste landfills to fund development and implementation of Household Hazardous Waste Management Programs.	DOHS CWMB RWQCB DPW

TABLE 1-1 (CONT.)  
FEDERAL, STATE/REGIONAL AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

<u>STATE/REGIONAL STATUTES</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
<u>LAW/REGULATIONS</u>		
Hazardous Waste Research AB 2489 (1987) CA H & S Code Division 20, Chapter 6.5 Sections 25244.6, .10 and Art. 3 (Sec. 25130, et seq.)	Establishes the Hazardous Waste Resource and Research Coordination Program; exempts grants which would be provided for hazardous waste reduction, recycling, and treatment technologies and for commercial and research organizations from various restrictions	SDOHS
Hazardous Materials Consultation AB 2490 (1987) CA H & S Code Ch. 6.97 (Sec. 25550 et seq.)	If a county determines a need for a hazardous materials informational and consultation service, such a service would be established for local businesses	DPW DOHS
Asbestos Inspections AB 2509 (1987) CA Education Code Section 49410.7	Provides monitoring regulations for asbestos fibers in schools which are more strict than previous statutes; appropriates funds for reinspection of school facilities	DIR
Toxic Air Emission Assessments AB 2588 (1987) CA H & S Code Division 26 Part 6 (Sec. 44300, et seq.)	Requires the ARB to compile a list of acute hazardous air pollutants and specifies the facility operators to prepare an emissions inventory plan and submit and implement, as specified	ARB SDOHS DIR SCAQMD
Used Oil SB 108 (1987) CA H & S Code Division 20 Ch. 10.7 (Sec. 25930, et seq.)	Redefines "used oil" to include used oil blended or diluted with fuel oil or other uncontaminated products to achieve certain purity standards, notwithstanding specified regulations	SDOHS

TABLE 1-1 (CONT.)  
FEDERAL, STATE/REGIONAL AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

STATE/REGIONAL STATUTES

<u>LAW/REGULATIONS</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
Air Quality Regulations SB 151 (1987) CA H & S Code Sections 40405, 06, 20, 21, 22, 24, 26, 26.5, 26.7, 40, 47.5, 47.6, 51, 62, 69, 82, 84, 40504, 06, 09, and 40501.2	Provides various regulations for the com- position and operations of the SCAQMD. Requires the use of the best available control technologies and the best avail- able retrofit control technology, as spec- ified. Provides regulations for the appeal of permit issuance or renewal decisions	SCAQMD
Hazardous Substance Liability SB 245 (1987) CA H & S Code Sections 25315, 23, 58.3, 59, 59.7, and 25363	Imposes liability on specified persons for releases of hazardous waste. Requires a seller of real property who has reasonable cause to believe hazardous waste has been released under the property to notify buyers	SDOHS AG
Pesticides SB 366 (1987) CA Food and Agriculture Code Ch. 9 (Sec. 12251, et seq.) and Sections 11895 and 13000	Extends the time for bringing an action for violation of pest control laws from one to two years, as specified. Establishes a separate license for designated agents of pesticide dealers	DFA
Hazardous Waste Management Plan SB 477 (1987) CA H & S Code Division 20, Chapter 6.5 Sections 25135.1 and .7	Deletes existing requirements that sites for new hazardous waste facilities be included in a county's hazardous waste management plan. Requires counties and cities to in- corporate the plan, or applicable portions thereof, into their General Plans, or to amend their zoning and subdivision codes so that decisions are consistent with the County Haz- ardous Waste Management Plan. These require- ments must be met within 180 days after the plan's approval by the SDOHS.	DPW SDOHS cities

TABLE 1-1 (CONT.)  
FEDERAL, STATE/REGIONAL AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

<u>STATE/REGIONAL STATUTES</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
<u>LAW/REGULATIONS</u>		
Hazardous Waste Reduction SB 788 (1987) CA Corporations Code Art. 15 (Sec. 14140, et seq) CA H & S Code Art. 7 (Sec. 44558, et seq.)	Provides funding to small businesses for the purpose of reducing generated levels of hazardous waste. Pursuant to the above, the bill creates the Hazardous Waste Reduction Loan Guarantee Account as part of the Small Business Expansion Fund in the State Treasury	SDOHS
Surface Impoundments SB 827 (1987) CA H & S Code Division 20, Chapter 6.5 Section 25208.13	Authorizes the RWQCB to exempt surface impoundments complying with State regulations from provisions of the Toxic Pits Cleanup Act of 1984, if mining wastes discharged therein are determined to be non-polluting	RWQCB
Exposure to Carcinogens SB 1037 (1987) CA Labor Code Section 3212.8	Deletes the repeal date of Jan. 1, 1989, which would remove an existing statute entitling firefighters to compensation for exposure to carcinogens under the Workers' Compensation Law	CFD
Toxic Air Contaminants SB 1223 (1987) CA H & S Code Sections 39668 and 40715	Requires the preparation of a report by specified agencies on the availability of toxic air contaminant monitoring options. Provides funding for such monitoring	ARB SCAQMD DFA SDOHS
Hazardous Waste Cleanup SB 1247 (1987) CA H & S Code Section 25355	Requires the SDOHS to notify the owner of real property of a hazardous substance release site on his/her property within 30 days after listing a site, and at least 30 days before taking corrective action	SDOHS

TABLE 1-1 (CONT.)  
FEDERAL, STATE/REGIONAL AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

STATE/REGIONAL STATUTES

<u>LAW/REGULATIONS</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
Disposal Fees SB 1249 (1987)	Requires the SDOHS to submit a study to the Legislature recommending a permanent fee structure. Appropriates funds for the preparation of the study	SDOHS
Control Account Fees SCR 41	Requests the SDOHS to study the impact of specified fees on small businesses which generate hazardous waste, as part of the study mandated by SB 1249	SDOHS
State Toxic Waste Plan AB 650 (1986) CA H & S Code Section 25135.9	Requires a State Hazardous Waste Management Plan by July 1, 1988; requires the SDOHS to conduct a hearing to determine if a hazardous waste site presents an imminent and substantial danger	SDOHS
Household Hazardous Waste AB 1809 (1986) CA Education Code Sections 51881.5, 51900.5, CA Government Code Title 7.3, Chapter 3 Article 9, Section 66798	Requires counties to develop household hazardous waste programs through the Solid Waste Management Plans and requires the CWMB to develop and implement a public information program for household hazardous substances; also requires the the CWMB to establish guidelines and policies to guide local governments in providing community services; SDOE is to provide schools with a list of available information on hazardous substances	CWMB DPW SDOE

TABLE 1-1 (CONT.)  
FEDERAL, STATE/REGIONAL AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

<u>STATE/REGIONAL STATUTES</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
<u>LAW/REGULATIONS</u>		
Hazardous Materials Inventory AB 2187 (1986) CA H & S Code Sections 25501.1, .2, 25505.1, 25505.2, 25509.1, 25513.1, 25515.1, .2, 25516.7, 25517.5, 25505.3	Makes changes to the program established in 1985 requiring businesses to prepare plans for emergency response for the handling of hazardous materials; also establishes the Hazardous Material and Waste Training Fund	OES CFD
California Safe Drinking Water Bond Law of 1986 AB 2668 (1986) CA Water Code Division 7, Chapter 10.7 Section 13895	Provides for the issuance of \$100 million in state bonds for the improvement of domestic water supplies	DWR SDOHS (San. Div.)
Emergency Response AB 2702 (1986) CA Government Code Division 1, Title 2, Chapter 2 Article 3.8, Section 8574.11	Establishes the California Toxic Substances Incident Response Training and Education Program	OES
SWEERS System AB 2920 (1986) CA H & S Code Sections 25283.1, 25299.01--.04	Requires the submittal of permitting information to the Statewide Environmental Evaluation and Planning System	SWRCB
Registration AB 2930 (1986) CA H & S Code Sections 25163 and 25191	Requires a hazardous waste hauler to have a valid registration in his or her possession when transporting such waste	SDOHS (TSCD) CHP

TABLE 1-1 (CONT.)  
FEDERAL, STATE/REGIONAL AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

<u>STATE/REGIONAL STATUTES</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
<u>LAW/REGULATIONS</u>		
Facility Planning and Siting AB 2948 (1986) CA Government Code Sections 65963.1 and 66780.8 CA H & S Code Division 20, Chapter 6.5 Articles 8.7 and 3.5 Sections 25135-25135.8; 25173.5 25199-25199.14; 25200.1, 25200.2	Establishes an appeal process for con- testing local decisions on land-use permits for hazardous waste facilities and contains provisions for increased public participation in the state and local permit approval and siting pro- cess; provides for counties to prepare a Hazardous Waste Management Plan in lieu of a CoSWMP, Hazardous Waste Element	SDOHS OPR DPW
Solid Waste Air Quality Test AB 3374 (1986) CA H & S Code Section 41805 CA Government Code Section 66796.54	Requires owners of solid waste landfill sites to conduct air quality assessment testing for hazardous waste in the air adjacent to the site	ARB SCAQMD
Railroad Cars AB 3468 (1986) CA H & S Code Section 25503.7	Provides that a railroad car with haz- ardous materials that remains in the same facility for more than 30 days is deemed stored at that location for pur- poses related to hazardous materials release response plans	OES CFD
Ocean Discharge AB 3500 (1986) CA Water Code Section 13170.2	Requires the State Water Board to form- ulate a water quality control plan for ocean waters to be known as the California Ocean Plan	SWRCB

TABLE 1-1 (CONT.)  
FEDERAL, STATE/REGIONAL AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

<u>STATE/REGIONAL STATUTES</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
<u>LAW/REGULATIONS</u>		
Hazardous Waste Site List AB 3750 (1986) CA Government Code Sections 65940 and 65962.5	Requires the SDOHS, SWRCB, and the CWMB to develop a list of hazardous waste sites and submit it to the OPR for distribution to jurisdictions in which the sites are located by July 1, 1987	SDOHS SWRCB CWMB OPR
Risk Management and Prevention Program AB 3777 (1986) CA H & S Code Division 20, Chapter 6.95 Article 2, Section 25531	Requires businesses handling acutely hazardous material to register with local agencies; allows the administering agency to require from such a business a risk assessment and prevention program	OES CFD
Ocean Incineration AB 3968 (1986) CA Public Resources Code Section 30420	Requires the Coastal Commission to consult with other state and local agencies before approving a local coastal plan or permit relating to ocean incineration of hazardous waste	CCC
Air Quality AB 3989 (1986) CA H & S Code Sections 42314.1 and 42315 CA Public Resources Code Sections 25523 and 21151.1 CA Government Code Section 66796.40	Promotes recycling in resource recovery projects; imposes air pollutant emission restrictions on resource recovery facilities; requires the preparation of an environmental impact report for the permitting of resource recovery facilities	SDOHS ARB
Public Records AB 4019 (1986) CA H & S Code Sections 25103 and 25152.5	Prohibits the Department from limiting the business hours or days that public records relating to hazardous substances are available for inspection	SDOHS

TABLE 1-1 (CONT.)  
FEDERAL, STATE/REGIONAL AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

STATE/REGIONAL STATUTES

<u>LAW/REGULATIONS</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
Disposal Fees AB 4283 (1986) CA H & S Code Division 20, Chapter 6.5 Article 9.1, Section 25205.1 CA Revenue and Taxation Code Sections 43053 and 43152.6	Revises and extends fees that fund the operation of the state's hazardous waste control programs; requires the Auditor General to submit a report to the legislature concerning such fees; establishes fees for hazardous waste treatment and storage	SDOHS (TSCD) SBE
Disclosure Statements AB 4308 (1986) CA H & S Code Sections 25110.1, 25110.8, 25112.5, 25117.10, 25186.5, and 25200.4	Requires any person applying for a hauler registration for holding, collecting, or transporting hazardous waste to submit a disclosure statement providing information pertaining to notices of violation and civil or criminal prosecution	SDOHS (TSCD)
Used Oil SB 86 (1986) CA H & S Code Division 20, Chapter 6.5 Article 13, Section 25250 CA Public Resources Code Sections 3464, 3466, and 3468	Exempts used oil which is being recycled from the provisions of hazardous waste law; revises the provisions of the Used Oil Recycling Act to include used oil regulation	SDOHS (TSCD)
Real Property Disclosures SB 1406 (1986) CA Business and Professions Code Section 10176.5 CA Civil Code Div. 2, Part 4, Title 4, Ch.2 Art. 1.5, Sect. 1102, et seq.	Requires specified written disclosures to prospective transferees of real property improved with one to four dwelling units, including information concerning landfills or other soil problems on the property	DRE

TABLE 1-1 (CONT.)  
FEDERAL, STATE/REGIONAL AND COUNTY  
STATUTES REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

<u>STATE/REGIONAL STATUTES</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
<u>LAW/REGULATIONS</u>		
Hazardous Waste Management Act of 1986 SB 1500 CA H & S Code Division 20, Ch. 6.5, Art. 7.7 Section 25179.1, et seq.	Prohibits the land disposal of untreated hazardous wastes after May, 1990, and requires the SDOHS to adopt treatment standards on or before that date	SDOHS (TSCD)
Immunity SB 1641 (1986) CA H & S Code Section 25400	Includes registered sanitarians within public safety employee immunity for responses to hazardous substances	SDOHS (San. Div.)
Environmental Quality Assessment SB 1875 (1986) CA H & S Code Division 20, Chapter 6.98 Section 25570	Establishes criteria and examination requirements for the voluntary registration of environmental assessors	SDOHS (TSCD)
Exposure Reports SB 1885 (1986) CA H & S Code Section 25416	Requires the state agency to conduct epidemiological studies on the health effects of hazardous materials exposure in areas near Class I hazardous waste sites. Requires studies to be conducted in county hazardous substance release sites	SDOHS (TSCD)
Contractors SB 2067 (1986) CA H & S Code Sections 25364, 25364.6, and 25364.7	Authorizes the state agency to indemnify and hold harmless certain hazardous waste response action contractors	SDOHS (TSCD)

TABLE 1-1 (CONT.)  
FEDERAL, STATE/REGIONAL AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

STATE/REGIONAL STATUTES

<u>LAW/REGULATIONS</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
Water Treatment Devices SB 2119 (1986) CA H & S Code Division 5, Chapter 8.5 Section 4057	Requires that all water treatment devices sold in California that claim to affect the healthiness of drinking water be certified as meeting all the performance claims made by the sellers of the devices	SDOHS (San. Div.)
Water Treatment Devices SB 2361 (1986) CA Business & Professions Code Division 7, Chapter 1 Article 6, Section 17577	Prohibits false and deceptive advertising practices for the sale of water treatment devices	SDOHS (San. Div.)
Hazardous Waste Enforcement Act of 1986 SB 2424 (1986) CA H & S Code Section 25185.6, 25186.1, 25186.2	Increases the authority of the state to enforce hazardous waste control laws	SDOHS (TSCD)
Contractor Certification SB 2575 (1986) CA Business and Professions Code Sections 7058.7 and 7118.6 CA Labor Code Section 142.7	Establishes a certification program for contractors involved in hazardous substance cleanup	SDOHS (TSCD) DIR CSLB DOHS
Safe Drinking Water and Toxic Enforcement Act of 1986 Proposition 65 (1986) CA H & S Code Division 20, Chapter 6.6	Requires the Governor to publish lists of chemicals known to cause cancer or reproductive toxicity; requires government employees to report known violations of toxic laws; requires warning of all exposures to carcinogens and reproductively hazardous waste	SDOHS (San. Div.) DFA SDOHS SWRCB DIR

TABLE 1-1 (CONT.)  
FEDERAL, STATE/REGIONAL AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

STATE/REGIONAL STATUTES

LAW/REGULATIONS

INTENT

LEAD AGENCY(IES)

Hazardous Waste Reduction, Recycling, and Treatment Research and Demonstration Act of 1985  
AB 685 (1985)  
CA H & S Code  
Division 20, Chapter 6.5  
Art. 11.8, Section 25244, et seq.

Provides funding for grants and demonstrations of hazardous waste technologies; appropriates \$1 million annually for waste reduction research

SDOHS  
(TSCD)

Transporting Hazardous Materials  
AB 1861 (1985)  
CA Vehicle Code  
Division 13, Chapter 5  
Art. 1, Section 31300, et seq.

Establishes specific routes and parking and stopping places for hazardous waste transporters

SDOHS  
(TSCD)  
CHP

Release Response Plans  
AB 2185 (1985)  
CA H & S Code  
Division 20, Chapter 6.95  
Section 25500

Requires any business which is located within an implementing county or city to establish a specified plan for emergency response to a release of hazardous material

OES  
CFD

Underground Storage Tank Permits  
AB 2239 (1985)  
CA H & S Code  
Sections 25283, 25291, 25299.1, and 25284.5

Specifies that existing laws which authorize the permitting of underground storage tanks by local agencies be implemented by January, 1988

RWQCB  
DPW

TABLE 1-1 (CONT.)  
FEDERAL, STATE/REGIONAL AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

STATE/REGIONAL STATUTES

<u>LAW/REGULATIONS</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
Toxic Injection Well Control Act AB 2928 (1985) CA H & S Code Sections 25159.15, .16, .17, .18 CA Water Code Sections 13260, 13263.5, 13264, 13267, and 13360	Regulates the injection of hazardous waste into underground wells after January 1988, if the well is within one-half mile of a drinking water source; also regulates the use of injection wells for the disposal of hazardous waste	RWQCB
Hazardous Waste Incineration SB 509 (1985) CA H & S Code Sections 25342, 25344, 25345, 25117.7, 25123.6, 25155.5, .6 .7, and .8	Requires the incineration of hazardous wastes with a heating value of greater than 3,000 BTU's after January, 1988; specifies requirements for the disposal of volatile organic compounds	SDOHS
Air and Water Quality Tests AB 3525 (1984) CA Government Code Section 66796.54 CA Water Code Section 13273	Requires owners of solid waste landfills to conduct air quality assessment testing for hazardous waste in the air adjacent to the site and water quality assessment testing for the existence of hazardous waste in groundwater adjacent to or beneath the site	SWRCB RWQCB ARB SCAQMD SDOHS CWMB
Toxic Pits Cleanup Act of 1984 AB 3566 (1984) CA H & S Code Division 20, Chapter 6.5 Art. 9.5, Sections 25208-25208.17	Establishes restrictions for hazardous waste discharge into surface impoundments	SWRCB RWQCB

TABLE 1-1 (CONT.)  
FEDERAL, STATE/REGIONAL AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

<u>STATE/REGIONAL STATUTES</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
<u>LAW/REGULATIONS</u>		
Highway Closures SB 2030 (1984) CA Vehicle Code Division 13, Chapter 5 Art. 1, Sections 31303-31308	Authorizes the closure of specified highways to vehicles transporting hazardous waste, if certain requirements are met	CHP
Hazardous Waste Strike Force (1984) CA H & S Code Section 25197.2	Creates a committee of State agency representatives to establish a uniform enforcement program to deal with violators of the State's hazardous waste statutes and regulations	SDOHS CHP DA DOHS DPW
Underground Storage of Hazardous Substances 1984 CA H & S Code Division 20, Chapter 6.7 Sections 25280-25299.6	Sets criteria and authority for permitting, inspection, and monitoring of underground tanks for hazardous substances	SWRCB RWQCB DPW
Underground Tank Registration AB 1362 (1983) CA H & S Code Division 20, Chapter 6.7; Section 25150.1	Requires the Department to adopt regulations for the construction, operation, maintenance, monitoring, and testing of underground hazardous waste storage tanks	SWRCB RWQCB DPW
Organic Contamination & Monitoring Program for Drinking Water AB 1803 (1983) CA H & S Code Section 4026.2	SDOHS to evaluate each public water system for potential contamination by requiring analyses and reports. The RWQCB is required to conduct investigations for the source of the contamination	SDOHS RWQCB

TABLE 1-1 (CONT.)  
FEDERAL, STATE/REGIONAL AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

<u>STATE/REGIONAL STATUTES</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
<u>LAW/REGULATIONS</u>		
Permits and Leak Detection AB 2013 (1983) CA Water Code Section 13173 and 13174	Requires all owners of underground storage tanks to file a hazardous substance storage statement containing specified information and fees with the SWRCB. Prescribes liability for failure to comply.	SWRCB RWQCB DPW
Hazardous Waste Underground Storage Tanks Law of 1983 CA Water Code Sections 13173, 13174	Requires persons storing hazardous wastes in underground tanks/ containers to file with the SWRCB and the County	RWQCB DOHS DPW SWRCB
Toxic Air Contaminant Program of 1983 CA H & S Code Chapter 3.5 Section 39650, et seq.; CA Food and Agriculture Code Section 14021	Provides direction for identification and control of airborne toxic substances; develop appropriate control methods to achieve established standards	ARB SCAQMD
Hazardous Substance Task Force - created by Executive Order # D-10-83; 1983	Task Force created to identify and address hazardous waste issues and to implement a program for effective regulation	DA
CA Hazardous Substance Compensation Program of 1982 CA H & S Code Section 25191.7 Regulations: CAC Title 22, Section 66362	Provides reward for information regarding illegal disposal	SDOHS

TABLE 1-1 (CONT.)  
FEDERAL, STATE/REGIONAL AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

STATE/REGIONAL STATUTES

<u>LAW/REGULATIONS</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
Incineration of Toxic Waste Materials Act of 1982 CA H & S Code Division 26 Article 7, Sections 41980-41983	Establishes siting and permitting guidelines for hazardous waste incinerators	ARB SCAQMD
Birth Defects Monitoring Program (1982) CA H & S Code Division 9.5 Sections 10800-10806	Provides system for monitoring incidences and trends of birth defects to determine any association with environmental hazards, including toxic chemicals	SDOHS
Carpenter-Presley-Tanner Hazardous Substance Account Act (1981) CA H & S Code Division 20, Chapter 6.8 Sections 25300-25395	Provides response authority for hazardous substance release, including spills and hazardous waste disposal sites	SDOHS SBE
Hazardous Waste Border Zones AB 2370 (1980) CA H & S Code Sections 25117.3, .4, 25156, 25177, 25185.5, 25196; Division 20, Chapter 6.5 Art. 11. Section 25220, et seq.	Establishes procedures for the deter- mination by the SDOHS of a border zone for hazardous waste property and allows restrictions as to the use of such property	SDOHS (TSCD)

TABLE 1-1 (CONT.)  
FEDERAL, STATE/REGIONAL AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

STATE/REGIONAL STATUTES

<u>LAW/REGULATIONS</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
Toxic Disasters Regs. of 1980 CA Government Code Title 2 Section 8574.7	Establishes California's Hazardous Material Contingency Plan to assure appropriate response to hazardous chemical or waste spill	OES CFD
Hazardous Waste Haulers Act of 1979 CA H & S Code Chapter 6.5 Art. 6.5, Sections 25167.1-25169.3 CA Vehicle Code Division 14 Section 32000, et seq.	Establishes licensing procedures and inspection programs for hazardous waste transportation vehicles	CHP
Used Oil Recovery Act of 1977 CA Public Resource Code Article 9 Sections 3460-3473	Provides regulations and public awareness functions designed to increase amount of used oil recycled per year	CWMB
Z'berg-Kapiloff Solid Waste Control Act of 1976 CA Government Code Title 7.3, Chapter 3 Section 66795, et seq.	Allows designation of a County department as enforcement agency for hazardous and solid waste facilities	DOHS DPW CWMB
CA Safe Drinking Water Act of 1976 CA H & S Code Chapter 7, Sections 4010-4022	Establishes maximum contaminant levels in drinking water for selected chemicals	SDOHS

TABLE 1-1 (CONT.)  
FEDERAL, STATE/REGIONAL AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

<u>STATE/REGIONAL STATUTES</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
<u>LAW/REGULATIONS</u>		
Landfill Gas Emissions (1975) CA H & S Code Section 41808	Requires all solid waste disposal facilities to test for emissions of toxic air contaminants and off-site gas migration	CWMB DOHS SCAQMD
Hazardous Waste Control Law of 1973 CA H & S Code Division 20, Chapter 6.5 Sections 25100-25249 Regulations: CAC Title 22, Div. 4, Chapter 30	Establish laws/regulations to maintain program to provide for safe handling and disposal of hazardous waste	SDOHS (TSCD) DOHS
Porter-Cologne Water Quality Control Act of 1969 CA Water Code Div. 7.5, Repealed March 2, 1982; Regulations: CAC Title 23, Chapter 3 Subchapter 15	Provides regulations for disposal of liquid waste into surface and groundwaters	SWRCB RWQCB
CA Haz. Substances Act (1967) CA Business and Professions Code Sections 4161, 4175, and 4177	Labeling law administered by the SDOHS; State counterpart to the Federal Haz. Sub. Act of 1960	SDOHS (TSCD)
Office of the State Fire Marshal (1923) CA H & S Code Articles 1-4, Section 13100, et Seq. Division 12, Part 2, Chapter 1	Establishes the Office of the State Fire Marshal; Authorizes the Office to adopt regulations concerning the design and construction of cargo tanks and standards regarding the possession, use, sale, and handling of explosives	SFM

TABLE 1-1 (CONT.)  
FEDERAL, STATE/REGIONAL AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

<u>STATE/REGIONAL STATUTES</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
<u>LAW/REGULATIONS</u>		
Control of Gaseous Emissions From Active and Inactive Land Disposal Facilities Rule 1150.1 and Rule 1150.2, respectively; SCAQMD- District Rules and Regulations	Requires all land disposal facilities to install landfill gas control systems if facility is emitting landfill gases	SCAQMD
Waste Discharge Requirements CA Water Code Art. 4, Sections 13271 & 13273	Establishes ranking requirements for solid waste disposal facilities; to determine if threat to water supply	SWRCB RWQCB
Water Resources Control Board CAC Title 23, Chapter 3 Subchapter 15, Sections 2510-2610	Regulates water quality aspects of waste discharge to land and sets regulations for landfills, surface impoundments, and land treatment. Provides for waste discharge permits, defines siting criteria, construc- tion, operating, and closure standards for Class I - III landfills. Sets construction, monitoring, closure, reporting, repair, and permit requirements for underground storage tanks	SWRCB RWQCB
Control of Gaseous Emissions From Contaminated Soil Rule 1166; SCAQMD- District Rules and Regulations	Establishes limit for emission of volatile organic gases from contaminated soil during excavation and on-site treatment	SCAQMD
Control of Gaseous Emissions From Facilitated Storing Hazardous Substances Rules 461-463 and 1300-1313; SCAQMD-District Rules and Regulations	Establishes requirements for above ground tanks to minimize emissions so as to reduce interference with the progress in attaining National Ambient Air Quality Standards	SCAQMD

TABLE 1-1 (CONT.)  
FEDERAL, STATE/REGIONAL AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

RELATED STATE/REGIONAL STATUTES

- A. Hazardous Substance Highway Spill Containment and Abatement Act of 1980
- B. Hazardous Substance Information and Training Act of 1980 - CA Labor Code Section 6360 et seq. (Workers Right to Know)
- C. Hazardous Materials Education Act of 1976 - CA Education Code Section 49340-49341
- D. Air Quality Management Act of 1975 - CA H & S Code Section 40000 et seq.
- E. Emergency Response Act - CA H & S Code Section 25000 et seq.
- F. Asbestos Safety and Abatement Act of 1986 - SB 2572, CA H & S Code Section 25143.7

Note: AG - State Attorney General

- ARB - (California) State Air Resource Board
- CAC - California Administrative Code
- CAGC - County Agricultural Commissioner
- CA H & S Code - California Health and Safety Code
- CCC - California Coastal Commission
- CFD - (Los Angeles County) Department of Forester and Fire Warden
- CHP - California Highway Patrol
- CSLB - Contractors' State License Board
- CWMB - California Waste Management Board
- DA - (Los Angeles County) District Attorney
- DFA - (California) Department of Food and Agriculture
- DIR - (California) Department of Industrial Relations
- DOHS - (Los Angeles County) Department of Health Services
- DOSH - (California) Division of Occupational Safety and Health
- DPW - (Los Angeles County) Department of Public Works
- DRE - (California) Department of Real Estate
- DWR - (California) Department of Water Resources
- OES - (California) Office of Emergency Services
- OPR - (California) Office of Planning and Research
- RWQCB - (California) Regional Water Quality Control Board
- SBE - (California) State Board of Equalization
- SCAQMD - South Coast Air Quality Management District
- SDOE - (California) Department of Education
- SDOHS - (California) State Department of Health Services
- SFM - (California) State Fire Marshall
- SWRCB - (California) State Water Resources Control Board
- TSCD - Toxic Substances Control Division
- UC - University of California

TABLE 1-1 (CONT.)  
FEDERAL, STATE/REGIONAL AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

COUNTY STATUTES

<u>REGULATIONS/ORDINANCE</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
County Emergency Service Ordinance	The Director of Emergency Operations is the on-scene coordinator in the event a spill of hazardous material takes place. Commands the Hazardous Material Response Unit for emergency response to hazardous materials incidents	County Sheriff Department
County Fire Code Title 32	Covers use, handling and storage of explosive, hazardous chemicals and flammable/combustible liquids and solids. Regulates industrial establishments such as service stations, dry cleaning plants, refineries and chemical facilities. The Forester/Fire Warden is responsible for the Release Response Plans (AB 2185), Hazardous Materials Inventory (AB 2189), and the Risk Management and Prevention Program (AB 3777) at the local level.	CFD
Sanitation Districts Wastewater Ordinance LA County Sanitation Districts Act CA H & S Code Sections 4700-4859, 5400-5474 Regulations: CAC Sections 54725-54740	Regulates the quality and quantity of waste discharged to the District's sewer and the pre-treatment required. Sets wastewater discharge fees and provides for the issuance of industrial wastewater discharge permits	CSD

TABLE 1-1 (CONT.)  
FEDERAL, STATE/REGIONAL AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

<u>COUNTY STATUTES</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
<u>REGULATIONS/ORDINANCE</u>		
Conditional Use Permits CA Government Code Sections 65300-65403 County Zoning Ordinance Title 22, County Subdivision Ordinance, Title 21	Although the DRP possesses no direct regulatory authority, the Department is mandated to keep the Solid and Hazardous Waste Management Plans consistent with the General Plan or any elements thereof. New or expanded sites may be required to be found consistent with the General Plan. Zoning approval may also be required to ensure compatibility of the site with adjacent land uses	DRP
Sanitary Sewer and Industrial Waste Ordinance LA County Code Title 20, Utilities Division 2	Regulates the treatment and disposal of industrial waste, both sewer and non-sewered. Provides for the review, approval, and inspection of industrial wastewater producing facilities or any operation which may impact the ground-water quality, public sewer system, or create a public nuisance. The DPW is responsible for enforcement of the program in the unincorporated area and 36 contract cities through the issuance of industrial waste disposal permits and inspection of facilities on a preestablished schedule between one to four times annually (depending on the type of facility), or more, as the need arises	DPW

TABLE 1-1 (CONT.)  
FEDERAL, STATE/REGIONAL AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

COUNTY STATUTES

<u>REGULATIONS/ORDINANCE</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
Underground Storage of Hazardous Materials LA County Code Title 11, Division 4	Provides regulations for the storage of hazardous materials/wastes in underground storage tanks. Allows for the issuance of permits, inspections and monitoring. The DPW is responsible for enforcement of the County regulations in the unincorpor- ated areas and cities that do not have their own program	DPW
Hazardous Waste Management Plan CA H & S Code Division 20, Chapter 6.5 Articles 8.7 and 3.5 Sections 25135.8 and 25204	The DPW is responsible for the preparation, maintenance, and administration of the County Hazardous Waste Management Plan	DPW

TABLE 1-1 (CONT.)  
FEDERAL, STATE/REGIONAL AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

COUNTY STATUTES

<u>REGULATIONS/ORDINANCE</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
Memorandum of Understanding 1981 CA H & S Code Division 20, Chapter 6.5 Sections 25100-25249 Regulations: CAC Title 22, Div. 4, Chapter 30	The County DOHS has enforcement responsibility for State hazardous waste regulations at the County level. Administers the County Hazardous Materials Control Program, where every hazardous waste generating business is inspected biennially for compliance with the Hazardous Waste Control Law	DOHS
Solid Waste Management Committee LA County Ord. #81-0053 Regulations: CAC Title 14, Sect. 17140-17154 Title 20, Division 2 Title 11, Division 4	The DPW provides staff for the current update effort of the Solid Waste Management Plan. In the next update, the Plan is to include a household hazardous waste management program (AB 1809), as well as an enforcement program for asbestos (SB 2572).	DPW
Los Angeles County Code Title 26, Section 308C	The DPW is responsible for enforcing the County Building Code (Section 308C) which requires gas protection systems for construction of structures on or within 1000 feet of a fill area containing decomposable materials/waste (hazardous and/or nonhazardous)	DPW

TABLE 1-1 (CONT.)  
FEDERAL, STATE/REGIONAL AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

RELATED COUNTY STATUTES

Note: CA H & S Code - California Health and Safety Code  
CSD - County Sanitation Districts of Los Angeles County (Special District)  
CFD - (Los Angeles County) Fire Department  
DOHS - (Los Angeles County) Department of Health Services  
DPW - (Los Angeles County) Department of Public Works  
DRP - (Los Angeles County) Department of Regional Planning  
SDOHS - (California) State Department of Health Services

- Notes: 1. Laws are specific rulings passed by the legislature or Congress. Regulations are guidelines developed by enforcement agencies to implement the laws. For example, the California Health and Safety Code is law and the California Administrative Code is composed of regulations.
2. For the Programs and Regulations of the incorporated cities, see Appendix 1B.

TABLE 1-2  
SUMMARY OF MAJOR FEDERAL, STATE/REGIONAL, AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

The following table presents a summarized reference list of statutes which either directly, or indirectly impact the management of hazardous waste in Los Angeles County. The statutes listed herein are presented under the following topic sections:

1. Air Quality
2. Emergency Response and Abatement
3. Funding, Taxes, and Fees
4. Hazardous Waste Management Plans
5. Household Hazardous Waste
6. Transportation
7. Underground Storage Tanks
8. Used Oil
9. Water Quality

Within each section, statutes are presented chronologically, in the following order:

1. Federal
2. State
3. Local/County

It is important that one bear in mind that a statute listed under one topic may still affect other areas of hazardous waste management. For example, laws pertaining to leaking underground tanks would be listed under the Underground Tanks section, although such laws would also directly pertain to Water Quality. As such, one should be careful to review each of the other topic sections presented in the table for any other statutes which may be relevant. This list should not be considered to be comprehensive. It merely presents a brief overview of major legislative developments in various areas of hazardous waste management and environmental law.

TABLE 1-2 (CONT.)  
SUMMARY OF MAJOR FEDERAL, STATE/REGIONAL, AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

AIR QUALITY

<u>LAW/REGULATIONS</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
Toxic Air Contaminants SB 1223 (1987) CA H & S Code Sections 39668 and 40715	Requires the preparation of a report by specified agencies on the availability of toxic air contaminant monitoring options. Provides funding for these purposes	ARB SCAQMD DFA SDOHS
Solid Waste Air Quality Test AB 3374 (1986) CA H & S Code Section 41805 CA Government Code Section 66796.54	Requires owners of solid waste landfill sites to conduct air quality assessment testing for hazardous waste in the air adjacent to the site	ARB SCAQMD
Air Quality AB 3989 (1986) CA H & S Code Sections 42314.1 and 42315 CA Public Resources Code Sections 25523 and 21151.1 CA Government Code Section 66796.40	Promotes recycling in Resource Recovery projects; Imposes air pollutant emission restrictions on Resource Recovery facilities; Requires the preparation of an Environmental Impact Report for the permitting of Resource Recovery facilities	SDOHS ARB

TABLE 1-2 (CONT.)  
SUMMARY OF MAJOR FEDERAL, STATE/REGIONAL, AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

AIR QUALITY

<u>LAW/REGULATIONS</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
Toxic Air Contaminant Program of 1983 CA H & S Code Chapter 3.5 Section 39650, et seq.; CA Food and Agriculture Code Section 14021	Provide direction for identification and control of airborne toxic substances toxic substances; develop appropriate control methods to achieve established standards	ARB SCAQMD
Air and Water Quality Tests AB 3525 (1984) CA Government Code Section 66796.54 CA Water Code Section 13273	Requires owners of solid waste landfills to conduct air quality assessment testing for hazardous waste in the air adjacent to the site and water quality assessment testing for the existence of hazardous waste in groundwater adjacent to or beneath the site	SWRCB RWQCB ARB SCAQMD SDOHS CWMB
Control of Gaseous Emissions From Facilities Storing Hazardous Substances Rule 461, 462, 463, and 1300-1313 SCAQMD-District Rules and Regulations	Establishes requirements for above ground tanks to minimize emissions so as to reduce interference with the progress in attaining National Ambient Air Quality Standards	SCAQMD
Control of Gaseous Emissions From Active and Inactive Land Disposal Facilities Rules 1150.1 and 1150.2; SCAQMD-District Rules and Regulations	Requires all land disposal facilities to install landfill gas control system if facility is emitting landfill gas	SCQAMD

TABLE 1-2 (CONT.)  
SUMMARY OF MAJOR FEDERAL, STATE/REGIONAL, AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

AIR QUALITY

<u>LAW/REGULATIONS</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
Control of Gaseous Emission From Contaminated Soil Rule 1166; SCAQMD-District Rule and Regulations	Establish limit for emission of volatile organic gases from contaminated soil during excavation and on-site treatment	SCAQMD

TABLE 1-2 (CONT.)  
SUMMARY OF MAJOR FEDERAL, STATE/REGIONAL, AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

EMERGENCY RESPONSE AND ABATEMENT

<u>LAW/REGULATIONS</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
Superfund Amendments and Reauthorization Act of 1986 PL 99-499 42 U.S.C. 9601 Regulations: 40 CFR 305	Increases Superfund revenues to \$8.5 billion; Strengthens EPA authority to conduct removal and remedial and enforcement actions; Increases state involvement in the cleanup process; Establishes new statutory authorities, such as the Community Right-to-Know	EPA SDOHS
Comprehensive Environmental Response, Compensation, and Liability Act of 1980 PL 96-510 42 U.S.C. 9601 et seq. Regulations: 40 CFR 300	Creates the "Superfund" to be used to finance governmental responses to actual or threatened releases of hazardous substances	EPA SDOHS
Remedial Action Liability AB 1855 (1987) CA H & S Code Section 25353	Requires a local agency which is responsible for a release of hazardous waste to reimburse the SDOHS for any funds expended in a removal or remedial action	SDOHS
Hazardous Waste Releases AB 2036 (1987) CA H & S Code Sections 25355.5 and 25356.1	Specifies the conditions under which the SDOHS may expend funds for response actions to unintentional releases of hazardous waste	SDOHS

TABLE 1-2 (CONT.)  
SUMMARY OF MAJOR FEDERAL, STATE/REGIONAL, AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

EMERGENCY RESPONSE AND ABATEMENT

<u>LAW/REGULATIONS</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
Emergency Response Plans AB 2189 (1987) CA H & S Code Division 20, Chapter 6.95 Section 25503.1	Requires the OES to adopt regulations to conform business and area plans for emergency response to releases of hazardous materials with the Federal Emergency Planning and Community Right-to-Know Act of 1986	OES CFD
Hazardous Substance Cleanup AB 2250 (1987) CA H & S Code Section 25351.1	Appropriates funds from specified sources to pay the principal and interest on bonds issued pursuant to the Hazardous Substance Cleanup Bond Act of 1984	-
Hazardous Substance Liability SB 245 (1987) CA H & S Code Sections 25315, 23, 58.3, 59, 59.7, and 25363	Imposes liability on specified persons for releases of hazardous waste. Requires a seller of real property who has reasonable cause to believe hazardous waste have been released under the property to notify buyers	SDOHS AG
Hazardous Waste Cleanup SB 1247 (1987) CA H & S Code Section 25355	Requires the SDOHS to notify the owner of real property of a hazardous substance release site on his/her property within 30 days after listing a site, and at least 30 days before taking corrective action	SDOHS
Contractors SB 2067 (1986) CA H & S Code Sections 25364, 25364.6, and 25364.7	Authorizes the state agency to indemnify and hold harmless certain hazardous waste response action contractors	SDOHS (TSCD)

TABLE 1-2 (CONT.)  
SUMMARY OF MAJOR FEDERAL, STATE/REGIONAL, AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

**EMERGENCY RESPONSE AND ABATEMENT**

<u>LAW/REGULATIONS</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
Contractor Certification SB 2575 (1986) CA Business and Professions Code Sections 7058.7 and 7118.6 CA Labor Code Section 142.7	Establishes a certification program for contractors involved in hazardous substance clean-up	SDOHS (TSCD) DIR CSLB DOSH
Emergency Response AB 2702 (1986) CA Government Code Division 1, Title 2, Chapter 2 Article 3.8, Section 8574.11	Establishes the California Toxic Sub- stances Incident Response Training and Education Program	OES
Hazardous Materials Inventory AB 2187 (1986) CA H & S Code Sections 25501.1, .2, 25505.1, 25505.2, 25509.1, 25513.1, 25515.1, .2, 25516.7, 25517.5, 25505.3	Makes changes to the program established in 1985, that required businesses to prepare plans for emergency response for the handling of hazardous materials; Also establishes the Hazardous Material and Waste Training Fund	OES CFD
Immunity SB 1641 (1986) CA H & S Code Section 25400	Includes registered sanitarians within public safety employee immunity for responses to hazardous substances	SDOHS (San. Div.)
Release Response Plans AB 2185 (1985) CA H & S Code Division 20, Chapter 6.95 Section 25500	Requires any business which is located within an implementing county or city to establish a specified plan for emergency response to a release of hazardous material	OES CFD

TABLE 1-2 (CONT.)  
SUMMARY OF MAJOR FEDERAL, STATE/REGIONAL, AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

EMERGENCY RESPONSE AND ABATEMENT

<u>LAW/REGULATIONS</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
Carpenter-Presley-Tanner Hazardous Substance Account Act [1981] CA H & S Code Division 20, Chapter 6.8 Sections 25300-25395	Provides response authority for hazardous substance release, including spills and hazardous waste disposal sites.	SDOHS SBE
Toxic Disasters Regs. of 1980 CA Government Code Title 2 Section 8574.7	Establishes California's Hazardous Material Contingency Plan to assure appropriate response to hazardous chemical or waste spill	OES CFD
County Emergency Service Ordinance	The Director of Emergency Operations is the on-scene coordinator in the event a spill of hazardous material takes place. Commands the Hazardous Material Response Unit for emergency response to hazardous materials incidents	County Sheriff Department

TABLE 1-2 (CONT.)  
SUMMARY OF MAJOR FEDERAL, STATE/REGIONAL, AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

**FUNDING, TAXES, and FEES**

<u>LAW/REGULATIONS</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
Funding Disbursement AB 46 (1987) CA H & S Code Division 20, Chapter 6.5 Section 25135.8	Requires the SDOHS to disburse specified funds to local governments based on the amount of hazardous waste produced and on its need for additional funding to complete a county's hazardous waste management plan	SDOHS
Hazardous Waste Taxes and Fees AB 534 (1987) CA H & S Code Division 20, Chapter 6.5 Section 25173.5	Permits a city or county to impose a tax or user fee on offsite, multiuser hazardous waste disposal facilities	counties cities
Hazardous Substance Funding AB 1554 (1987) CA H & S Code Sections 25332 and 25333	Requires the SDOHS to make maximum use of federal funds; Requires the state to partially reimburse the EPA for specified projects	SDOHS EPA
Disposal Fees SB 1249 (1987)	Requires the SDOHS to submit a study to the Legislature recommending a permanent fee structure. Appropriates funding for the preparation of the study	SDOHS

TABLE 1-2 (CONT.)  
SUMMARY OF MAJOR FEDERAL, STATE/REGIONAL, AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

FUNDING, TAXES, and FEES

<u>LAW/REGULATIONS</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
Solid Waste Landfills AB 2448 (1987) CA Government Code Sections 66749, 66792.5, 66796.22, .52, .67, & 66799.55	Authorizes counties and cities to impose a tipping fee at solid waste landfills to fund the development and implementation of Household Hazardous Waste Management Programs.	CWMB DPW
Control Account Fees SCR 41	Requests the SDOHS to study the impact of specified fees on small businesses which generate hazardous waste, as part of the study mandated by SB 1249	SDOHS
Disposal Fees AB 4283 (1986) CA H & S Code Division 20, Chapter 6.5 Article 9.1, Section 25205.1 CA Revenue and Taxation Code Sections 43053 and 43152.6	Revises and extends fees that fund the operation of the state's hazardous waste control programs; Requires the Auditor General to submit a report to the legis- lature concerning these fees; Establishes fees for hazardous waste treatment and storage	SDOHS SBE

TABLE 1-2 (CONT.)  
SUMMARY OF MAJOR FEDERAL, STATE/REGIONAL, AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

HAZARDOUS WASTE MANAGEMENT PLANS

<u>LAW/REGULATIONS</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
Hazardous Waste Management Plans AB 3206 (1988) CA H & S Code Division 20, Chapter 6.5 Section 25135.3, 25135.6 and 25135.7	Requires a city to act on the county hazardous waste management plan within 90 days of receipt from the county and if the city does not act within that time period, the city will have been deemed to approve the plan	DPW Cities SDOHS
Hazardous Waste Management Plans AB 617 (1987) CA H & S Code Division 20, Chapter 6.5 Sections 25135.6 and 25135.9	Extends various deadlines pertaining to state and county hazardous waste management plans	SDOHS DPW
Hazardous Waste Management Plans SB 477 (1987) CA H & S Code Division 20, Chapter 6.5 Sections 25135.1 and 25135.7	Deletes existing requirement that sites for new hazardous waste facilities be included in a county's hazardous waste management plan. Requires counties and cities to incorporate the plan, or applicable portions thereof, into their General Plan, or to amend their zoning and subdivision codes so that decisions are consistent with the County Hazardous Waste Management Plan. These requirements must be met within 180 days after the plan's approval by the SDOHS	DPW SDOHS Cities
State Toxic Waste Plan AB 650 (1986) CA H & S Code Section 25135.9	Requires a State Hazardous Waste Management Plan by July 1, 1988; Requires the SDOHS to conduct a hearing to determine if a hazardous waste site presents an imminent and substantial danger	SDOHS

TABLE 1-2 (CONT.)  
SUMMARY OF MAJOR FEDERAL, STATE/REGIONAL, AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

HOUSEHOLD HAZARDOUS WASTE

<u>LAW/REGULATIONS</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
Federal Hazardous Substances Labeling Act [1960] PL 86-613 15 U.S.C. 1261 Regulations: 16 CFR 1500-1512	Regulates the interstate distribution and sale of packages of hazardous substances intended or suitable for household use	CPSC
Household Hazardous Waste Plans AB 1308 (1987) CA H & S Code Division 20, Chapter 6.5 Sections 25174.02, 25174.6, 25174.7, 25205.1, and 25205.8	Exempts state and local agencies that operate a household hazardous waste collection program, and pest control agencies or county agricultural commissioners meeting certain requirements, from specified hazardous waste fees	SDOHS DPW CAGC
Household Hazardous Waste AB 1809 (1986) CA Education Code Sections 51881.5, 51900.5, CA Government Code Title 7.3, Chapter 3 Article 9, Section 66798	Requires counties to develop household hazardous waste programs through the Solid Waste Management Plans and requires the CWMB to develop and implement a public information program for household hazardous substances; Also requires the the Board to establish guidelines and policies to guide local governments in providing community services; SDOE is to provide schools with a list of available information on hazardous substances	CWMB DPW SDOE

TABLE 1-2 (CONT.)  
SUMMARY OF MAJOR FEDERAL, STATE/REGIONAL, AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

HOUSEHOLD HAZARDOUS WASTE

<u>LAW/REGULATIONS</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
Solid Waste Landfills AB 2448 (1987) CA Government Code Sections 66749, 66792.5, 66796.22, .52, .67, 66799.55, and Ch. 4 (Sec. 66799, et seq.) CA Revenue and Taxation Code Part 23 (Sec. 45001, et seq.)	Requires the approval of closure and post-closure plans to operate a Class III landfill. Authorizes the CWMB to take specified actions regarding the release of methane gas or other wastes from solid waste landfills. Creates the Solid Waste Disposal Site Cleanup and Maintenance Authority to issue grants for the purposes of the bill. Authorizes counties and cities to impose a tipping fee at solid waste landfills to fund development and implementation of Household Hazardous Waste Management Programs.	DOHS CWMB RWQCB DPW

TABLE 1-2 (CONT.)  
SUMMARY OF MAJOR FEDERAL, STATE/REGIONAL, AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

TRANSPORTATION

<u>LAW/REGULATIONS</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
Resource Conservation and Recovery Act of 1976 PL 94-580 42 U.S.C. 6901 et seq. Regulations: 40 CFR 240-271 122-124, 260-267, 270, 271	Establishes requirements for the recording labeling, packing, and transporting of hazardous waste; establishes standards for hazardous waste disposal facilities; allows delegation of authority to states through the EPA; 1984 Amendments establish 72 new major provisions to RCRA. Provisions include expanded coverage of small quantity generators; requirements for waste minimization; a ban on the land disposal of certain categories of hazardous waste; a ban on the landfill of bulk or non-containerized liquid hazardous waste; and many more	EPA SDOHS SWRCB
Transportation Safety Act of 1974, Title I "Hazardous Materials Transportation Act" PL 93-633 49 U.S.C. 1801 Regulations: 49 CFR 106-107, 171-179, 45 CFR 51645	Regulates inter/intra state transportation of hazardous waste. Establishes criteria for safe handling, labeling, placarding, and routing procedures	EPA (through MOU) DOT (USCG)
Hazardous Waste Transportation AB 689 (1987) CA Vehicle Code Section 31304	Authorizes the CHP to determine that a highway is less safe than available alternatives for the transportation of hazardous waste, if certain conditions are met	CHP cities counties

TABLE 1-2 (CONT.)  
SUMMARY OF MAJOR FEDERAL, STATE/REGIONAL, AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

TRANSPORTATION

<u>LAW/REGULATIONS</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
Enforcement AB 1758 (1988) CA H & S Code Division 20, Chapter 6.5 Section 25180	Authorizes CHP to enforce specified statutes relating to hazardous waste transportation, including hazardous waste enforcement	CHP
Hazardous Materials Contractors AB 1012 (1987) CA Civil Code Section 3181 CA Public Contracts Code Section 4107.7	Authorizes a subcontractor who is a hazardous waste hauler to serve a stop notice upon a public entity if the principal contractor fails to pay him/her within ten days after completion of work	-
Hazardous Waste Transportation AB 1041 (1987) Division 20, Chapter 6.5 Section 25150.2	Requires SDOHS to adopt regulations for the transportation of hazardous waste across the California-Mexican border	SDOHS
Registration AB 2930 (1986) CA H & S Code Sections 25163 and 25191	Requires that hazardous waste haulers have a valid registration in his or her possession when transporting the waste	SDOHS (TSCD) CHP
Disclosure Statements AB 4308 (1986) CA H & S Code Sections 25110.1, 25110.8, 25112.5, 25117.10, 25186.5, and 25200.4	Requires any person applying for a hauler registration for holding, collecting, or transporting hazardous waste to submit a disclosure statement providing information pertaining to notices of violation and civil or criminal prosecution	SDOHS (TSCD)

TABLE 1-2 (CONT.)  
SUMMARY OF MAJOR FEDERAL, STATE/REGIONAL, AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

TRANSPORTATION

<u>LAW/REGULATIONS</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
Transporting Hazardous Materials AB 1861 (1985) CA Vehicle Code Division 13, Chapter 5 Art. 1, Section 31300, et seq.	Establishes specific routes and parking and stopping places for hazardous waste transporters	SDOHS (TSCD) CHP
Highway Closures SB 2030 (1984) CA Vehicle Code Division 13, Chapter 5 Art. 1, Sections 31303-31308	Authorizes the closure of specified highways to vehicles transporting hazardous waste, if certain requirements are met	CHP
Hazardous Waste Haulers Act of 1979 CA H & S Code Chapter 6.5 Art. 6.5, Sections 25167.1-25169.3 CA Vehicle Code Division 14 Section 32000, et seq.	Establishes licensing procedure and inspection program for hazardous waste transportation vehicles	CHP

TABLE 1-2 (CONT.)  
SUMMARY OF MAJOR FEDERAL, STATE/REGIONAL, AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

UNDERGROUND STORAGE TANKS

<u>LAW/REGULATIONS</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
Hazardous and Solid Waste Amendments of 1984 PL 98-616 Proposed Regulations: 40 CFR 280 & 281	Mandates requirements for leak detection, leak prevention, financial responsibility and corrective action for underground storage tanks	EPA SWRCB RWQCB DPW
Underground Storage Tanks AB 853 (1987) CA H & S Code Division 20, Chapter 6.7 Section 25297.1	Mandates a program to abate releases of hazardous waste from underground storage tanks	SWRCB SDOHS
Underground Storage Tanks AB 1413 (1987) CA H & S Code Sections 25281, 25284.4, .5, .7, 25291, 25292, and 25296 CA Water Code Sections 13173 and 13174	Establishes various regulations pertaining to integrity tests for underground hazard- ous waste storage tanks	SWRCB RWQCB DPW
Underground Storage Tank Permits AB 2239 (1985) CA H & S Code Sections 25283, 25291, 25299.1, and 25284.5	Specifies that existing laws which authorize the permitting of under- ground storage tanks by local agencies to be implemented by January, 1988	RWQCB DPW

TABLE 1-2 (CONT.)  
SUMMARY OF MAJOR FEDERAL, STATE/REGIONAL, AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

UNDERGROUND STORAGE TANKS

<u>LAW/REGULATIONS</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
Underground Storage of Hazardous Substances 1984 CA H & S Code Division 20, Chapter 6.7 Sections 25280-25299.6	Sets criteria and authority for permitting, inspection, and monitoring of underground tanks for hazardous substances	SWRCB RWQCB SDOHS DPW Cities
Underground Tank Registration AB 1362 (1983) CA H & S Code Division 20, Chapter 6.7; Section 25150.1	Requires the Department to adopt regulations for the construction, operation, maintenance, monitoring, and testing of underground hazardous waste storage tanks	SDOHS
Permits and Leak Detection AB 2013 (1983) CA Water Code Section 13173 and 13174	Requires all owners of underground storage tanks to file a hazardous substance storage statement containing specified information and fees with the SWRCB. Prescribes liability for failure to comply.	SWRCB RWQCB
Hazardous Waste Underground Storage Tanks Law of 1983 CA Water Code Sections 13173, 13174	Requires persons storing hazardous wastes in underground tanks/ containers to file with the SWRCB and the County	RWQCB DPW Cities
Underground Storage of Hazardous Materials LA County Code Title 11, Division 4	Provides regulations for the storage of hazardous materials in underground tanks. Allows for the issuance of permits and annual inspections and monitoring. The County is responsible for enforcement of the County regulations in the unincorpor- ated area and the enforcement of State regulations in 79 cities	DPW

TABLE 1-2 (CONT.)  
SUMMARY OF MAJOR FEDERAL, STATE/REGIONAL, AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

<u>USED OIL</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
<u>LAW/REGULATIONS</u>		
Used Oil Recycling Act of 1980 PL 96-463 42 U.S.C. 6901 et seq.	Provides incentives for recycling waste oils, and sets out to determine what hazardous waste regulations should apply to waste oils	EPA
Used Oil AB 2447 (1987) CA H & S Code Division 20, Chapter 6.5 Section 25180	Authorizes traffic officers and peace officers to enforce hazardous waste laws and regulations regarding used oil	CHP
Used Oil SB 108 (1987) CA H & S Code Division 20 Ch. 10.7 (Sec. 25930, et seq.)	Redefines "used oil" as including the blending or dilution of used oil with fuel oil or other uncontaminated products so as to achieve certain purity standards, notwithstanding specified regulations	SDOHS
Used Oil SB 86 (1986) CA H & S Code Division 20, Chapter 6.5 Article 13, Section 25250 CA Public Resources Code Sections 3464, 3466, and 3468	Exempts used oil which is being recycled from the provisions of hazardous waste law; Revises the provisions of the Used Oil Recycling Act to include used oil regulation	SDOHS (TSCD)
Used Oil Recovery Act of 1977 CA Public Resource Code Article 9 Sections 3460-3473	Provides regulations and public awareness functions designed to increase amount of used oil recycled per year	CWMB

TABLE 1-2 (CONT.)  
SUMMARY OF MAJOR FEDERAL, STATE/REGIONAL, AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

WATER QUALITY

<u>LAW/REGULATIONS</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
Clean Water Act of 1977 PL 95-217 33 U.S.C. 1251 et seq. Regulations: 40 CFR 100-140 40 CFR 400-470	Sets emission limits on discharges of toxic substances to keep navigable waterways swimmable and fishable; permission to discharge is granted through the issuance of a National Pollutant Discharge Elimination Permit by a local agency	Army Corps of Engineers EPA RWQCB SWRCB
Safe Drinking Water Act [1974] PL 93-523 42 U.S.C. 300f Regulations: 40 CFR 140-149	Controls levels of contaminants to ensure quality of drinking water supplies both surface and subterranean	EPA
River and Harbor Act Chapter 425 Enacted March 3, 1899 55th Congress, Session III	Prohibits unauthorized construction and/or dredging without permit; provides authorization for removal and disposal of contaminated fill	Army Corps of Engineers
Clean Water AB 1285 (1987) CA H & S Code Sections 4030.6, .7, and .9	Restricts the expenditure of specified funds for corrective actions concerning the contamination of public water supplies; Provides regulations for oral contracts	SDOHS
Water Treatment Devices SB 2119 (1986) CA H & S Code Division 5, Chapter 8.5 Section 4057	Requires that all water treatment devices sold in California that claim the device affects health or the safety of drinking water be certified as meeting all the performance claims made by the sellers of the devices	SDOHS (San. Div.)

TABLE 1-2 (CONT.)  
SUMMARY OF MAJOR FEDERAL, STATE/REGIONAL, AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

WATER QUALITY

<u>LAW/REGULATIONS</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
Water Treatment Devices SB 2361 (1986) CA Business & Professions Code Division 7, Chapter 1 Article 6, Section 17577	Prohibits false and deceptive advertising practices for the sale of water treatment devices	SDOHS (San. Div.)
Safe Drinking Water and Toxic Enforcement Act of 1986 Proposition 65 (1986) CA H & S Code Division 20, Chapter 6.6	Requires the Governor to publish lists of chemicals known to cause cancer or repro- ductive toxicity; Requires government employees to report known violations of toxic laws; Requires warning of all exposures to carcinogens and reproductively hazardous waste	SWRCB DIR DFA SDOHS (San. Div.)
California Safe Drinking Water Bond Law of 1986 AB 2668 (1986) CA Water Code Division 7, Chapter 10.7 Section 13895	Provides for the issuance of \$100 million in state bonds for the improvement of domestic water supplies	DWR SDOHS (San. Div.)
Ocean Discharge AB 3500 (1986) CA Water Code Section 13170.2	Requires the State Water Board to form- ulate a water quality control plan for ocean waters to be known as the California Ocean Plan	SWRCB
Organic Contamination & Monitoring Program for Drinking Water [1983] AB 1803 (1983) Section 4026.2	SDOHS to evaluate each public water system for potential contamination by requiring analyses and reports. The RWQCB is required to conduct investigations for the identification of the contamination source	SDOHS RWQCB

TABLE 1-2 (CONT.)  
SUMMARY OF MAJOR FEDERAL, STATE/REGIONAL, AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

<u>WATER QUALITY</u>		
<u>LAW/REGULATIONS</u>	<u>INTENT</u>	<u>LEAD AGENCY(IES)</u>
CA Safe Drinking Water Act of 1976 CA H & S Code Chapter 7, Sections 4010-4022	Establishes maximum contaminant levels in drinking water for selected chemicals	SDOHS
Porter-Cologne Water Quality Control Act of 1969 CA Water Code Div. 7.5, Repealed March 2, 1982; Regulations: CAC Title 23, Chapter 3 Subchapter 15	Provides regulations for disposal of liquid waste into surface and groundwaters	SWRCB RWQCB
Waste Discharge Requirements CA Water Code Art. 4, Sections 13271 & 13273	Establishes ranking requirements for solid waste disposal facilities; to determine if threat to water supply	SWRCB RWQCB
Water Resources Control Board CAC Title 23, Chapter 3 Subchapter 15, Sections 2510-2610	Regulates water quality aspects of waste discharge to land and sets regulations for landfills, surface impoundments, and land treatment. Provides for waste discharge permits, defines siting criteria, construction, operating, and closure standards for Class I -III landfills. Sets construction, monitoring, closure, reporting, repair, and permit requirements for underground storage tanks	SWRCB RWQCB

TABLE 1-2 (CONT.)  
SUMMARY OF MAJOR FEDERAL, STATE/REGIONAL, AND COUNTY STATUTES  
REGULATING THE MANAGEMENT OF HAZARDOUS MATERIAL/WASTE

WATER QUALITY

LAW/REGULATIONS

INTENT

LEAD AGENCY(IES)

Sanitation Districts  
Wastewater Ordinance  
LA County Sanitation  
Districts Act  
CA H & S Code Sections 4700-  
4859, 5400-5474  
Regulations: CAC  
Sections 54725-54740

Regulates the quality and quantity of  
waste discharged to the District's  
sewer and the pre-treatment required.  
Provides for settling wastewater  
discharge fees and issuing industrial  
wastewater discharge permits

CSD

Sanitary Sewer and  
Industrial Waste  
Ordinance  
LA County Code  
Title 20, Utilities  
Division 2

Regulates the treatment and disposal  
of industrial waste, both sewer and  
non-sewered. Provides for the  
review, approval, and inspection of  
industrial wastewater producing facilities  
or any operation which may impact the ground-  
water quality, public sewer system, or create  
a public nuisance. The DPW is responsible  
for enforcement of the program in the unin-  
corporated area and 36 contract cities through  
the issuance of industrial waste disposal per-  
mits and and inspection of facilities on a  
preestablished schedule between one to four  
times annually (depending on the type of fac-  
ility) or more, as the need arises

DPW

TABLE 1-2 (CONT.)  
FEDERAL, STATE/REGIONAL, AND COUNTY STATUTES REGULATING THE MANAGEMENT OF HAZARDOUS  
MATERIAL/WASTE

RELATED FEDERAL STATUTES

A.	Uranium Mill Tailings Radiation Control Act of 1978	42 U.S.C. 7901
B.	Outer Continental Shelf Lands Act Amendments of 1978	43 U.S.C. 1801
C.	Air Pollution Control Act Amendments	42 U.S.C. 1857
D.	Lead-Based Paint Poisoning Prevention Act of 1976	42 U.S.C. 4801 (Repealed)
E.	Intervention on the High Seas Act [1974]	33 U.S.C. 1471
F.	[Federal] Disaster Relief Act of 1974	42 U.S.C. 5121
G.	Deepwater Port Act of 1974	33 U.S.C. 1501
H.	Marine Protection, Research, and Sanctuaries Act of 1972	33 U.S.C. 1401
I.	Ports and Waterways Safety Act [1972]	33 U.S.C. 1221
J.	Poison Prevention Packaging Act of 1970	15 U.S.C. 1471
K.	Federal Food, Drug, and Cosmetic Act [1938]	21 U.S.C. 301

RELATED STATE STATUTES

A.	Hazardous Substance Highway Spill Containment and Abatement Act of 1980	
B.	Hazardous Substance Information and Training Act of 1980 - CA Labor Code Section 6360 et seq. (Workers Right to Know)	
C.	Hazardous Materials Education Act of 1976 - CA Education Code Section 49340-49341	
D.	Air Quality Management Act of 1975 - CA H & S Code Section 40000 et seq.	
E.	Emergency Response Act - CA H & S Code Section 25000 et seq.	
F.	Asbestos Safety and Abatement Act of 1986 - SB 2572, CA H & S Code Section 25143.7	

Note:	AG	- State Attorney General
	ARB	- (California) State Air Resource Board
	CAC	- California Administrative Code .
	CAGC	- County Agricultural Commissioner
	CA H & S	- California Health and Safety Code
	CCC	- California Coastal Commission
	CFD	- (Los Angeles County) Department of Forester and Fire Warden
	CHP	- California Highway Patrol
	CPSC	- Consumer Product Safety Commission
	CSD	- County Sanitation Districts of Los Angeles County (Special District)
	CSLB	- Contractors' State License Board
	CWMB	- California Waste Management Board
	DA	- (Los Angeles County) District Attorney
	DFA	- (California) Department of Food and Agriculture
	DIR	- Department of Industrial Relations
	DOHS	- (Los Angeles County) Department of Health Services
	DOSH	- Division of Occupational Safety and Health
	DOT	- (United States) Department of Transportation
	DPW	- Los Angeles County Department of Public Works
	DRE	- (California) Department of Real Estate
	DRP	- (Los Angeles County) Department of Regional Planning
	DWR	- Department of Water Resources
	EPA	- (United States) Environmental Protection Agency
	OES	- Office of Emergency Services
	OPR	- Office of Planning and Research
	OSHA	- Occupational Safety and Health Act
	RWQCB	- Regional Water Quality Control Board
	SBE	- (California) State Board of Equalization
	SCAQMD	- South Coast Air Quality Management District
	SDOHS	- (California) State Department of Health Services
	SFM	- (California) State Fire Marshall
	SOGS	- (California) State Oil and Gas Supervisor
	SWRCB	- (California) State Water Resources Control Board
	UC	- University of California
	USCG	- United States Coast Guard

Note: For the Programs and Regulations of the incorporated cities, see Appendix 1B.

## B. Legislative Digests

Federal and State policies are the key elements in assessing prospective hazardous waste management requirements. However, regulations concerning the management of hazardous wastes are continuously being updated, therefore it is important to keep abreast of the newly adopted regulations as well as those under consideration. The following publications provide a good source of information for the above.

At the Federal level, the "Federal Register", a daily publication, provides a uniform system for publicizing regulations and legal notices issued by Federal agencies. These include proposed, amended and new rules and regulations, Presidential Proclamations, Executive Orders and Federal agency documents having general applicability and legal effect. Copies of the "Federal Register" are distributed by the Superintendent of Documents, U.S. Government Printing Office, Washington D.C. 20402.

At the State level, the Department of General Services publishes a weekly listing of all new and current State legislation, entitled the "Notice Register". This publication is available from the Department of General Services, Publications Section, P.O. Box 1015, North Highlands, California, 95660. Also at the State level, a weekly newsletter entitled "Sacramento Newsletter" discusses current legislative issues. This publication is available from the Sacramento Newsletter Inc., 3333 Watt Avenue, Suite 112, Sacramento, California, 95821.

Locally, a daily newspaper entitled "Daily Journal" provides legislative discussion and can be purchased at most newsstands near Court buildings. Another source of information is the local offices of legislative representatives, particularly those who are the sponsors and/or the authors of the proposed legislation. Information regarding the status of and copies of proposed legislation can be requested through their offices.

Also available to businesses and governmental agencies is the Legislative Digest published by the Southern California Association of Governments. This Digest is a monthly legislative news service of Federal and State bills impacting regional planning issues. The Digest lists upcoming legislation by bill number and author(s), and gives a descriptive summary of the bill and its current status. More information can be requested from the Southern California Association of Governments, Legislative Digest Section, 600 South Commonwealth Avenue, Suite 1000, Los Angeles, California, 90005.

## III. ENFORCEMENT PROGRAMS

The Federal government is the primary agency for the promulgation of regulations regarding hazardous waste management. However, the Federal government recognizes that many states have viable

programs for the control of hazardous waste and allow authorized states having comparable or more stringent regulations to enforce their own programs. Currently, regulations are administered by over twenty different Federal, State/Regional, and County agencies, boards and departments, Table 1-3.

Due to the overlapping of jurisdictions and responsibilities of some Federal, State and county agencies in some areas of hazardous waste management, the major enforcement programs established by these agencies are discussed in Appendix 1A under the responsibilities of each individual agency rather than by specific enforcement program.

At the local level, there are numerous programs that are employed by the County and the incorporated cities to inspect and enforce their respective hazardous waste management programs. There is no general organizational format that is followed by all jurisdictions, although counterparts usually exist at the two levels. As Los Angeles County is a multi-jurisdictional region comprised of 85 incorporated cities and unincorporated areas, an attempt to sort through the myriad of agencies' roles to determine the extent of overlap and to identify their responsibilities would be highly complex.

To comply with the guidelines as developed by the SDOHS pursuant to Chapter 1504 of the 1986 State Statutes, the County programs are discussed under the various County agencies in Appendix 1A. The funding for the programs is generally appropriated under the budget of the agencies responsible for the program. Some of these programs are covered by the County General Fund, those that are State mandated are reimbursed by the State, some are self-supporting through permit or plan check fees, and others are supported by fees authorized by State laws or through County ordinances.

In addition, information regarding current programs for enforcement, inspection and monitoring of hazardous materials and wastes for each of the 85 individual cities in Los Angeles County was requested from the respective cities. The cities were to include responsibilities, organizational flow regarding various aspects of their hazardous materials management programs and their interrelationships, adequacy of their programs, as well as to identify problem areas and recommendations, funding sources and current and projected staff needs.

The responses submitted by the cities are compiled in Appendix 1B.. It should be noted that the City of Santa Clarita was incorporated on December 15, 1987, and as such, all County programs are also being implemented in the City, therefore, no specific program is shown for the City of Santa Clarita.

For ease of reference, Appendix 1C lists the addresses and telephone numbers of the major agencies at the Federal State/Regional and County levels that are involved with management of hazardous waste laws and regulations.

TABLE 1-3  
FEDERAL, STATE/REGIONAL, AND COUNTY AGENCIES INVOLVED IN  
REGULATING AND ENFORCING THE MANAGEMENT OF HAZARDOUS WASTE

FEDERAL AGENCIES

Environmental Protection Agency (EPA)  
Department of Transportation (DOT)  
Army Corps of Engineers

STATE AND REGIONAL AGENCIES

State Department of Health Services (SDOHS)  
State Water Resources Control Board (SWRCB)  
Regional Water Quality Control Board (RWQCB)  
State Air Resources Board (ARB)  
South Coast Air Quality Management District (SCAQMD)  
California Department of Industrial Relations (DIR)  
Department of Food and Agriculture  
California Waste Management Board (CWMB)  
Department of Transportation (CALTRANS)  
California Highway Patrol (CHP)  
State Department of Fish and Game (DFG)

COUNTY AGENCIES\*

Los Angeles County Department of Health Services  
Los Angeles County Agricultural Commission  
Los Angeles County Sheriff Department  
Los Angeles County Department of Public Works  
Los Angeles County Office of the District Attorney  
County Sanitation Districts of Los Angeles County\*\*

Note: \* The responsibilities and programs implemented by the city agencies in each individual jurisdiction may be similar to those of the corresponding county agencies. Information regarding the cities current programs is provided in Appendix 1B.

\*\* Special District

Source: Los Angeles County Department of Public Works,  
December 1987

## CHAPTER 2

### HAZARDOUS WASTE QUANTITIES, TYPES AND SOURCES

#### I. INTRODUCTION

No single source of information contains complete data on hazardous waste generation in the County. Federal and State regulations in this field are relatively recent and as a result, no comprehensive database exists. While a number of agencies, including the Department of Public Works, have collected and analyzed data from various sources including waste manifests, different data collection formats and analytical procedures have rendered the results difficult to compare. As precise data on hazardous waste quantities does not exist, the figures/numbers presented in the text are rounded-off estimates, except where references are specifically cited.

#### II. HAZARDOUS WASTE GENERATION: ORIGIN AND DESTINATION

##### A. General

A major portion of the information contained in this Chapter is from four major sources. They are 1) a joint study conducted by the Department of Public Works (DPW) with the County Sanitation Districts of Los Angeles County (CSD) entitled "Sites for Hazardous Waste Management in Los Angeles County" [22]; 2) "Hazardous Waste Generators Survey" [24] conducted by DPW; 3) data from the manifest system; and 4) other information provided by the State Department of Health Services (SDOHS). Where a deficiency or conflict exists between the database, surveys (telephone, mail) were conducted by the DPW.

##### 1. Sites for Hazardous Waste Management in Los Angeles County (Siting Project)

This Project grew out of increasing concerns by the Los Angeles County Board of Supervisors regarding the lack of an adequate hazardous waste management system in Los Angeles County. The DPW and CSD jointly undertook this study to identify suitable locations for off-site hazardous waste transfer, storage, treatment and disposal facilities. As a part of this study, the 1984 manifested data was obtained from SDOHS to evaluate off-site hazardous waste generators. The data was categorized by both locations and waste type in pre-selected industrial areas. Waste management techniques were also assigned so that potential developers of hazardous waste treatment facilities would have current information regarding market potential of their prospective service area.

The metropolitan portion of the County was divided into seven subareas based on clusters of major industrial centers. Two outlying areas were also included, the combined Santa Clarita and Antelope Valleys, and an area to the northwest consisting of Calabasas and Agoura. Figure 2-1 is a map showing the industrial centers and the subareas that were delineated in this study.

2. Los Angeles County Department of Public Works "Hazardous Waste Generators Survey"

In addition to the DPW's participation in the Siting Project, a more extensive survey on the hazardous waste generation rate and management techniques for both on-site and off-site waste disposal was conducted in 1985.

The survey consisted of mailing questionnaires to approximately 1,400 hazardous waste generators in Los Angeles County as listed with the State Board of Equalization and/or the SDOHS for hazardous waste generation data in 1983 and 1984.

3. Data From The Manifest System

Manifest data was provided by SDOHS for 1984, 1985 and 1986. 1984 and 1985 computer tape data included only those wastes manifested in Los Angeles County. While 1986 data included information on all the manifest data in the State of California.

4. Other Available Data

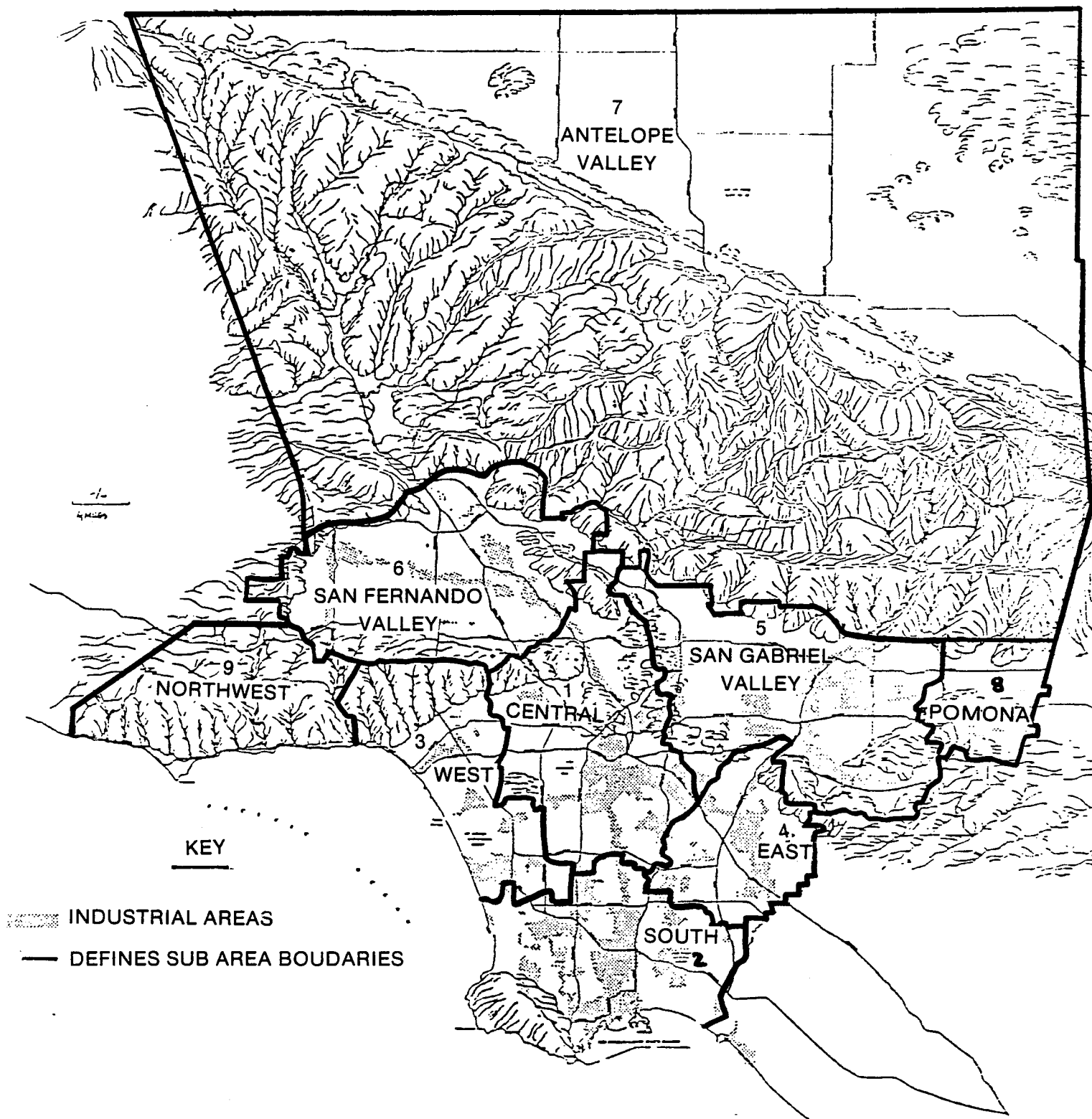
Other information specific to Los Angeles County was obtained from SDOHS. These included the Commercial Facility Capacity Summaries, On-site Facility Utilization and Capacity Summaries, Site Reporting Forms on Old Disposal Sites, Additional Instructions for Data Analysis, and manifest data for route service haulers on halogenated and non-halogenated wastes.

The data contained in this Chapter presents information gathered from both on-site and off-site hazardous waste generators in Los Angeles County. On-site waste refers to waste that is retained on the site of the generator and is stored, recycled, treated and/or disposed of at the site of generation. Off-site waste refers to waste that is shipped off the generator's site to another location for consolidation, recycling, treatment and/or disposal. These data represent the best information available regarding hazardous waste generation in Los Angeles County as of the date of this Plan.

B. Total Waste Quantity

As previously mentioned, the DPW conducted a survey in 1985 to determine the total quantity of hazardous waste generated in Los Angeles County in 1983 and 1984. The data collected was

FIGURE 2-1  
HAZARDOUS WASTE PRODUCTION SUBAREAS AND INDUSTRIAL CENTERS



Source: "Sites for Hazardous Waste Management in Los Angeles County", County Sanitation Districts and the Los Angeles County Department of Public Works, September 1988.

categorized by both location and management technique. The categories of management technique included on-site treatment, off-site treatment and off-site land disposal. Table 2-1 presents a summary of the quantities of waste generated for each subarea as illustrated in Figure 2-1 and the method of management. The result was representative of 61 percent of the hazardous waste generators in the County. This was projected to a 100 percent response rate. Based on the survey's result, it was estimated that Los Angeles County generated approximately 8.7 million and 9.4 million tons of hazardous waste in 1983 and 1984 respectively.

It should be noted that this Plan assumes that the results from the 1984 survey can be extrapolated to estimate and characterize, by waste group, the County's total 1984 hazardous waste stream. The validity of this assumption, although not completely precise, may not be totally unrealistic. Through extrapolation, it was determined that 648,341 tons of waste were managed off-site in 1984, while the manifest data indicated 561,505 tons.

Although the 1984 amount of waste estimated for off-site treatment and disposal was higher, the difference can be attributed to the fact that the quantity reported in the Siting Project excluded waste from the SDOHS Hazardous Waste Information System's (HMIS) Suspense File.

From the data provided in Table 2-1, the following broad conclusions can be drawn:

1. Nearly half the off-site waste production in Los Angeles County is produced in the southern area south of the Artesia Freeway.
2. The combined southern and central areas in Los Angeles County produce nearly two-thirds of the total waste. This area is essentially a central corridor through the metropolitan area of the County.

Until more precise data can be obtained, the information provided is the best that is currently available. As such, it has been assumed that for planning purposes, the County's total hazardous waste generation rate for the 1986 would remain the same as those generated in 1984. Based on the foregoing, the following estimates are provided:

- o Total quantity of hazardous waste for 1986 9,409,925 tons
- o Total quantity of off-site waste for 1986 616,195 tons  
(data provided by the SDOHS)
- o Total quantity of on-site waste for 1986 8,793,730 tons

For the Statewide planning purposes, SDOHS requires that waste quantities for the planning period be presented in the tabulated format as presented in Table A through Q of the Technical Reference Manual (TRM) of the SDOHS' Guidelines. Most of these tables have categorized the waste types by 17 broad "Waste

TABLE 2-1  
LOS ANGELES COUNTY HAZARDOUS WASTE PRODUCTION  
FOR CALENDAR YEARS 1983 AND 1984  
(TONS)

	1983				1984			
	Quantities Treated On-Site	Quantities Treated Off-Site	Quantities Landfilled Off-Site	Total Quantities Generated	Quantities Treated On-Site	Quantities Treated Off-Site	Quantities Landfilled Off-Site	Total Quantities Generated
Central	872,038	2,465	23,755	898,258	1,060,513	2,533	20,358	1,083,404
South	1,730,838	29,263	143,280	1,903,381	1,775,247	70,556	226,651	2,072,454
West	110,844	1,286	23,537	135,667	159,278	1,595	22,964	183,838
East	752,196	227	10,237	762,660	766,207	285	9,155	775,647
San Gabriel Valley	815,813	4,845	15,835	836,493	902,646	5,138	15,635	923,419
San Fernando Valley	379,050	1,612	11,906	392,568	398,301	1,762	10,240	410,303
Antelope Valley	75	23	3,645	3,743	75	23	5,505	5,603
Pomona	340,720	204	5,030	345,954	282,299	274	2,785	285,358
Northwest	0	0	0	0	0	0	29	29
61 Percent Total	5,001,574	39,925	237,225	5,278,724	5,344,566	82,166	313,322	5,740,054
Projected 100 Percent Total	8,199,302	65,451	388,893	8,653,646	8,761,584	134,698	513,643	9,409,925

Source: "Los Angeles County Department of Public Works Hazardous Waste Generators Survey", Los Angeles County Department of Public Works, 1984-1985.

Groups" to represent the 80 "Waste Categories" as shown in the back of the Uniform Hazardous Waste Manifest. This is based on the SDOHS' knowledge of the hazardous waste stream composition in the State of California. However, certain limitations are involved with this methodology. Appendix 2A further discusses this issue.

The TRM also stipulates a "primary" and an "alternative" treatment method to be used in identifying the most suitable method of management for each one of the 17 "waste groups" identified.

Due to these requirements, all applicable tables presented in this Plan follow the State's format.

#### C. On-site Waste

Additionally large generators of hazardous waste often treat, store or recycle hazardous waste on-site. Facilities that were in operation prior to November 1980 and have submitted an application to SDOHS are said to be operating under an "Interim Status Document" (ISD) and are required to submit an annual report to the SDOHS.

Table 2-2 presents that information based on the On-site Facility Utilization and Capacity Summary compiled by SDOHS on these facilities. It should be noted that this table does not represent data for all on-site facilities located in this County. DPW will be updating this information.

It should be noted that a large amount of hazardous waste treated on-site is exempt from the SDOHS permitting process and from reporting requirements. This includes treatment of wastes that are recycled on-site and those that are treated prior to discharge to sewers. Since these wastes do not have to be formally recorded nor is the information sent to the SDOHS, records of on-site treatment quantities are not readily available.

The County Department of Health Services is in the process of licensing all hazardous waste generators in the County. It has been estimated that there are over 25,000 generators in Los Angeles County alone and the licensing is estimated to be 70 percent complete at this time. Once the process is complete, the information will be included to provide an accurate evaluation of on-site waste.

Until the latest data is compiled, the 1984 data was projected using the waste group ratios from the 1986 manifest data. As such, the numbers shown in Table 2-3 are for informational purpose only and are not to be used for the projection of future waste quantities.

TABLE 2-2  
ON-SITE FACILITY TREATMENT/DISPOSAL OF HAZARDOUS WASTE  
FOR CALENDAR YEAR 1986

FACILITY NAME	FACILITY LOCATION AND EPA NUMBER	TREATMENT METHOD	WASTE GROUP	QUANTITY TREATED/DISPOSED (TONS)	CAPACITY OF TREATMENT/DISPOSAL (TONS)	PERCENTAGE OF CAPACITY USED
ACME General Corp.	San Dimas CAD008263907	Aqueous Trt.- Metals/ Neutralization	Metal Containing Liquids	27,342	58,800	47
Aerojet Electro-systems Co.	Azusa CAD079622569	Aqueous Trt.- Metals/ Neutralization	Non-Metallic Inorganic Liquids	2	1,840	0.11
American Cyanamid Co.	Azusa CAD008344228	Aqueous Trt.- Metals/ Neutralization		0	42,000	0
Ashland Chemical Co.	Los Angeles CAD044046274	Incineration	Organic Liquids	1,770	2,520	70
Bermite Div. of Whittaker Corp.	Saugus CAD064573108	Aqueous Trt.- Metals/ Neutralization	Metal Containing Liquid	0.60	252	0.2
Beverly Hospital	Montebello CAD981457625	Aqueous Trt.- Organics	Miscellaneous Waste (Biological waste other than sewage sludge)	109	450	24
Cargill Inc.	Lynwood CAD076180843	Incineration	Dye and Paint Sludges and Resins	2,945	3,290	90
Detrex Corp.	Los Angeles CAD020161642	Solvent Recovery	Halogenated Solvents	288	750	38
Dunn-Edwards Corp.	Vernon CAD008236648	Aqueous Trt.- Metals/ Neutralization(1)	Dye and Paint Sludges and Resins	706	1,310	54
Eaton Corp.- IMS Division	Westlake CAD020159760	Aqueous Trt.- Metals/ Neutralization(2)	Non-Metallic Inorganic Liquids	7,644	-	-
Gaus Ink and Supply Co., Inc.	Los Angeles CAD008330797	Stabilization(3)	Non-Halogenated Solvent	28	-	-
		Aqueous Trt.- Metals/ Neutralization(4)	Non-Halogenated Sludges and Solids	6	-	-
General Dynamics	Pomona CAD008492951	Aqueous Trt.- Metals/ Neutralization(5)	Non-Metallic Inorganic Liquids	7,140	8,820	81
Huck Manufacturing	Carson CAD044429884	Aqueous Trt.- Metals/ Neutralization	Metal Containing Liquids	108,127	249,523	43
Hughes Aircraft Co.- E.D.S.G.	El Segundo CAD00633230	Aqueous Trt.- Metals/ Neutralization	Metal Containing Liquids	239,137	619,315	39
Industrial Service Co.	Los Angeles CAD099452708	Oil Recovery(6)	Waste Oil	1,777	1,777	100
Oakite Products Inc.	Industry CAD050116995	Aqueous Trt.- Metals/ Neutralization	Metal Containing Liquids	445	9,660(7)	10
			Non-Metal Inorganic Liquids	507		

TABLE 2-2 (CONT.)  
ON-SITE FACILITY TREATMENT/DISPOSAL OF HAZARDOUS WASTE  
FOR CALENDAR YEAR 1986

FACILITY NAME	FACILITY LOCATION AND EPA NUMBER	TREATMENT METHOD	WASTE GROUP	QUANTITY TREATED/DISPOSED (TONS)	CAPACITY OF TREATMENT/DISPOSAL (TONS)	PERCENTAGE OF CAPACITY USED
Pete's Metal Reclamation	Los Angeles CAD981685472	Aqueous Trt.- Metals/ Neutralization	Metal Containing Liquids	0.6	4	15
Rockwell International NAAO	Palmdale CAD074144692	Aqueous Trt.- Metals/ Neutralization	Metal Containing Liquids	567	2,100	28
			Non-Metal Inorganic Liquids	21		
Teledyne Cast Products	Pomona CAD076243815	Aqueous Trt.- Metals/ Neutralization	Miscellaneous Wastes(8)	36	162	22
Toyota Auto Body Inc. of Calif.	Long Beach CAD000819839	Aqueous Trt.- Metals/ Neutralization	Miscellaneous Wastes(8)	111,132	184,191	65
			Non-Metallic Inorganic Liquids	8,747		
Trojan(9) Battery Co. (Ann Street)	Santa Fe Springs CAD0800B030	Aqueous Trt.- Metals/ Neutralization	Non-Metallic Inorganic Liquids	23,310	33,600	69
Trojan Battery Co. (Clark St.)	Santa Fe Springs CAD080013030	Aqueous Trt.- Metals/ Neutralization	Non-Metallic Inorganic Liquids	14,700	33,600	44
TRW Electronic Defense Sector	Redondo Beach CAD008324949	Aqueous Trt.- Metals/ Neutralization	Non-Metallic Inorganic Liquids	714	1,118,544	0.11
			Metal Containing Liquids	460		
			Miscellaneous Wastes(8)	15		

Note: Trt.- Treatment  
TSD - Treatment, Storage and Disposal

- (1) State Department of Health Services recommends Incineration as a primary treatment method.
- (2) Facility uses flocculation to treat its waste prior to disposal. No capacity given.
- (3) This waste stream was, and some still are, stabilized by adding vermiculite. Most of the waste is shipped off-site.
- (4) In the past, waste from washer was collected in tanks and shipped off-site. Now, the firm has installed a treatment system separating solids and recycling water. Capacity ranges from 55 tons per year to 109 tons per year.
- (5) Used to pretreat waste water. Facility has submitted request for variance from permit requirements.
- (6) Waste oil was treated by flocculation with discharge to TSD facility.
- (7) Capacity is limited by Los Angeles County sewer permit.
- (8) State Department of Health Services recommends Other Recycling as primary treatment method.
- (9) Facility is awaiting for EPA Identification Number.

The table does not represent data for all on-site facilities located in Los Angeles County.

**TABLE 2-3**  
**ESTIMATION OF 1986 ON-SITE WASTE BY WASTE GROUPS**  
**BASED ON RATIO ESTABLISHED BY 1986 MANIFEST DATA**

<b>WASTE GROUP</b>	<b>1986 QUANTITY (TONS)</b>
WASTE OIL	2,045,821
HALOGENATED SOLVENTS	122,888
NON-HALOGENATED SOLVENTS	584,898
ORGANIC LIQUIDS	122,374
PESTICIDES	8,035
PCBs AND DIOXINS	79,647
OILY SLUDGES	638,071
HALOGENATED ORGANIC SLUDGES AND SOLIDS	29,313
NON-HALOGENATED ORGANIC SLUDGES AND SOLIDS	365,681
DYE AND PAINT SLUDGES AND RESINS	165,387
METAL-CONTAINING LIQUIDS	395,564
CYANIDE AND METAL LIQUIDS	3,354
NON-METALLIC INORGANIC LIQUIDS	653,127
METAL CONTAINING SLUDGES	114,168
NON-METALLIC INORGANIC SLUDGES	55,686
CONTAMINATED SOIL	1,207,056
MISCELLANEOUS WASTES	<u>2,202,660</u>
<b>TOTAL</b>	<b>8,793,730</b>

Source: Los Angeles County Department of Public Works, September 1988  
(For informational purpose only)

#### D. Off-site Waste

The principal source of data about hazardous waste shipped off-site is the Uniform Hazardous Waste Manifest. Each shipment of hazardous wastes is required by law to be accompanied by a manifest. The SDOHS records the manifest information in the HWIS.

The HWIS has two files, the History File and the Suspense File. Manifests which contain apparent errors are stored in the Suspense File. The data presented for 1986 has been compiled from the History File that contains no apparent error as well as acceptable data from the Suspense File.

Using the manifested data and other information from the SDOHS, the following section presents the data in the format stipulated in the TRM of the SDOHS' Guidelines for the preparation of the Hazardous Waste Management Plan [23].

Table 2-4 shows the projected quantities of hazardous waste for 1986 generated in the various industrial centers identified in Figure 2-1. Table 2-5 presents the actual tonnages of off-site wastes manifested under the SDOHS waste group for calendar years 1984, 1985, and 1986. Also included are the primary and alternative management techniques for these waste groups as directed by SDOHS. Overall, the table indicates that approximately 561,505 tons, 666,169 tons, and 616,195 tons of wastes were recorded for off-site management in Los Angeles County for 1984, 1985, and 1986, respectively. Table 2-6 provides a further breakdown of the miscellaneous waste by waste categories for these years.

When comparing the three years of data, the trend indicates that most of the quantities of waste manifested for off-site management were relatively stable and increased steadily for those types of wastes that are currently being disposed of in land. The trend is expected to continue until the ban on land disposal of untreated waste by May 1990.

Additionally, large variations were observed only in those waste groups that had been identified to be either recyclable or for which a treatment process could be relatively easily implemented. For example, there is a sharp decrease in the amount of waste shipped off-site for organic liquids and oily sludges. This can be explained by the increase in recycling efforts.

There is also a dramatic decrease in the quantities of metal containing liquids and most sludge groups. The former can be attributed to the readily available treatment methods such as precipitation and flocculation. The latter is probably due to the increase use of dewatering to reduce management cost. The only two exceptions are halogenated organic sludge and soils which remained stable and metal containing sludges (increased). With the increase in disposal cost, it is anticipated that most of the wastes that can be treated on-site would be treated

TABLE 2-4  
PROJECTED OFF-SITE WASTE PRODUCTION IN SUBAREAS OF LOS ANGELES COUNTY  
FOR CALENDAR YEAR 1986  
(TONS)

<u>SUBAREA</u>	<u>QUANTITY GENERATED</u>
1. Central	108,951
2. South	292,133
3. West	46,121
4. East	46,995
5. San Gabriel Valley	70,772
6. San Fernando Valley	33,266
7. Antelope Valley	5,383
8. Pomona	12,334
9. Northwest	<u>240</u>

TOTAL 616,195

Note: This data was derived by projecting 1986 SDOHS supplied manifest data on the waste distribution obtained in the various subareas for 1984.

Source: "Sites for Hazardous Waste Management in Los Angeles County", County Sanitation Districts of Los Angeles County, Los Angeles County Department of Public Works, September 1985. Quantities updated by the Los Angeles County Department of Public Works based on 1986 data, November 1987.

TABLE 2-5  
QUANTITIES OF HAZARDOUS WASTE SHIPPED OFF-SITE BY GENERATORS IN THE COUNTY

WASTE GROUP	1984	1985	1986	GENERALIZED TREATMENT METHOD (PRIMARY)	ALTERNATIVE TREATMENT METHOD
WASTE OIL	89,529	140,886	143,355	Oil Recovery	Incineration
HALOGENATED SOLVENTS	4,755	8,351	8,611	Solvent Recovery	Incineration
NON-HALOGENATED SOLVENTS	30,404	34,611	40,985	Solvent Recovery	Incineration
ORGANIC LIQUIDS	23,472	30,861	8,575	Other Recycling	Aqueous Treatment - Organics
PESTICIDES	762	304	563	Aqueous Treatment - Organics	Other Recycling
PCBs & DIOXINS	5,134	3,150	5,581	Incineration	- - -
OILY SLUDGES	92,797	89,380	44,711	Oil Recovery	Incineration
HALOGENATED ORGANIC SLUDGES & SOLIDS	2,722	2,024	2,054	Incineration	Solvent Recovery
NON-HALOGENATED ORGANIC SLUDGES & SOLIDS	33,813	36,831	25,624	Incineration	Solvent Recovery
DYE & PAINT SLUDGES & RESINS	17,413	16,082	11,589	Incineration	Other Recycling
METAL-CONTAINING LIQUIDS	57,886	54,351	27,718	Aqueous Treatment - Metals	Other Recycling
CYANIDE & METAL LIQUIDS	113	290	235	Aqueous Treatment - Metals	Other Recycling
NON-METALIC INORGANIC LIQUIDS	58,909	44,776	45,766	Aqueous Treatment - Metals	- - -
METAL CONTAINING SLUDGES	7,671	6,509	8,000	Stabilization	Other Recycling
NON-METALIC INORGANIC SLUDGES	26,819	8,871	3,902	Stabilization	Other Recycling
CONTAMINATED SOIL	41,458	64,476	84,581	Incineration	Other Recycling
MISCELLANEOUS WASTES	<u>67,848</u>	<u>124,416</u>	<u>154,345</u>	- - - <sup>a</sup>	- - - <sup>a</sup>
TOTAL	561,505	666,169	616,195		

Note: <sup>a</sup> For generalization treatment method assigned to Miscellaneous Wastes, see Table 2-6.

Source: Los Angeles County Department of Public Works based on manifest data provided by the State Department of Health Services, September 1988

TABLE 2-6 MISCELLANEOUS WASTES QUANTITIES OF HAZARDOUS WASTE SHIPPED OFF-SITE BY GENERATORS IN THE COUNTY (TONS)						
WASTE GROUP: Miscellaneous Waste						
CALIFORNIA WASTE CATEGORY	1984 MANIFEST DATA	1985 MANIFEST DATA	1986 MANIFEST DATA	GENERALIZED TREATMENT METHOD (PRIMARY)	ALTERNATIVE TREATMENT METHOD	
141 Off-Spec, Aged, or Surplus Inorganics	463	325	303	Stabilization	Other Recycling	
151 Asbestos - Containing Waste	8,001	12,154	19,945	Stabilization		
161 Fluid Catalytic Cracker Waste	8,679	7,482		Stabilization	Other Recycling	
162 Other Spent Catalyst	4,675	4,167	5,921	Stabilization	Other Recycling	
172 Metal Dust	535	1,289	4,895	Other Recycling	Other Recycling	
181 Other Inorganic Solid Waste	35,798	83,285	112,459	Other Recycling	Stabilization	
311 Pharmaceutical Waste	26	14	1	Stabilization	Incineration	
322 Biological Waste other than Sewage Sludge	79	277	90	Aqueous Treatment- Organic	Incineration	
331 Off-Spec, Aged or Surplus Organics	952	572	454	Other Recycling	Stabilization	
511 Empty Pesticide Containers > 30 Gallons	35	10	14	Other Recycling		
512 Other Empty Containers > 30 Gallons	1,049	2,351	2,508	Other Recycling		
513 Other Empty Containers < 30 Gallons	926	1,372	1,578	Other Recycling		
531 Chemical Toilet Waste	0	34	1	Stabilization		
541 Photochemicals/ Photoprocessing Waste	252	645	579	Other Recycling	Stabilization	
551 Laboratory Waste Chemicals	584	570	523	Other Recycling	Stabilization	
561 Detergent and Soap	1,378	712	528	Other Recycling	Stabilization	
581 Gas Scrubber Waste	2,462	6,405		Aqueous Treatment- Metals/Neutralization	Stabilization	
591 Baghouse Waste	1,954	2,709	1,731	Stabilization		
612 Household Wastes	0	43	106	Other Recycling	Stabilization	
TOTAL	67,848	124,416	154,345	TONS		

Source: Based on State Department of Health Services Guidelines, June 1987, and 1984, 1985 and 1986 manifest data for Los Angeles County.

on-site. This emphasis, combined with general waste minimization practices, generally account for the reduction of overall quantities of waste shipped off-site.

Conversely, other than due to expected growth, the increase in waste oil, halogenated solvents, and non-halogenated solvents can be due to increased awareness of the generators in transporting the waste off-site for recycling. The increase in metal containing sludges would most likely be due to residuals remaining from increased on-site treatment. Also, as expected, the increase in contaminated soil can be attributed to the increase in enforcement actions and clean up programs that are in place.

Table 2-7 presents the format for data collection as stipulated in the TRM of the SDOHS Guidelines. This format uses the Standard Industrial Classification (SIC) of the individual generators in order to determine the industrial sources of the County's waste stream. The SIC groups businesses according to the type of activity in which they are engaged and is intended to cover the entire field of economic activity. For example, the "Food and Kindred Products" industry is classified by SIC Group 20 and the "Petroleum Refining and Related Industry" is classified under SIC Group 29. A complete listing of SIC codes can be found in the "Standard Industrial Classification Manual" published by the Federal government's Office of Management and Budget. The format breaks down the industries' waste streams into 17 "Waste Groups" providing information on both the quantity and composition of a particular industry's waste generating habits. Furthermore, the use of this format promotes uniformity and comparability in the presentation and analysis of statistical data collected. This can then be used to develop future Statewide waste management programs and strategies.

Unfortunately, at this time, there is no readily available data for inclusion in Table 2-7. However, the County Department of Health Service is currently implementing a hazardous waste generator licensing program. As part of the licensing process, individual generators are required to provide their SIC Group. Upon completion of the program, the necessary data will be used for incorporation in the next update of the Plan.

Table 2-8 shows the top 32 generators for calendar years 1985 and 1986 manifested wastes. Of the total wastes that were manifested off-site (Table 2-9), 183,573 tons (28 percent) and 165,624 tons (27 percent) were managed in Los Angeles County for the same years, respectively.

Last but not least, it is important that judgment be exercised in evaluating data presented in Tables 2-4 through 2-9 and that there are limitations to the accuracy of the records. Overall, the following anomalies are noted:

1. The manifest system is double counting those wastes that are transported to treatment or disposal facilities via a transfer

TABLE 2-7  
MAJOR INDUSTRY GROUPS OF WASTE GENERATED AND SHIPPED OFF-SITE  
IN CURRENT YEAR, INCLUDING SMALL QUANTITY GENERATORS  
(TONS)\*

WASTE GROUP	SIC 20 ON-SITE	SIC 20 OFF-SITE	SIC 21 ON-SITE	SIC 21 OFF-SITE	...OTHER
WASTE OIL	---	---	---	---	
HALOGENATED SOLVENTS	---	---	---	---	
NON-HALOGENATED SOLVENTS	---	---	---	---	
ORGANIC LIQUIDS	---	---	---	---	
PESTICIDES	---	---	---	---	
PCBS & DIOXINS	---	---	---	---	
OILY SLUDGES	---	---	---	---	
HALOGENATED ORGANIC SLUDGES & SOLIDS	---	---	---	---	
NON-HALOGENATED ORGANIC SLUDGES & SOLIDS	---	---	---	---	
DYE & PAINT SLUDGES & RESINS	---	---	---	---	
METAL-CONTAINING LIQUIDS	---	---	---	---	
CYANIDE & METAL LIQUIDS	---	---	---	---	
NON-METALLIC INORGANIC LIQUIDS	---	---	---	---	
METAL-CONTAINING SLUDGES	---	---	---	---	
NON-METALLIC INORGANIC SLUDGES	---	---	---	---	
CONTAMINATED SOIL	---	---	---	---	
MISCELLANEOUS WASTES	---	---	---	---	

Note: \* This table shows the format for data presentation to be used in the Plan update. See text for explanation.

Source: California Department of Health Services' TRM Manual of the Guidelines for the preparation of Hazardous Waste Management Plan, June 30, 1987.

TABLE 2-8  
MAJOR GENERATORS OF OFF-SITE HAZARDOUS WASTE IN LOS ANGELES COUNTY  
FOR CALENDAR YEARS 1985 AND 1986

1985	1986
TOP 32 GENERATORS IN LOS ANGELES COUNTY	TOP 32 GENERATORS IN LOS ANGELES COUNTY
TOTAL (TONS)*	TOTAL (TONS)*
ARCO PETROLEUM PRODUCTS CO. - CARSON	ARCO PETROLEUM PRODUCTS CO. - CARSON
BETHLEHEM STEEL CORP LOS ANGELES PLANT - VERNON	ARMCO STEEL CORPORATION - TORRANCE
CHEVRON USA INC., INGLEWOOD PRODUCT AREA - INGLEWOOD	ASBURY OIL COMPANY - GARDENA
CHEVRON USA INC-EL SEGUNDO REFINERY - EL SEGUNDO	CHEVRON USA INC., EL SEGUNDO REFINERY - EL SEGUNDO
CLEAN STEEL, INC. - LONG BEACH	CLEAN STEEL, INC. - LONG BEACH
DOUGLAS AIRCRAFT COMPANY - LONG BEACH	DOUGLAS AIRCRAFT COMPANY - LONG BEACH
DOUGLAS AIRCRAFT COMPANY - TORRANCE	DOUGLAS AIRCRAFT COMPANY - TORRANCE
GENERAL DYNAMICS CORP. POMONA DIV. - POMONA	GM ASSEMBLY DIVISION, GMC - SOUTH GATE
GENERAL MOTORS VAN NUYS ASSEMBLY PLAN - VAN NUYS	GOULD INC., METALS/DIV. L.A. SMELTER - LOS ANGELES
GOLDEN EAGLE REFINING COMPANY, INC. - CARSON	HUGO NEU-PROLER COMPANY - TERMINAL ISLAND**
GOLDEN WEST REFINING CO., INC. - SANTA FE SPRINGS	INTERNATIONAL LIGHT METAL CORPORATION - TORRANCE
GOULD INC., METALS/DIV., LA SMELTER - LOS ANGELES	LONG BEACH NAVAL SHIPYARD, U.S. NAVY - LONG BEACH
HUGO NEU-PROLER CO. - TERMINAL ISLAND**	MOBIL OIL CORPORATION (VARIOUS SERVICE STATIONS) - L.A.
INTERNATIONAL LIGHT METAL CORP. - TORRANCE	MOBIL OIL CORPORATION - TORRANCE
LONG BEACH NAVAL SHIPYARD, U.S. NAVY - LONG BEACH	MOBIL OIL CORPORATION - TORRANCE
MOBIL OIL CORPORATION - TORRANCE	NORRIS INDUSTRIES, INC. - LOS ANGELES
NORRIS INDUSTRIES, INC. - LOS ANGELES	NORTHROP CORP. - AIRCRAFT DIV., EAST COMPL. - HAWTHORNE
NORTHROP CORP-AIRCRAFT DIV. EAST COMPL. - HAWTHORNE	OIL & SOLVENT PROCESS CO. - AZUSA
OIL & SOLVENT PROCESS CO. - AZUSA	OPERATING INDUSTRIES, INC. - MONTEREY PARK
OPERATING INDUSTRIES, INC. - TORRANCE	PPG INDUSTRIES, INC. - TORRANCE
ROCKWELL INTERNATIONAL CORP-EL SEGUNDO	ROCKWELL INTERNATIONAL CORPORATION - EL SEGUNDO
RUTHERFORD PACIFIC - LONG BEACH	RUTHERFORD PACIFIC - CARSON
SANTA FE ENERGY CO. - SANTA FE SPRINGS	RUTHERFORD PACIFIC - LONG BEACH
SHIELDS OIL CO., INC. - POMONA	SAFETY KLEEN CORPORATION - SYLMAR
TEXACO USA A DIVISION OF TEXACO, INC. - CARSON	SAFETY KLEEN CORPORATION - LOS ANGELES
TEXACO USA REFINERY DIV. OF TEXACO, INC. - WILMINGTON**	SHELL OIL COMPANY/WILMINGTON MFG COMPLEX - CARSON
TODD PACIFIC SHIPYARDS CORP. - SAN PEDRO**	SHIELDS OIL COMPANY, INC. - POMONA
UNION OIL CO. OF CALIFORNIA - WILMINGTON**	SOUTHWEST MARINE, INC. - TERMINAL ISLAND
UNION PACIFIC RESOURCES CO. (UPRC) - WILMINGTON**	TEXACO USA A DIVISION OF TEXACO, INC. - CARSON
UNOCAL - LOS ANGELES	TEXACO USA REFINERY DIV. OF TEXACO, INC. - WILMINGTON**
WH TANK LINES, INC. - SIGNAL HILL	TODD PACIFIC SHIPYARDS CORPORATION - SAN PEDRO**
	UNION OIL COMPANY OF CALIFORNIA - WILMINGTON**
	UNION PACIFIC RESOURCES CO. (UPRC) - WILMINGTON**
	W H TANK LINES, INC. - SIGNAL HILL
	1X WILSHIRE WESTWOOD AVENUE - LOS ANGELES
TOTAL 371,738	TOTAL 339,278

Note: \*Numbers have been rounded off to the nearest whole number.

\*\*City of Los Angeles

Source: Los Angeles County Department of Public Works, based on manifest data provided by the State Department of Health Services, September 1988.

TABLE 2-9  
OFF-SITE HAZARDOUS WASTE GENERATED IN AND MANAGED  
BY FACILITIES IN LOS ANGELES COUNTY  
FOR CALENDAR YEARS 1985 AND 1986  
(TONS)

WASTE GROUP/ WASTE CATEGORIES	1985	1986
WASTE OIL	90,686	96,907
HALOGENATED SOLVENTS	3,428	3,219
NON-HALOGENATED SOLVENTS	15,438	19,540
ORGANIC LIQUIDS	1,792	1,895
PESTICIDES	18	--
PCBs & DIOXINS	242	320
OILY SLUDGES	53,614	21,785
HALOGENATED ORGANIC SLUDGES & SOLIDS	31	92
NON-HALOGENATED ORGANIC SLUDGES & SOLIDS	1,944	1,385
DYE & PAINT SLUDGES & RESINS	1,013	627
METAL CONTAINING LIQUIDS	2,151	1,754
CYANIDE & METAL LIQUIDS	--	6
NON-METALLIC INORGANIC LIQUIDS	1,341	1,656
METAL CONTAINING SLUDGES	8	11
NON-METALLIC INORGAIC SULDGES	240	41
CONTAMINATED SOIL	60	2
MISCELLANEOUS WASTES:		
141 Off-Spec, Aged, or Surplus Inorganic	19	15
151 Asbestos-Containing Wastes	10,972	15,369
161 Fluid Catalytic Cracker Waste	--	--
162 Other Spent Catalyst	--	--
172 Metal Dust	1	3
181 Other Inorganic Solid Waste	149	352
311 Pharmaceutical Waste	2	--
322 Biological Waste other than Sewage Sludge	--	10
331 Off-Spec, Aged or Surplus Organics	19	101
511 Empty Pesticide Containers > 30 Gallons	--	--
512 Other Empty Containers > 30 Gallons	37	29
513 Other Empty Containers < 30 Gallons	1	3
531 Chemical Toilet Waste	--	--
541 Photochemicals/Photoprocessing Waste	338	365
551 Laboratory Waste Chemicals	28	18
561 Detergent and Soap	1	--
581 Gas Scrubber Waste	--	21
591 Baghouse Waste	--	59
612 Household Waste	--	39
MISCELLANEOUS WASTES TOTAL	11,567	16,384
GRAND TOTAL	183,573	165,624

Source: Los Angeles County Department of Public Works, based on data provided by the State Department of Health Services, September 1988.

station, storage facility or if the waste is reshipped to another facility.

2. Quantities need to be corrected for route service operations (also known as milk runs) as these haulers typically collect small quantities of waste from a large number of generators. Under this procedure the route service appears on the manifest as both the generator and transporter, and records only the totals of each waste type collected per day per truck on the manifest. As a result, waste collected in various counties along the route will appear in the HWIS as generated in the County where the route service company office is located. To correct this error, the manifest waste was adjusted by adding in those wastes that were manifested under another County but actually collected in this County, and subtracting those wastes collected in another County by route service haulers located in Los Angeles County. These wastes are adjusted in Chapter 5, based on information from SDOHS, when assessing multi-year planning needs. However, it should be recognized that these factors do have an impact on future needs and will be assessed and included in the next update of the Plan.
3. Lastly, it is recognized that there may be a considerable variation (quality) in the recording of the manifest data as they are often completed by non-technical personnel not familiar with its purpose nor possessing the knowledge to accurately complete the forms.

#### E. Imported and Exported Wastes

Table 2-10 presents an accounting of the type and volume of waste imported into the County for calendar year 1986. Table 2-11 presents the same for the waste exported out of the County. Also included in the tables are the counties of origin and destination of the wastes concerned. It has been estimated that Los Angeles County imported approximately 126,361 tons and exported 450,571 tons of hazardous waste for 1986, of which 7,106 tons (1.6 percent) were destined for out of State and 149,669 (33.2 percent) tons had destinations unknown.

It should be noted at this time that there is no formal agreement between Los Angeles County and surrounding counties to accept each other's wastes. The issue of fair share is under study and is to be addressed by the Regional Hazardous Waste Management Plan which is under preparation by the Southern California Hazardous Waste Management Authority. However, it should be noted that under current Federal and State law, the agreements between governmental jurisdictions are not binding or enforceable upon private industry operations and upon the movement of wastes between jurisdictional boundaries.

#### F. Designated and Nonhazardous Wastes Going to Hazardous Waste Disposal Facilities

The State Water Resources Control Board requires that designated waste be disposed of in Class I or Class II land disposal

TABLE 2-10  
HAZARDOUS WASTE IMPORTED TO LOS ANGELES COUNTY  
FOR CALENDAR YEAR 1986  
(TONS)

WASTE GROUP	ALAMEDA	BUTTE	CONTRA COSTA	COLUSA	FRESNO	HUMBOLT	IMPERIAL	INYO	KERN	KINGS	LAKE	LASSEN	MADERA	MENDOCINO	MERCED	MONTEREY	NEVADA	ORANGE	PLACER	RIVERSIDE
WASTE OIL	6,188	1,659	4,366	---	3,368	1	1,860	---	1,300	---	7	---	---	---	1,750	19	---	9,371	13	1,785
HALOGENATED SOLVENTS	8	---	1	---	---	---	---	---	3	---	---	---	2	---	---	---	---	672	---	42
NON-HALOGENATED SOLVENTS	205	---	---	---	15	---	---	---	45	---	---	---	2	---	4	---	---	2,156	1	56
ORGANIC LIQUIDS	---	---	---	---	1,111	---	2	---	39	---	---	---	---	19	---	---	---	226	---	16
PESTICIDES	---	---	---	---	20	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
PCBs & DIOXINS	80	---	26	10	---	---	---	---	37	---	---	---	---	---	---	---	---	60	---	14
OILY SLUDGES	---	---	1,936	---	9	---	0.2*	---	61	---	---	---	---	---	---	---	---	1,895	---	91
HALOGENATED ORGANIC SLUDGES & SOLIDS	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	23	---	---
NON-HALOGENATED ORGANIC SLUDGES & SOLIDS	17	---	---	---	18	---	76	---	---	6	---	---	---	---	---	---	---	370	---	47
DYE & PAINT SLUDGES & RESINS	0.41*	---	1	---	---	---	---	---	---	16	---	---	---	---	---	---	---	139	---	12
METAL-CONTAINING LIQUIDS	---	---	47	---	---	---	---	---	2	2	---	---	---	---	---	---	---	777	---	5
CYANIDE & METAL LIQUIDS	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	2	---	---
NON-METALLIC INORGANIC LIQUIDS	---	0.22*	34	---	---	---	---	---	1	---	---	---	---	---	---	---	---	1,771	---	71
METAL-CONTAINING SLUDGES	---	---	---	---	---	---	---	---	---	3	---	---	---	---	---	---	---	---	---	---
NON-METALLIC INORGANIC SLUDGES	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1	---	---
CONTAMINATED SOIL	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
MISCELLANEOUS WASTES	126	---	---	---	155	---	34	11	269	---	0.49*	---	---	5	---	---	---	8,086	---	400
TOTAL	6,624	1,659	6,410	10	4,696	1	1,972	11	1,757	27	7	0	4	26	1,754	19	4	22,657	14	2,639
% OF WASTE	5.2	1.3	5.1	0.1	3.7	0.1	1.6	0.1	1.4	0.1	0.1	0.1	0.1	0.1	1.4	0.1	0.1	17.8	0.1	2.0

Note: \* Number has not been rounded off so as to show actual waste quantity manifested, however, all quantities have been adjusted in the final grand total.  
 \*\* Less than 0.05%  
 1 Manifests containing apparent errors that are minor such as incorrect EPA number does not affect the quantity of the data.

Source: Los Angeles County Department of Public Works based on manifest data provided by the State Department of Health Services, September 1988

TABLE 2-10 (CONT.)  
HAZARDOUS WASTE IMPORTED TO LOS ANGELES COUNTY  
FOR CALENDAR YEAR 1986  
(TONS)

WASTE GROUP	SACRAMENTO	BERNARDINO	DIEGO	SAN FRANCISCO	SAN JOAQUIN	SAN LUIS OBISPO	SAN MATEO	SANTA BARBARA	SANTA CLARA	SANTA CRUZ	SOLANO	SONOMA	STANISLAUD	SUTTER	TULARE	VENTURA	YOLO	YUBA	UNKNOWN	SUSPENSE FILE
WASTE OIL	303	9,743	14,729	49	26	636	1,134	90	3,806	897	77	205	2,893	---	50	478	2,791	8	3,360	10,256
HALOGENATED SOLVENTS	2	45	52	---	---	---	---	---	114	---	---	---	---	---	---	90	0.20*	---	379	484
NON-HALOGENATED SOLVENTS	135	775	417	---	---	4	---	492	32	---	6	---	6	---	4	127	1	---	413	2,491
ORGANIC LIQUIDS	---	251	78	0.04*	21	---	11	2	0.01*	---	---	---	---	---	---	7	---	---	5	767
PESTICIDES	---	---	---	---	---	---	---	10	---	---	---	---	---	---	---	---	---	---	---	---
PCBs & DIOXINS	7	23	164	2	1	3	3	19	24	---	21	---	7	---	2	3	---	5	---	56
OILY SLUDGES	15	295	13	0.02*	8	---	---	4	0.01*	---	---	---	---	---	---	17	9	---	118	2,255
HALOGENATED ORGANIC SLUDGES & SOLIDS	---	1	20	---	---	---	---	0.22*	---	---	---	---	---	---	---	0.45*	---	---	---	1
NON-HALOGENATED ORGANIC SLUDGES & SOLIDS	3	83	127	1	20	80	2	---	13	---	---	5	---	---	0.39*	23	---	---	161	507
DYE & PAINT SLUDGES & RESINS	0.22*	20	85	0.42*	---	---	---	0.08*	---	---	---	---	---	---	---	35	---	---	21	170
METAL-CONTAINING LIQUIDS	6	57	297	---	440	---	1	---	566	---	---	---	---	---	23	23	---	---	797	934
CYANIDE & METAL LIQUIDS	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	8
NON-METALLIC INORGANIC LIQUIDS	13	72	386	---	35	---	1	0.38*	1,704	3	---	---	---	---	33	20	---	---	11	1,128
METAL CONTAINING SLUDGES	---	4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.06*
NON-METALLIC INORGANIC SLUDGES	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	37
CONTAMINATED SOIL	---	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.05*
MISCELLANEOUS WASTES	362	1,284	1,178	0.52*	3	---	8	35	8	1	---	---	---	0.05*	0.25*	345	---	---	59	3,205
TOTAL	846	12,254	17,546	52	554	723	1,452	750	6,267	901	104	210	2,806	8	112	1,168	2,801	13	5,314	22,299
% OF WASTE	0.7	9.9	13.9	0.04	0.4	0.6	1.1	0.6	5.0	0.7	0.1	0.2	2.3	0.1	0.1	0.9	2.2	0.01	22.6	17.6
																			GRAND TOTAL	126,361

Note: \* Number has not been rounded off so as to show actual waste quantity manifested, however, all quantities have been adjusted in the final grand total.  
 \*\* Less than 0.05%  
 1 Manifests containing apparent errors that are minor such as incorrect EPA number does not affect the quantity of the data.

Source: Los Angeles County Department of Public Works based on manifest data provided by the State Department of Health Services, September 1988

TABLE 2-11  
TOTAL MANIFESTED HAZARDOUS WASTE EXPORTED FROM  
LOS ANGELES COUNTY FOR CALENDAR YEAR 1986  
(TONS)

WASTE GROUP	ALAMEDA	CONTRA COSTA	FRESNO	IMPERIAL	KERN	KINGS	ORANGE	RIVERSIDE	SACRAMENTO	SAN BERNARDINO	SAN DIEGO	SAN FRANCISCO	SAN MATEO	SANTA BARBARA	SANTA CLARA	SOLANO	STANISLAUS	TULARE	(OUT OF STATE)	SUSPENSE FILE
WASTE OIL	---	1,260	---	---	2,394	4,052	4	2	0.22*	490	4,692	12	56	2,015	1	---	28	---	27	31,415
HALOGENATED SOLVENTS	3	745	283	---	---	180	9	---	---	---	70	---	968	1,975	0.22	---	---	---	9	1,176
NON-HALOGENATED SOLVENTS	---	216	4,638	---	11,113	625	---	---	---	---	186	---	1,295	1,007	1	---	---	---	9	2,323
ORGANIC LIQUIDS	---	1,045	---	138	1,355	1,204	---	---	0	0.01*	247	---	84	286	0.45	---	---	---	---	2,330
PESTICIDES	---	---	---	---	---	456	---	---	---	---	0.07*	---	---	101	---	---	---	---	---	6
PCBs & DIOXINS	---	---	---	---	---	2,299	197	---	177	2	---	---	---	45	---	---	---	---	87	2,454
OILY SLUDGES	---	808	---	2,110	1,419	9,637	---	---	---	17	244	---	---	6,675	---	29	---	---	36	2,950
HALOGENATED ORGANIC SLUDGES & SOLIDS	---	69	---	---	108	1,241	11	---	---	1	0.31*	---	---	303	---	---	---	---	---	228
NON-HALOGENATED ORGANIC SLUDGES & SOLIDS	---	435	---	1,433	9,135	6,475	---	---	---	---	280	---	174	3,995	---	---	---	---	---	2,312
DYE & PAINT SLUDGES & RESINS	---	411	---	6	255	3,966	---	---	---	---	133	---	---	5,404	---	---	---	---	---	787
METAL-CONTAINING LIQUIDS	---	2,978	---	730	8,614	1,777	8	---	---	881	67	---	---	8,254	5	---	---	---	---	2,650
CYANIDE & METAL LIQUIDS	---	14	---	---	---	46	1	---	---	---	---	---	---	16	---	---	---	---	---	152
NON-METALLIC INORGANIC LIQUIDS	953	2,107	---	8,950	18,552	1,390	54	---	0.12*	216	1,671	---	65	6,803	1	---	---	---	---	3,350
METAL-CONTAINING SLUDGES	---	117	9	---	---	4,132	---	---	---	---	88	---	---	2,065	---	---	---	---	---	1,578
NON-METALLIC INORGANIC SLUDGES	---	90	---	31	2,297	467	---	---	---	---	---	---	---	706	---	---	---	15	---	254
CONTAMINATED SOIL	---	---	40	14,029	3,319	48,931	---	---	---	---	---	---	---	11,297	---	25	---	---	---	6,911
MISCELLANEOUS WASTES	361	707	---	203	10,760	18,528	0.08*	---	9	0.38*	107	---	---	10,560	8	979	---	49	6,923	88,773
TOTAL	1,317	11,052	4,940	27,620	69,321	105,306	284	2	197	1,807	7,788	12	2,640	60,573	17	1,033	28	49	7,106	149,669
% OF WASTE	0.3	2.5	1.1	6.1	15.4	23.4	0.1	**	**	0.4	1.7	**	0.6	13.4	**	0.2	**	**	1.6	33.2
																				GRAND TOTAL 450,571

Note: \* Quantity has been rounded off so as to show actual waste quantity manifested  
 \*\* The Standard Industrial Classification unknown.  
 1 Asbestos (Quantities updated by BKK Corporation)

Source: Los Angeles County Department of Public Works, based on manifest data provided by the  
 State Department of Health Services, September 1988

facilities. Due to the lack of a Class II land disposal facilities in California, much of the designated waste generated must be disposed of at more costly Class I land disposal facilities, the available capacity of which is rapidly diminishing. These wastes include oil field, geothermal, and refinery wastes.

Non-hazardous waste is also taken to Class I and Class II land disposal facilities because the generators want to ensure that their wastes are safely managed. A common example is non-contaminated soil from storage tank removal operations which is being shipped by the owners to Class I and/or Class II landfills.

To evaluate the quantity of nonhazardous waste and designated waste being disposed of at Class I and II landfills, a questionnaire was mailed by the DPW in the Spring of 1988 to all surrounding land disposal facilities requesting the necessary information. Unfortunately, even after several inquiries, no response was received.

#### G. Wastes From Small Generators and Households

Chapters 12 and 13 provide an analysis of hazardous wastes being generated by small generators (commercial and industrial) and households. Based on the methodology used, it is estimated that approximately 260,497 tons of waste are generated by small generators annually and approximately 25,915 tons of hazardous waste are produced by households per year in this County. Chapters 12 and 13 also identify these wastes by waste group.

#### H. Wastes From Contaminated Sites Including Contaminated Soil

It is estimated in Chapter 11, Inactive Hazardous Waste Sites and Contaminated Sites, that approximately 142,600 tons of hazardous waste can be generated annually from cleanup activities for the next 10 years. Of these, 135,000 tons has been estimated to be from contaminated soil of underground tanks. The rest came from estimates available on the State Department of Health Services Hazardous Substance Cleanup Bond Expenditure Plan sites. It should be noted that the amount may substantially increase as more clean-ups are scheduled. However, for the purpose of this Plan and until more data is available, the quantity of wastes from clean-up activities is projected to remain constant for the planning period. Also, it has been reported that 8,001 tons, 12,154 tons, and 19,663 tons of asbestos-containing waste and 41,458 tons, 64,476 tons, and 84,581 tons of contaminated soil have been manifested for calendar years 1984, 1985, and 1986 respectively.

#### I. Overall Pattern of Waste Generation

From the results of a survey conducted by DPW in 1985, it is estimated that approximately 93 percent of all hazardous waste generated in the County in 1984 was managed on-site and the

remaining 7 percent was sent off-site for consolidation, storage, recycling, treatment and disposal during 1984.

As shown in Table 2-12, a very small number of off-site hazardous waste management facilities are responsible for the management of those hazardous wastes that are shipped off-site for management in Los Angeles County. From the database provided for 1986, it has been found that 38 companies account for 99 percent of the off-site waste managed in Los Angeles County for 1986 (289,579 tons). Table 2-12 lists these companies and their management techniques as reported to SDOHS and the major Standard Industrial Code (SIC) that they are classified under.

### III. FUTURE HAZARDOUS WASTE GENERATION

Hazardous waste generation in Los Angeles County will not remain static. Overall economic growth, waste reduction, process changes, new Federal and State regulations, the cleanup of uncontrolled hazardous waste sites and contaminated sites, and changes in the availability of off-site management facilities will all have a profound effect on the quantities of waste generated and handled both on-site and off-site in Los Angeles County.

The following factors will tend to either increase or decrease the quantity of hazardous wastes covered under Federal and State regulations.

1. The designation and the classification of new waste streams as hazardous wastes may substantially increase the need for their management.
2. The 1986 Amendments of the Resource Conservation and Recovery Act (RCRA) requiring generators to certify that they have taken every effort to minimize the amount and toxicity of waste generated will place emphasis on minimizing and treating waste prior to final disposal.
3. New manufacturing processes producing hazardous waste may introduce additional quantities to the waste stream.
4. Identification of "new" abandoned or closed waste sites, (hazardous and nonhazardous) as well as leaking underground tank sites currently not known, and subsequent site characterization/hazard evaluation may result in the identification of large quantities of hazardous waste requiring additional measures for containment, treatment and/or disposal (Chapter 11, Inactive Hazardous Waste Sites).
5. As new waste is brought into the system, the capacity for disposal will decrease if no additional treatment and disposal facilities are sited. This will increase disposal costs and serve as an impetus to reduce the quantities of hazardous waste being generated by industry.

TABLE 2-12  
OFF-SITE HAZARDOUS WASTE MANAGEMENT TECHNIQUES IN LOS ANGELES COUNTY FOR CALENDAR YEAR 1986  
(TONS)\*

FACILITY NAME/STANDARD INDUSTRIAL CLASSIFICATION	D79-Inj. Well	D80-Landfill	D81-Land Applic.	D83-Surface Impound.	D99-Other	H01-Transfer Station	R01-Recycle	T01-Tank Treatment	T03-Incin.	T31-Neutral.	T47-Filtrat.	Unk Unknown	Facility Total Tons in 1986
Demenno/Kerdoon/4953	0.62		0.60	3.75		215.44	108,442.45	20.85	34.80			1,364.63	110,083.14
Mcauley 011/5170	0.27	6.25			0.77	50.67	41,370.61					2,824.72	44,253.29
BKK/1**		26,016.08										649.72	26,665.8
O11 & Solvent Process Co./4953		25.43	38.36		5,274.15		12,722.41	5.83			2.08	176.51	18,210.15
Crosby & Overton/8999					8.33		301.20	6.25				12,801.46	13,155.60
Rutherford Pacific-Carson/**	7.92				7,356.59	5.19	8,748.71					3,456.80	12,218.62
Phillips Bros. Chemicals/**						18.81	918.80					996.56	9,931.92
Dico/5190						55.07	252.28	50.04		591.04	2.08	2,092.49	7,547.86
W. H. Tank Lines/**						6,161.77	5,436.86					272.08	6,686.13
Triple J-Chem Tech/2860						5.06						247.80	5,689.72
Safety Kleen-Los Angeles 2/**						4,827.20	0.07					193.78	5,021.05
O11 Process/**						25.83	1,750.32	140.70	18.76	6.25		1,732.24	4,059.53
Talley Bros., Inc./2992		30.55	16.26	196.86	141.76		3,227.87					3.18	3,231.05
Leach 011/**							2,650.40					13.05	2,663.45
Chevron Refinery-EI Segundo/2911			2,598.73				2,210.93					14.71	2,613.44
Shell 011-Wilmington/2911			0.90		8.02		976.82		428.86			8.34	2,219.27
Rho-Chem Corp./2800							126.71					432.78	1,847.38
Safety Kleen-Sylmar 2/**						1,598.46						68.33	1,793.50
Rutherford Pacific-Long Beach/**						1,361.64	1,511.85					85.54	1,597.39
Safety Kleen-EI Monte/66172						808.23	42.23					42.61	1,446.48
R&R Ind. Waste Haulers/4789												202.22	1,023.02
Industrial Service Co./5116		12.57					4.79					942.08	946.87
Plastic Materials Inc./**							912.41					1.14	913.55
Omega Chemical/2860							597.78					175.33	874.45
North American Environmental/**					90.96	10.38						15.38	815.33
Roehl Disposal-Wilmington/9999		49.00			39.45	799.95	629.08					799.50	799.50
Olin Hunt Specialty Prod./2899						2.86						45.74	636.08
Stauffer Chemical/2819						590.34	554.43		14.17			1.50	570.10
Davis Chemical/**							505.54					9.59	515.13
Gould Metals/3341							290.61					7.40	298.01
TSM/**							288.89					1.12	290.01
American Labs Inc./7399						0.60	157.41					1.20	159.21
Lockheed Burbank/3721							154.55					156.42	156.42
TSM Recovery & Recycling #1/**							141.32					1.30	141.32
Pet. Recycling Inc.-Sig. H111/5170							0.20						141.32
Northrop-Hawthorne/3721							102.47					130.69	130.69
S. Rose Coopersage/3490							101.94					8.44	110.91
Detrex Chemical/2819												5.35	107.29
TREATMENT TYPE TOTAL TONS IN 1986	8.81	26,139.88	2,654.85	200.61	12,920.03	16,537.50	200,525.22	223.67	505.35	597.29	4.16	29,261.34	289,578.71

DISPOSAL METHOD CODES

D79 - Injection Well  
D80 - Landfill  
D81 - Land Application  
D83 - Surface Impoundment  
D99 - Other  
H01 - Transfer Station  
R01 - Recycle  
T01 - Tank Treatment  
T03 - Incineration  
T31 - Neutralization  
T47 - Filtration  
UNK - Unknown

Note: \* Quantity has been rounded off so as to show actual waste quantity manifested

\*\* The Standard Industrial Classification unknown.

1 Asbestos (Quantities updated by BKK Corporation)

2 Safety Kleen - Los Alamitos located in Orange County is not included. However 80 percent of the waste collected are from the surrounding Los Angeles area. 1,417.52 tons were recorded for calendar year 1986.

Source: Los Angeles County Department of Public Works, based on manifest data provided by the State Department of Health Services, September 1988

6. Government, through policies or regulations, can set the direction towards the reduction and elimination of hazardous waste by providing: (1) economic disincentives including taxes and/or sanctions for waste generation; (2) economic incentives for recycling and waste reduction; and (3) effective enforcement and monitoring leading to civil and/or criminal penalties for illegal dumping.
7. Consumer consumption patterns will significantly affect generated waste quantities.
8. National studies [18] have shown that the waste generation pattern exhibits a direct relationship with economic growth or decline. Certain industries will grow at a faster pace, while others may experience little or no growth. Actual differences in industry growth rates may change the mix of hazardous waste generated.
9. Prohibition on land disposal of untreated hazardous waste by May 1990 (Chapter 1509 of the 1986 State Statutes, SB 1500, Roberti) is expected to affect management techniques currently practiced (mainly direct disposal). The manufacturers will be encouraged to reduce, recycle, and reuse prior to treatment and/or disposal of the generated waste.
10. The Plan's goal is to minimize the generation and maximize the recycling of hazardous waste to the fullest extent possible at the point of generation. The implementation of rigorous hazardous waste minimization as advocated in the Plan will have an impact in reducing the generation of hazardous waste and quantities of hazardous waste that are shipped off-site.

It is difficult to draw broad conclusions as to the direction the trend that hazardous waste generation might take. However, from the factors listed above, it is projected that on-site source reduction, recycling and treatment of hazardous waste together with other waste minimization options will increase in the next few years thus reducing off-site waste. A major opposing force will be growth and stricter regulations which will increase the overall generation of waste produced. As such, the projected quantities of hazardous waste are, at best, an estimate of the state of the economy; government regulation and enforcement; public awareness of the correlation between waste generation and product consumption; and changes in manufacturing processes and recovery productions.

Projections of hazardous waste quantities at the end of the short, medium and long-term planning periods for the following categories: off-site waste, on-site waste, small (commercial and industrial) generator waste, household hazardous waste and contaminated waste are contained in Appendix 2A. A summary of the projected quantities is provided in Table 2-13. Imported wastes have not been projected as it is the goal of this Plan that Los Angeles County will be responsible for the total

**TABLE 2-13**  
**SUMMARY OF CURRENT AND PROJECTED WASTE**  
**QUANTITIES FOR LOS ANGELES COUNTY**  
**(TONS) \***

	1986	1990	1995	2000	2005
A. Off-Site Wasted <sup>a</sup>	616,195	676,500	764,200	889,800	1,036,100
B. On-Site Wasted <sup>a</sup>	8,793,700	9,653,700	10,906,300	12,698,700	14,785,700
C. Small Generator (Commercial & Industrial) Wasted <sup>a</sup>	260,497	286,000	323,100	376,200	438,000
D. Household Hazardous Waste <sup>b</sup>	25,915	27,000	28,000	28,900	29,500
E. Waste from Contaminated Sites Including Contaminated Soil	84,451	142,600	142,600	142,600	142,600

**Note:**     \* Projected waste quantities are rounded-off to the nearest hundred.  
               Also, as directed by the State Department of Health Services, the  
               quantities do not include impacts of waste minimization efforts.

<sup>a</sup> Based on employment growth factors in Table 2A-3, Appendix 2A.

<sup>b</sup> Based on population growth factors in Table 2A-3, Appendix 2A.

<sup>c</sup> Based on cleanup waste projection, Chapter 11

**Source:** Los Angeles County Department of Public Works, September 1988

management of hazardous waste generated in the County and that other counties will also be responsible for the management of their respective wastes. Additionally, as directed by the SDOHS, projected waste quantities shown in Table 2-13 do not consider impact of waste minimization efforts as discussed in Appendix 2A.

It should be noted that based on the limited amount of documented information on hazardous waste quantities in Los Angeles County, an accurate estimation of future waste quantities is difficult to derive. Three years of previous data were provided by the SDOHS and these quantities were compared by the DPW. However, only the 1986 manifest data is used in the projection of waste quantities and needs assessment analysis (Chapter 5).

Although SDOHS recommends that the planning estimate be based on a multi-year average, the analysis (Section D) indicates the 1986 date is the most representative. Within the past several years, there has been a marked increase in hazardous waste management awareness resulting from the tightening of regulations and increased knowledge of treatment technologies. These waste minimization and enforcement efforts are likely to continue; as such, all projections are based on 1986 data.

Furthermore, until more data is available, it would be unrealistic to conclude or base future needs on a changing trend as distinctive differences between each year's data could be the result of specific one time occurrences. These occurrences could be the opening or closing of a large industrial producer of hazardous waste or a decrease or increase in hazardous waste production for a major industrial producer due to a particular year's economy. Also, in-plant spills, occasional equipment cleaning, and temporary shutdowns can also cause large deviations in waste treatment quantities. It is therefore, the intent of the plan to continuously gather and update the Plan data to provide for accurate planning efforts.

## CHAPTER 3

### HAZARDOUS WASTE MANAGEMENT FACILITIES

#### I. INTRODUCTION

This Chapter presents an overview of the existing, planned and proposed off-site hazardous waste management facilities available to waste generators in Los Angeles County. Existing facilities now serving the hazardous waste management needs of Los Angeles County consist primarily of various recycling, storage and treatment facilities.

In this Plan, **existing off-site facilities** are defined as those that are now in operation and/or have submitted Part B of the application form in response to the Resource Conservation and Recovery Act (RCRA), i.e., those facilities that have notified the Environmental Protection Agency (EPA) of their activities in hazardous waste generation, transportation, treatment, storage and/or disposal. **Planned off-site facilities** are defined as those that are not yet in operation but have filed for all discretionary permits as discussed in Appendix 6B. **Proposed off-site facilities** are those for which a project is under consideration or information as to the project's inception has been made available to the Department of Public Works, although not all of the appropriate permits have been filed. These off-site facilities are included as potential facilities only and should not be construed as definite project locations or having received prior approval or endorsement from the respective local jurisdictions. As such, even though some specific locations are listed under planned and proposed facilities, risk assessment and environmental impact evaluations will not be completed unless the proponents have moved forward with their projects.

#### II. HAZARDOUS WASTE MANAGEMENT SYSTEM

##### A. General

A major concern in handling hazardous waste is the protection of public health and safety and natural resources against any type of release.

A hazardous waste management facility is defined by Title 22 of the California Administrative Code as "all contiguous land, structures, other appurtenances, and improvements on the land, used for handling, treating, storing or disposing of hazardous waste."

## B. Management Facility Categories

Specifically, there are five major types of hazardous waste management facilities. These facilities are generally categorized under their major operation as many commercial treatment/incineration facilities may also operate as transfer and/or storage stations.

1. Storage Facility
2. Transfer Facility
3. Recycling Facility
4. Treatment/Incineration Facility
5. Land Disposal Facility.

A brief definition of each type of facility is provided in the following section.

### 1. Storage Facility

A storage facility is one at which hazardous waste is contained for a period greater than 144 hours at an off-site facility or greater than 90 days at an on-site facility.

### 2. Transfer Facility/Station

A transfer facility/station is generally defined as any hazardous waste facility where hazardous wastes are loaded, unloaded, pumped, or packaged. Specifically, a transfer facility/station is one at which hazardous waste is stored for period of 144 hours or less at an off-site facility. This type of facility allows hazardous waste to be consolidated to enable economical transport of wastes to other management facilities.

### 3. Recycling Facility

A recycling is defined as a redirection or utilization of a hazardous waste or substance, a recycling facility is a facility where a resource or form of energy is reclaimed from the waste. The reclaimed material is recovered and/or reused and is usually sold for a profit.

### 4. Treatment/Incineration Facility

A treatment facility is any facility where hazardous waste is treated to render the waste nonhazardous or less hazardous so that it is safer to transport, store or dispose of or where a resource is recovered from a hazardous waste.

### 5. Land Disposal Facility

The U.S. Environmental Protection Agency (EPA) under the authority of the 1984 amendment to the Resource

Conservation and Recovery Act (RCRA) defines land disposal as any placement of hazardous waste in:

- landfills (includes residuals repositories if located underground)
- surface impoundments
- waste piles
- injection wells
- land treatment facilities
- salt domes or salt bed formations
- underground mines or caves
- concrete vaults or bunkers

Hazardous waste is generally disposed of in Class I or Class II landfills. This includes residuals repository if the facility is located underground. A residuals repository is a storage facility which accepts solid residuals resulting from the treatment of hazardous wastes to standards established by the State Department of Health Services or which accepts hazardous organic waste which is stabilized, solidified or encapsulated (Chapter 4). However, there are some special wastes, on the lower end of the hazardous scale that may be disposed of at facilities other than a hazardous waste management facility. The specific definitions of these wastes have been included in Appendix 1D.

Overall, management of hazardous waste is generally accomplished by: (1) treating the waste stream to meet local, State, and Federal standards prior to discharge to a sewer system; (2) utilization of on-site or off-site management facilities, and (3) direct land disposal. With the passage of SB 1500 (Roberti), now Chapter 1509 of the 1986 State Statutes, direct land disposal of untreated hazardous waste will be prohibited as of May 8, 1990.

### C. On-site and Off-site Facilities

Facilities which manage hazardous waste can be classified as either on-site or off-site facilities. An on-site facility is one in which the waste is managed at the point of generation. An off-site facility is one in which the waste is generated some distance away and is shipped to another facility to be managed. The precise definitions of on-site and off-site and hazardous waste management facilities are included in the glossary.

Currently, most planners are turning away from direct land disposal of hazardous waste and are considering the treatment alternative as one of the safer tools in the management of hazardous waste. Treatment technologies include physical, chemical, biological and thermal processes that render the material nontoxic, reduce its toxicity, or substantially reduce its volume. An overview of the available treatment and disposal technologies is presented in Chapter 4.

#### D. Discharge to a Sewer System

Under the waste discharge requirements set forth by the EPA and the responsible Regional Water Quality Control Board, municipal sewer districts are permitted to discharge waste that meets certain specifications and does not exceed maximum concentration levels of hazardous chemical constituents in their processed effluent. The local sewer districts, in turn, regulate the amount and the type of hazardous waste that industries may discharge into the local systems. Dischargers often are required to pretreat their waste before discharge to the sewer system.

It is estimated that 65-80 percent of all hazardous waste generated in this County is discharged [9] to sewer systems or surface water after pretreatment processes. These wastes are generally high volume, low toxicity wastes, such as rinse waters. The sewer system is an appropriate mechanism to dispose of low hazard waste as the disposed volume is usually insignificant in comparison to the volume of regular sewage. Acidic and alkaline wastes, for example, with limitations, can be neutralized by the inherent buffering capacity of the sewage, rendering them nonhazardous.

Not all wastes, however, can be discharged safely to the sewer system. Toxic wastes can poison the biological organisms causing severe environmental and public health problems. Toxic contaminants in the by-products of sewage treatment plants can go untreated into receiving waters that may be used for drinking, recreation and irrigation. Sewage sludge can contain excessive levels of heavy metals and synthetic organic chemicals, such as PCBs, from solute accumulation due to precipitation during dewatering of the sludge.

#### E. Illegal Disposal

With the available data on waste volume and types, State and local agencies are unable to determine and compile quantitative data on illegal disposal except to recognize the trend that illegal dumping increases with the closure of disposal sites in the area and as disposal costs increase. Illegal disposal often remains undetected unless there is visible environmental damage, such as a fish kill, or widespread symptoms that are reported to regulatory agencies.

### III. EXISTING FACILITIES IN LOS ANGELES COUNTY

#### A. General

A list of the hazardous waste management facilities listed with the State Department of Health Services (SDOHS) for Los Angeles County and updated by the Department of Public Works is included in Appendix 3A. Except for those facilities added by the Department of Public Works and denoted by an asterisk(\*), all the facilities have a permit or grant of interim status issued by the SDOHS and the EPA. It should be noted that some facilities have

also been deleted from the list provided by the SDOHS based on the facility owner/operator response to the survey conducted by the Department of Public Works in August of 1988.

The commercial off-site facilities that accept wastes from other generators are denoted with a "C" under facility type. These facilities are identified by name, location, and waste management technique used (i.e., treatment, storage), where appropriate.

Based on the information reported, there are 173 hazardous waste management facilities in Los Angeles County. As shown in Table 3-1, the largest number are located in the City of Los Angeles.

Further information concerning the major on-site and off-site land disposal facilities and major off-site treatment facilities are presented in the following sections.

#### B. Existing Facilities

##### 1. Storage Facilities

Storage facilities are listed under "S" in Appendix 3A. In addition, a list of the commercial storage facilities and their capacities is presented in Table 3-2.

##### 2. Transfer Facilities

Transfer facilities are listed as "Ts" under facility type in Appendix 3A.

##### 3. Recycling Facilities

Those facilities listed under "R" are considered commercial recycling facilities that will accept wastes from other generators. On-site recycling facilities are facilities exempt from all permit requirements and are not included in Appendix 3A.

##### 4. Treatment/Incineration Facilities

These facilities have been denoted by "T" in Appendix 3A.

##### a. Stationary Facilities

As discussed earlier in the Plan, there are many stationary on-site facilities which treat the bulk of hazardous waste prior to discharge into the sewers. These facilities are not listed with the State Department of Health Services. Appendix 3A lists those facilities that manage wastes regulated under the Resource Conservation and Recovery Act (RCRA) and possess a permit or grant of interim status issued by the SDOHS or EPA.

Treatment facilities may be further classified according to the various treatment processes or by the main waste streams accepted, such as aqueous waste, or wastes

TABLE 3-1  
GEOGRAPHICAL DISTRIBUTION OF HAZARDOUS WASTE MANAGEMENT FACILITIES  
IN LOS ANGELES COUNTY

<u>City/Community</u>	<u>Number of Facilities</u>	<u>City/Community</u>	<u>Number of Facilities</u>
Alhambra	1	Norwalk	1
Azusa	5	Palmdale	1
Burbank	3	Paramount	2
Canoga Park	4	Pasadena	1
Carson	6	Pico Rivera	1
Cerritos	2	Pomona	3
Chatsworth	2	Rancho Dominguez	1
Commerce	7	Redondo Beach	1
Compton	5	San Fernando	1
Culver City	1	San Pedro	1
Downey	2	Santa Fe Springs	12
El Monte	4	Saugus	1
El Segundo	6	Signal Hill	4
Gardena	1	South El Monte	1
Hawthorne	5	Sylmar	2
Huntington Park	1	Torrance	8
City of Industry	7	Van Nuys	5
Inglewood	1	Vernon	6
Long Beach	10	West Covina	2
Los Angeles	30	Westlake Village	1
Lynwood	3	Whittier	1
Malibu	1	Wilmington	7
Montebello	1		
North Hollywood	1		
Northridge	1	TOTAL	173

Source: Los Angeles County Department of Public Works, September 1988

TABLE 3-2  
OFF-SITE STORAGE CAPACITY IN LOS ANGELES COUNTY

FACILITY LOCATION	AVERAGE MONTHLY QUANTITY IN STORAGE (TONS)	CAPACITY (TONS)	PERCENTAGE OF STORAGE CAPACITY USED
<u>(S01) - Container</u>			
R & R Industrial Waste Haulers - Los Angeles*	46.00	67.00	69
GNB Inc. - Los Angeles	158.00	1,400.00	11
Rho-Chem-Inglewood	0	56.70	0
Oil and Solvent Process Co. - Azusa	9.42	27.72	34
Los Angeles County Agricultural Commission	.03	.42	7
National Solder - Long Beach	1.00	1.00	100
Olin Hunt Specialty Products Inc. - Los Angeles	133.40	336.00	40
Tally Brothers, Inc. - Hunington Park	10.50	21.00	50
AAD Distribution & Org. Cleaning - Vernon	113.40	113.40	100
Plastic Materials Inc. - Alhambra	.50	291.00	<1
Rafidian Refinery, Inc. - Los Angeles	13.00	151.00	9
Reggie Newmann & Associates	.50	50.00	1
Safety-Kleen Corp. - Los Angeles	9.00	9.00	100
El Monte	64.30	64.30	100
Sylmar	10.50	10.50	100
TOTAL	569.55	2,599.04	
<u>(S02) - Tank</u>			
Industrial Services Co. - Los Angeles	260.00	260.00	100
Rafidian Refinery Inc. - Los Angeles	34.00	151.00	23
American Labs - Los Angeles	168.00	168.00	100
Rho-Chem - Inglewood	0	235.20	0
Oil Process Co. - Azusa	567.00	1,117.20	51
Leach Oil Company - Compton	0	315.00	0
Petroleum Recycling Corp. - Signal Hill	1,890.00	3,439.80	55
Tally Bros., Inc. - Hunington Park	84.00	256.62	33
Dico Oil Co. - Signal Hill	105.00	105.00	100
Omega Chemical Corp. - Whittier	600.00	1,000.00	60
IT Corporation - Wilmington	0	34.00	0
Brent Petroleum - Wilmington	2,085.00	6,672.00	31
Safety-Kleen Corp. - Los Angeles	50.00	50.00	100
El Monte	45.65	45.65	100
Sylmar	53.95	53.95	100
TOTAL	5,942.60	13,903.42	
<u>(S05) Other (whole batteries)</u>			
GNB, Inc. - Los Angeles	1,920.00	2,750.00	70
TOTAL	1,920.00	2,750.00	
Note: *Facility is currently seeking Conditional Use Permit.			
Source: State Department of Health Services, November 1987. Updated by the Department of Public Works, September 1988.			

amenable to incineration, stabilization, chemical precipitation, etc.

Table 3-3 lists the existing commercial hazardous waste management facilities that accept off-site wastes and their capacities.

b. Transportable Treatment Units

Table 3-4 presents the list of mobile facilities that have filed operational plans with the SDOHS. According to the information provided, only four such facilities have attained fully permitted status: Dowell Schlumberger, Thortec International, Environmental Services Divisions and S.O.S On-Site Treatment Corporation. The others operate either in situations exempt from permit requirements, under experimental permits, or under a variance permit.

The following is a summary of transportable treatment units headquartered or operating in Los Angeles County, which have filed operational plans with the SDOHS and from which the Los Angeles County Department of Public Works has been able to obtain information.

i. Pacific Industrial Service Corp. - Long Beach

Pacific Industrial Service Corp. has a mobile oil recycling unit which requires a variance permit from the SDOHS to operate. The unit primarily treats waste oil. Water, oil, and solids are separated. The water is treated by the facility at which the unit is operating, the oil is reclaimed, and the solids are compacted into brick form and taken to a Class I landfill for final disposition. The unit is capable of achieving a 90% reduction in volume of waste oil.

ii. Press Tech - Long Beach

Press Tech has a mobile unit which requires a variance permit from the SDOHS to operate. The unit primarily treats waste bottoms. Water, oil, and solids are separated. The water is treated by the facility at which the unit is operating, the oil is reclaimed, and the solids are taken to a Class I landfill for final disposition.

iii. Environmental Services Division, ENV, Inc. - Rancho Dominguez

The mobile units, serving Los Angeles and Orange Counties, are under experimental permit for operation. The units primarily treat water from metal finishing processes and waste from

TABLE 3-3  
MAJOR EXISTING OFF-SITE HAZARDOUS WASTE MANAGEMENT FACILITIES

<u>FACILITY</u>	<u>LOCATION</u>	<u>EXISTING CAPACITY (TONS/YEAR)</u>
<u>Aqueous Waste</u>		
Chem Tech Systems	Los Angeles	113,400.0
GNB Incorporated	Los Angeles	33,500.0
National Solder	Long Beach	1.5
Oil Process Company	Los Angeles	8,400.0
Omega Recovery Services	Whittier	315.0
PGP Industries	Torrance	2,500.0(1)
Rho-Chem	Inglewood	12,600.0
Southern CA Chem	Santa Fe Springs	4,200.0
		<u>TOTAL</u> 174,916.5
<u>Incineration</u>		
National Solder	Long Beach	4,563
Stauffer Chemical	Carson	64,000(2)
BFI Medical Waste System	Vernon	8,000(3)
Security Environmental Systems	Long Beach	1,000(3)
		<u>TOTAL</u> 77,563
<u>Solvent Recovery</u>		
AAD Distributing & Dry Cleaning Service	Vernon	420(4)
American Chem & Refinery	South El Monte	420(5)
American Labs, Inc.	Los Angeles	2,016(6)
Detrex Chemical	Los Angeles	750
Oil & Solvent Process Co.	Azusa	42,000
Omega Recovery Services	Whittier	2,730
Plastic Materials Inc.	Alhambra	1,680
Reclamar Corp.	Wilmington	200
Rho-Chem	Inglewood	3,440
Safety Kleen Corp.	Los Angeles	4,200
		<u>TOTAL</u> 57,856
<u>Oil Recovery</u>		
Brent Petroleum	Wilmington	300,000
DeMenno/Kerdoon	Compton	423,360
Industrial Services Co.	Los Angeles	Unknown
Leach Oil Company	Compton	42,000
Lubrication Co. of America	Saugus	45,000(7)
Oil Process Company	Los Angeles	2,940
Petroleum Recycling Corp.	Signal Hill	109,200
Tally Brothers	Huntington Park	8,736
		<u>TOTAL</u> 631,236
<u>Other Recycling</u>		
Southern CA Chem	Santa Fe Springs	16,800
GNB Incorporated	Los Angeles	75,000(8)
Quemetco	Industry	72,000(8)
		<u>TOTAL</u> 163,800

Note: (1) Metals are Removed from the Waste  
 (2) Only handles sulfuric acid  
 (3) Only handles medical infectious waste.  
 (4) Only recover dry cleaning solvents  
 (5) Only recover precious metal from cyanide solution.  
 (6) Only recycles antifreeze.  
 (7) Plant currently not in operation.  
 (8) Battery plate recycling only.

Source: State Department of Health Services, 1987. Updated by the  
 Department of Public Works, September 1988.

TABLE 3-4  
TRANSPORTABLE TREATMENT UNITS IN CALIFORNIA

<u>FACILITY NAME AND MAILING ADDRESS</u>	<u>FACILITY NAME AND MAILING ADDRESS</u>
1. APPLIED ENVIRONMENTAL TECHNOLOGY 720 WEST 16TH STREET COSTA MESA, CA 1., B-4	10. PROCESS TECHNOLOGY 609 WINDMERE ISLE ALAMEDA, CA
2. CAL CAT CHEM. PO BOX 2632, MAIN BRANCH RICHMOND, CA 94802	11. TOXICS TREATMENT, INC. 901 MARINER'S ISLAND BOULEVARD SAN MATEO, CA 94404
3. DOWELL SCHLUMBERGER * PO BOX 3909 TORRANCE, CA 90510	12. TRACKER OIL RECOVERY SERVICES 3211 CROW CANYON PLACE SAN RAMON, CA 93388
4. ENVIRONMENTAL SERVICES DIVISION * 19112 SOUTH SANTA FE AVENUE RANCHO DOMINGUEZ, CA 90221	13. MOBILE RECOVERY SYSTEMS, INC. 1000A ORTEGA WAY PLACENTIA, CA 92670
5. GLOBAL ENVIRONMENTAL PO BOX 5816 BAKERSFIELD, CA 93388	14. OZONE SYSTEMS INC. 1439 NORTH MAGNOLIA AVE. EL CAJON, CA 92020
6. IT CORP 23456 HAWTHORNE BOULEVARD TORRANCE, CA 90509	15. POLYMETRICS 101 NICHOLSON LANE SAN JOSE, CA 95134
7. KIPIN INDUSTRIES 513 GREEN GARDEN ROAD ALIQUIPPA, PA 15001	16. PRS 930F CALLE NEGOCID SAN CLEMENTE, CA 92672
8. PACIFIC INDUSTR'L SERVICE CORP. 2119 GAYLORD STREET LONG BEACH, CA 90813	17. S.O.S. ON-SITE TREATMENT CORP.* 501 FORBES BOULEVARD, SUITE 117 SOUTH SAN FRANCISCO, CA 94080
9. PRESS TECH 322 WEST 17TH STREET LONG BEACH, CA 90813	18. THORTEC INTERNATIONAL * 249 EAST ORANGE BOULEVARD LONG BEACH, CA 90802

Note: The above facilities have filed operational plans with the State Department of Health Services.

\* Facilities that have received full permitted status by the State Department of Health Services

Source: State Department of Health Services, July, 1987  
Updated by the Department of Public Works, September 1988.

deionized cylinders from plating companies. There are four units currently operating.

iv. IT Corp - Torrance

IT Corp has three mobile units for which a statewide permit is pending. Two of the units, a mobile centrifuge and a mobile press are to be used for the dewatering of sludge. The third unit is an inorganic treatment facility for filtering out heavy metals.

v. Process Technology - Alameda

Process Technology operates four mobile treatment units in Los Angeles County under an interim status document which they were issued by the State Department of Health Services. They are the only mobile treatment facility in the State of California to possess such a document. The four units consist of two mobile filter presses and two mobile chemical treatment facilities.

vi. Thortec International - Long Beach

Thortec International has three mobile units for which a Statewide permit has been issued. The units can process up to 15,000 gallons of waste a day with prices ranging from \$1.50 to \$7.00 a gallon. The units cannot treat radioactive wastes, PCBs or wastes containing more than a 10 percent concentration of organic toxins.

vii. Dowell Schlumberger Incorporated - Torrance

Dowell Schlumberger Incorporated was granted the operation of two units. These units consist of a physical/chemical treatment system designed to treat and dewater hazardous waste resulting from the chemical cleaning of industrial equipment such as boilers, condensers, heat exchangers, pipelines, tanks, etc. The system utilizes elementary neutralization, pH modifications, flocculation, precipitation and dewatering techniques. The estimated process capacity is 40,000 gallons per day or 5.4 million gallons per year. About 10-20 cubic yards of filter cake may be generated per day.

5. Land Disposal Facilities

From the available data, there is only one major on-site disposal (land application) facility in Los Angeles County - Chevron USA (El Segundo). The Company is required to report its waste disposal quantities regularly to the Regional Water

Quality Control Board. A summary of the operational status of the facility is presented in Table 3-5.

Currently, there are no Class I or Class II landfill sites in Los Angeles County. Also, there is no known residuals repository in California. As the concept of residuals repository is relatively new, details of the technology can be found in Chapter 4, Overview of Technology.

There are currently no deep well injection facilities in Los Angeles County accepting hazardous wastes.

Provided in Table 3-6 is a list of the nearest land disposal facilities in Southern California serving the generators of Los Angeles County.

#### IV. PLANNED FACILITIES IN LOS ANGELES COUNTY

At the present time, there are only two known planned off-site facilities in Los Angeles County. The first, California Thermal Treatment Service, Inc. (CTTS), a subsidiary of Security Environmental Systems, Inc. (SES), is proposing to construct and operate a commercial hazardous waste incineration at 3691 Bandini Boulevard in the City of Vernon. The proposed incinerator is a rotary kiln type and will handle approximately 22,400 tons of hazardous waste per year. Hazardous wastes to be handled include hydrocarbon solvents (paint thinner, benzene, toluene, petroleum fuels), halogenated solvents (freons, trichloroethane, pesticides), oxygenated solvents (alcohols, acetone), waste and mixed oil, oil/water separation sludge, tank bottom waste, degreasing sludge and paint sludge. The facility will not handle wastes that are dioxin/furan contaminated, PCB, explosive, radioactive, infectious or pharmaceutical.

A Notice of Determination as required by the California Environmental Quality Act (CEQA) for the facility, was filed by the South Coast Air Quality Management District (SCAQMD) on February 2, 1987. As a part of the CEQA compliance, a risk assessment report was prepared. This report has been found complete by the SDOHS and the SCAQMD. A permit for the proposed facility has been issued by the SDOHS and EPA (September 8, 1988).

It should be noted that SES is currently operating an infectious waste autoclave unit at the site. However, the existing operation is totally separated from the CTTS facility and they are not part of the same operation.

The other planned facility, Chem Clear, is designed to treat liquid and semi-liquid hazardous and non-hazardous industrial waste. The feed would include acids, alkalines, cyanides and chromium wastes. In addition, the facility would act as a transfer station and store organic solvents in drums. The projected capacity for the facility is 246,000 tons per year. Additionally, the company intends to begin a drum consolidation

TABLE 3-5  
ON-SITE LAND DISPOSAL FACILITIES IN LOS ANGELES COUNTY

FACILITY	TYPE OF DISPOSAL	WASTE CATEGORY	TOTAL (TONS)
Chevron USA (El Segundo)	Land Application	(135) Unspecified Aqueous Solutions	398
		(222) Oil/Water Separation Sludge	2,404

Source: State Department of Health Services, November 1987.

TABLE 3-6  
LAND DISPOSAL FACILITIES SERVING GENERATORS OF LOS ANGELES COUNTY

<u>LAND DISPOSAL FACILITY</u>	<u>LOCATION/PHONE</u>	<u>MATERIALS ACCEPTED</u>
Casmalia Resources	Casmalia Santa Barbara Co. (805) 937-8449	Bulk and containerized solid hazardous and PCB wastes; no hazardous liquids except inorganic acids and bases.
Chemical Waste Management	Kettleman Hills Site Kings County (209) 386-9711	Everything except; Radioactive and water-reactive wastes; infectious wastes; and Class A explosives.
IT Imperial Valley Disposal Site	Westmorland Imperial County (619) 344-9400	Geothermal brines; pesticide containers; neutralized aqueous acids and bases; geothermal drilling muds; rinse waters; petroleum sludge; tank bottom sediments; wastewater treatment solids; ballast water; cooling tower and boiler blow-down sludge; pesticide container rinse water; small amounts of pesticide stock rotary drilling muds; work-over and clean-out fluids; storm water runoff from area used to handle waste; soil contaminated petroleum products.
Petroleum Waste, Inc.	Kern County (805) 325-5013	Drilling muds; boiler and cooling tower blowdown; oily waste; acids; caustics; soda ash; flue gas scrubber wastes; tank bottom sediment; spent refinery catalysts; refinery coke; drilling muds produced water; well wash water; oil sump spent filter media; elemental sulfur; refractory liner; asbestos insulation; refinery maintenance waste; fly ash; soil contamination with any of the above; EPA refinery waste.  As of June 30, 1988, the Company discontinued the receipt of liquid hazardous waste.

Source: State Department of Health Services listing of management facilities in Southern California receiving hazardous waste for disposal, December 23, 1985. Updated by the Los Angeles County Department of Public Works, September 1988.

business where small volume generators can dispose of their organic solvent wastes. The facility would store and consolidate similar wastes and then arrange for treatment and disposal at an appropriate facility.

Chem Clear has completed and submitted all permit applications to the necessary agencies. They are anticipating construction in the City of Vernon to begin by December 1988.

#### V. PROPOSED FACILITIES IN LOS ANGELES COUNTY

In response to the passage of SB 1500 - Roberti, Chapter 1509 of the 1986 State Statutes, which prohibits direct land disposal of untreated hazardous waste by May 8, 1990, several companies have proposed to build new off-site hazardous waste management facilities. These projects are defined as proposed facilities for which a project is under consideration or information as to the project's inception has been made available to the Department of Public Works in Los Angeles County.

It should be noted, however, that these facilities are included as potential facilities only and should not be construed as definite project locations or having received prior approval or endorsement from the respective local jurisdictions. As such, even though specific locations may be listed, risk assessment and environmental impact evaluations are considered unnecessary to be included at this time until the proponents move forward with their projects.

A listing of all proposed on-site and off-site transfer, storage, recycling, and treatment facilities that is known to the SDOHS is presented in Table 3-7. It should be noted that no information was available as to their proposed capacity or which facility is on- or off-site. As such, this table is included for informational purpose only; these facilities were not used in the Needs Assessment (Chapter 5). Table 3-8 specifically lists those facilities that have been planned/proposed for commercial off-site waste management facilities in Los Angeles County under the waste treatment technology as classified by the State Department of Health Services. Also included are their proposed capacities.

A brief overview of the proposed off-site facilities is provided in the following sections:

##### A. Appropriate Technology I (AP-TEC I) - Wilmington:

The Wilmington facility is the largest aqueous waste treatment facility proposed to be sited in Los Angeles County. The land use permit has been granted by the City of Los Angeles. The proposed facility will handle approximately 375,000 tons per year of numerous types of hazardous wastes. This facility is designed to treat, store and transfer hazardous wastes. The proposed treatment processes consist of: neutralization, oil/water separation, dewatering, and cyanide and phenol pretreatment to

**TABLE 3-7  
PROPOSED ON-SITE AND OFF-SITE HAZARDOUS WASTE MANAGEMENT FACILITIES  
IN LOS ANGELES COUNTY**

RECORD#	FACILITY	EPA NUMBER	CITY/COMMUNITY	RECORD#	FACILITY	EPA NUMBER	CITY/COMMUNITY
912	A & S METAL RECYCLING	CAD981402407	LOS ANGELES	901	HUGHES		
241	ACTION OIL	CAD980676654	SANTA MONICA	163	IMPERIAL WESTERN SURPLUS CO.	CAD063810634	CANOGA PARK
242	AERO INDUSTRIES CO. INC.		BURBANK	165	J.F. ENTERPRISES	CAD000617316	
243	AGRESCO OIL	CAD980676779	LOS ANGELES	168	JONES CHEMICAL INC.	CAD008352205	
244	ALAMEDA DRAIN OIL		LONG BEACH	367	L.A. CITY CENTRAL MEDICAL CENTER		LOS ANGELES
245	ALAMEDA OIL CO. INC.	CAT080033384	LOS ANGELES	888	L.A. CITY AGRICULTURE COMM.		
247	ALARCO'S LOUIS WASTE OIL SERV.	CAX000051675	PICO RIVERA	371	L.A. CO. BELFLOWER HEALTH CENTER		BELFLOWER
248	ALARCON HECTOR WASTE OIL			371	L.A. CO. COUNTY HEALTH ADH. HQTH'S.		LOS ANGELES
248	ALARCON'S MARK WASTE OIL SERV.	CAD980814446	POMONA	368	L.A. CO. GLENDALE HEALTH CENTER		GLENDALE
253	ALCOL ENVIRONMENTAL VACUUM SERV.	CAD980737068	WILMINGTON	372	L.A. CO. HARBOR GENERAL HOSPITAL		LOS ANGELES
108	ALHAMBRA COMMUNITY HOSPITAL		ALHAMBRA	373	L.A. CO. HOLLYWOOD WILSH. CENTER		LA PUENTE
109	ALLIED BENDIX		SYLMAR	374	L.A. CO. LA PUENTE HEALTH CENTER		
911	AMERICAN CHEMICAL & REFINING COMP INC.	CAD981982531	EL MONTE	375	L.A. CO. OLIVE VIEW MEDICAL CENTER		POMONA
110	AMERICAN LABS INC.	CAX000067496	LOS ANGELES	376	L.A. CO. POHONA HEALTH CENTER		LOS ANGELES
250	AMERICAN OIL CO.	CAX000101717	LOS ANGELES	377	L.A. CO. SHERIFFS CENTRAL JAIL		
515	BFI OF C.A. LOS ANGELES	CAT080012461	LOS ANGELES	378	L.A. CO. SOUTH DIST. HEALTH CENTER		TORRANCE
116	BFI OF CALIFORNIA	CAT080012479	WILMINGTON	379	L.A. CO. TORRANCE HEALTH CENTER		LOS ANGELES
270	BURBANK COMMUNITY HOSPITAL		BURBANK	380	L.A. CO. USC MEDICAL CTR.	CAD050099696	CITY OF INDUSTRY
121	C-BRITE METAL FINISHING		HARBOR CITY	63	LEACH OIL CO., INC.	CAD054846670	
272	CALIF STATE OF LANTERNMAN ST. HOSPITAL	CAD045520996	POMONA	93	LIGHT METALS INDUSTRY	CAD008258208	
4	CALIF. THERMAL TREATMENT SYSTEMS/INGIN.		VERNON	170	LUMIDOR MANUFACTURING CO.		LOS ANGELES
661	CARGILL CHEMICAL PRODUCTS DIV.	CAD980887475	LYNNWOOD	648	MASTER WASH PRODUCTS, INC.	CAD981979446	LOS ANGELES
122	CHALLENGE COOK BROS.	CAD076182843	CITY OF INDUSTRY	905	MASTER WASH PRODUCTS, INC.	CAD980665947	WILMINGTON
123	CHEVRON USA INC. SAN PEDRO TERMINAL	CAD008240459	SAN PEDRO	183	NORTH AMERICAN ENVIRONMENTAL INC.	CAD980665608	
106	CHEVRON USA/EL SEGUNDO (PERMIT MODIF.)	CAT000624684	EL SEGUNDO	184	NORTHROP CORP AIRCRAFT DIV.	CAD008270043	
626	DAVIS CHEMICAL CO.	CAD070215355	LOS ANGELES	187	PAINT & COATING CORP.	CAD089446710	ALHAMBRA
62	DICO OIL COMPANY	CAD980737076	SIGNAL HILL	189	PLASTIC MATERIALS INC.	CAD066233966	INDUSTRY
650	EKO METALS	CAD042223180	LOS ANGELES	22	QUEMETCO, INC.	CAX000115980	LOS ANGELES
135	ELECTRO-ETCH CIRCUITS	CAD008292005	LOS ANGELES	14	RAFIDAIN REFINERY (LOS ANGELES)	CAD980737035	CARSON
137	ENVIRO-SEAL, INC.	CAD008392318	VAN NUYS	94	RAUFERD-PACIFIC		LONG BEACH
138	ENVIROCONICS SYSTEMS CO.	CAD030389159	EL MONTE	73	SOLDER SERVICE CO. (LONG BEACH)	CAT000611202	CARSON
143	FACET ENERGY	CAD990669400	LONG BEACH	209	SOUTH CALIF. WASTE REDUCTION	CAT000646331	CARSON
144	FANSTEEL INC.	CAD050810829	LOS ANGELES	74	STAUFFER CHEM CO.-DOMINGUEZ/ALT. FUELS	CAD008324949	REDONDO BCH.
145	FLETCHER OIL & REFINING CO.		WILMINGTON	5	STAUFFER CHEM CO.-DOMINGUEZ/ALT. FUELS	CAT080012693	
146	FORT MACARTHUR		SAN PEDRO	23	TEXACO	CAD009230244	
54	GNB INCORPORATED	CAD097854541	LOS ANGELES	651	TRM OPERATIONS & SUPPORT GROUP PERM MOD		
157	HUGH J. RESIN CO. INC.	CAD008316218	LOS ANGELES	230	UNITED AIRLINES PM DEPT.		
				231	UNIVAR		
				233	VAN WATERS & ROGERS/UNNAR		

**Note:** Record # is the number of the facility as filed with the State Department of Health Services.

**Source:** State Department of Health Services (SDOHS), October 1987. SDOHS has been contacted directly for an update of this table. SDOHS was unable to provide an update. Also, no information was available on which of the facilities are on- or off-site and the capacity of these facilities was not included. As such, this table is not used in the Needs and Assessment Analysis (Chapter 5). Rather, existing (Table 3-3) and planned/proposed (Table 3-8) off-site hazardous waste management facilities are used in the Needs and Assessment Analysis.

TABLE 3-8  
PLANNED/PROPOSED OFF-SITE HAZARDOUS WASTE MANAGEMENT FACILITIES  
IN LOS ANGELES COUNTY

<u>Treatment Facility</u>	<u>Location</u>	<u>Proposed Capacity (Tons/Year)</u>
<u>AQUEOUS WASTE</u>		
BKK APTEC I	Wilmington	375,000
Rho-Chem	Inglewood	8,400
Oil Process Company	Los Angeles	115,000
Oil & Solvent Process Company	Azusa	51,175
Chem-Clear*	Vernon	246,000
	TOTAL	<u>795,575</u>
<u>INCINERATION - N.O.S.</u>		
California Thermal Treatment Services*	Vernon	22,400
	TOTAL	<u>22,400</u>
<u>OIL RECOVERY</u>		
Fletcher Oil and Refinery	Carson	22,300 - 44,570
Oil & Solvent Process Company	Azusa	5,200
	TOTAL	<u>27,500 - 49,700</u>
<u>SOLVENT RECOVERY</u>		
Oil & Solvent Process Company	Azusa	78,000
Rho-Chem	Inglewood	3,280
	TOTAL	<u>81,280</u>
<u>STABILIZATION</u>		
Chem-Clear	Vernon	1,100
	TOTAL	<u>1,100</u>
GRAND TOTAL		927,855 - 950,125

Note: The Crosby and Overton facility is excluded as no definite site has been selected at this time.

\*All facilities proposed unless denoted by an asterisk.

N.O.S. - Not otherwise specified.

Source: Los Angeles County Department of Public Works, September 1988

reduce the volume and/or risks of wastes. These physical separation technologies produce solid sludge cakes that can be taken to a landfill, and treated wastewater that can be discharged to a sewer system. Some of the separated oils can be also refined and reused.

B. Crosby and Overton - Long Beach or elsewhere:

Crosby and Overton have been contemplating a treatment facility in Southern California for some time. Although a definite site has not been selected, treatment processes such as neutralization, chemical oxidation of organics, electro-chemical flotation and probably cyanide and chrome pretreatment have been proposed. In addition to accepting heavy metal wastes, the company plans to treat phenols, mercaptans, and sulfide wastes. The company has been operating a similar smaller facility in Kent, Washington, since March 1981.

C. Fletcher Oil and Refining Company - Carson

The Fletcher Oil and Refining Company, located in the City of Carson, has applied for a permit to recycle drain oil. The facility anticipates recycling up to 44,570 tons of waste oil per year. In addition, the facility is investigating the possibility of installing or renting a centrifuge or separator/filtration equipment for treating oil-water separator sludge.

D. Oil Process Company - Los Angeles

The Oil Process Company, which currently processes waste oil at its Los Angeles facility, has applied for a permit to treat heavy metal solutions, spent solvents, waste water treatment sludges, spent electroplating bath solutions/sludges, tank bottoms, spent pickle liquor, ink formulations, PCBs, and other miscellaneous waste streams. Anticipated capacity is 115,000 tons per year.

E. Oil and Solvent Process Company - Azusa

The Oil and Solvent Process Company has submitted an application to the SDOHS proposing the following treatment capacities:

Aqueous Waste Treatment (Organic, Metals/neutralization)	51,175 tons per year
Oil Recycling	5,200 tons per year
Solvent Recovery	78,000 tons per year
Ethylene Glycol Recycling	1,080 tons per year

To support these services, the Company has also proposed a transfer/storage facility. The facility would have a tank storage capacity of 465,650 gallons and a drum storage capacity of 189,090 gallons.

## VI. NEARBY TREATMENT AND DISPOSAL FACILITIES

At this time, there are three facilities near Los Angeles County that provide for both treatment and disposal of hazardous wastes. These facilities are Casmalia Resources in Santa Barbara County, Kettleman Hills in Kings County and IT Corporation Imperial Valley Facility in Imperial County. Other than the above mentioned, Chemical Waste Management, Inc., is currently proposing a rotary kiln incinerator to treat solvents and still bottoms. The proposed site for the incinerator is at the Kettleman Hills facility. The treatment method, acceptable material and status of each facility are presented in Table 3-9.

In addition to the above, there is National Cement Company/Systech Corporation located in Kern County that provides additional treatment capacity. The National Cement Company/Systech Corporation operates a cement kiln incinerator which burns hazardous organic solvents as a supplement fuel.

The BKK facility called Appropriate Technology II, came on-line in January 1983 in Chula Vista, San Diego County, serving as an aqueous treatment facility to treat liquid cyanides. Unfortunately, the facility was closed after a year of operation, partly as a result of the low volume of waste received. The Southern California Hazardous Waste Management Authority is investigating the possibility of re-establishing the facility. The facility is currently operating as a major transfer station. Lastly, there is one facility near Los Angeles County which provides strictly for the disposal of low grade hazardous waste. The facility is operated by Petroleum Waste, Inc., in Kern County. The facility generally accepts drilling muds, oil waste and ash.

The treatment method and status of the above facilities are also presented in Table 3-9.

**TABLE 3-9  
HAZARDOUS WASTE MANAGEMENT FACILITIES NEAR LOS ANGELES COUNTY**

**I. Treatment/Disposal Facilities**

<u>Company</u>	<u>Location</u>	<u>Treatment Method</u>	<u>Waste Treated</u>	<u>Hazardous Waste Accepted</u>	<u>Status</u>
Casmalia Disposal	Casmalia, Santa Barbara County	Acid neutralization Oxidation Alkaline system treatment	Acid and alkaline wastes	Bulk and containerized solid hazardous and PCB wastes; no hazardous liquids except inorganic acids and bases.	Existing
Chemical Waste Management	Kettleman Hills, Kings County	Cyanide oxidation Chemical fixation Solvent derived fuel blending Neutralization Precipitation Rotary kiln incineration (proposed)	Aqueous waste, PCBs, heavy metals, acids, solvents, still bottoms	Everything except: radioactive and water-reactive wastes; infectious wastes; and Class A explosives.	Existing
IT Corp.	Westmoreland, Imperial County	Neutralization Precipitation Oxidation	Oil refinery waste, aerospace industry waste	Geothermal brines; pesticide containers; neutralized aqueous acids and bases; geothermal drilling muds; rinse waters; petroleum sludge; tank bottom sediments; wastewater treatment solids; ballast water; cooling tower and boiler blowdown sludge; pesticide container rinse water; small amounts of pesticide stock rotary drilling muds; work-over and clean-out fluids; storm water runoff from areas used to handle waste; soil contaminated petroleum products.	Existing

**II. Treatment Facilities**

<u>Company</u>	<u>Location</u>	<u>Treatment Method</u>	<u>Waste Treated</u>	<u>Status</u>
National Cement Company/Systech Corporation	Lebec, Kern County	Cement kiln incineration	Organic solvents	Existing
BKK AP-TEC II	Chula Vista, San Diego County	Cyanide oxidation	Liquid cyanides	Under investigation for possible re-establishment. Currently used as a transfer station.

**III. Disposal Facility**

<u>Company</u>	<u>Location</u>	<u>Hazardous Waste Accepted for Disposal</u>
Petroleum Waste, Inc.	Taft, Kern County	Drilling muds; boiler and cooling tower blowdown; oily waste; acids; caustics; soda ash; fule gas scrubber wastes; tank bottom sediment; spent refinery catalysts; refinery coke; drilling muds-produced water; well wash water; oil sump sludges; spent filter media; elemental sulfur; refractory liner; asbestos insulation; refinery maintenace waste; fly ash; soil contaminated with any of the above; EPA refinery waste.  As of June 30, 1988, the company discontinued the receipt of liquid hazardous waste.

Source: Based on information from the State Department of Health Services' listing of management facilities in Southern California receiving hazardous waste for disposal, December 23, 1985. Updated by the Los Angeles County Department of Public Work, September 1988.

## CHAPTER 4

### OVERVIEW OF TECHNOLOGY

#### I. INTRODUCTION

Problems relating to past improper management and disposal of hazardous waste have resulted in widespread concern regarding the use of land disposal facilities and specifically landfills for the safe management of hazardous waste. Improper disposal of hazardous waste increases the risk of contaminating the environment, and can pose a serious threat to the health of present and future generations. This Chapter identifies and evaluates the most common alternatives available for the management of hazardous waste. Mention of these individual alternatives does not imply endorsement of the technology, but rather presents an overview of information currently available on proven technologies. Most of the land disposal technologies discussed are gradually being phased out under the recent Resource Conservation and Recovery Act (RCRA) Amendments of 1984. A schedule of waste bans has been established and will prohibit all forms of direct land disposal by 1990, unless specifically exempted. In addition, land disposal of untreated hazardous waste in California will be prohibited effective May 8, 1990.

This Plan recognizes the long-term health, environmental, and economic risks of land disposal of hazardous waste. In light of new restrictions prohibiting the land disposal of liquid hazardous waste, and the prohibition of land disposal of untreated waste by May 8, 1990, the Plan strongly encourages the prevention of hazardous waste from being permanently disposed of on and into the land, emitted into the air or water without maximum treatment by an appropriate alternative technology.

#### II. IDENTIFICATION OF ALTERNATIVES

While the selection of the best hazardous waste management practice is dependent upon the characteristic of each individual waste stream and available technology, the following are presently used (or designed) as management/treatment strategies for hazardous waste:

- o Waste Minimization (Chapter 7)
- o On-site/Off-site Land Disposal
  - Deepwell Injection
  - Landfarming
  - Landfilling
  - Residuals Repository (concept)
  - Surface Impoundment
- o On-site/Off-site Treatment Prior to Disposal
  - Biological
  - Chemical

- Physical
- Thermal

Although waste minimization is part of any modern waste management scheme, their importance is such that they are covered under a separate chapter so that a more detailed assessment of the available opportunities can be presented.

Many waste treatment technologies can provide permanent, immediate, and very high degrees of hazard reduction. The safe and responsible management of hazardous waste requires programs for waste source reduction, recycling and the encouragement of safe on-site and off-site treatment of hazardous wastes including the siting of new hazardous waste management facilities. It should be noted, however, that the land disposal option will remain as the only viable mean for management of untreatable waste and/or treatment residues at the present time. Nevertheless, it is the goal of this Plan that hazardous waste amenable to treatment be treated by a hazard reduction process prior to land disposal.

The issues and criteria for siting hazardous waste management facilities (treatment, storage, transfer and disposal) are presented in Chapter 6.

### III. CURRENT LAND DISPOSAL TECHNOLOGIES

Land disposal has been the most common disposal practice for the nation's hazardous waste. Most wastes have been disposed of in on-site surface impoundments and waste pilings constructed and maintained by the companies which generated the waste. The remainder have been transported to off-site land disposal facilities.

Los Angeles County's off-site management of waste currently depends almost completely on land disposal. The various methods include:

- Deepwell Injection
- Landfarming (Treatment, Disposal)
- Landfilling (Class I and Class II Sites)
- Surface Impoundments (Treatment, Storage and Disposal)

Table 4-1 presents a brief description of each process. A more in-depth description of each process can be found in Appendix 4A.

The effectiveness of land disposal facilities is a function of their design, construction, operation and specific geologic and hydrogeologic conditions. Common threats of past land disposal arise from the potential slow leakage of waste constituents and migration of leachate. Another concern is the emission of explosive, toxic or odorous gases into the surrounding environment.

As mentioned previously, recent 1984 RCRA Amendments will prohibit the disposal of hazardous waste by means of landfilling,

TABLE 4-1  
SUMMARY PROCESS DESCRIPTION OF LAND DISPOSAL TECHNOLOGIES

Technology	Description
Deep Well Injection	Deep well injection disposes of wastes by injecting them deep into the ground. At a minimum the well is constructed with cement casings and must extend through all potable water zones to insure that any potable groundwater in the area is isolated and protected.
Landfarming <sup>1</sup>	Landfarming is a technique which uses microorganisms naturally occurring in the soil to biodegrade organic wastes. The technique is also called land spreading, land treatment, sludge farming and solid incorporation.
Landfill (facilities permitted for the receipt of hazardous waste, Class I and II)	A land disposal site that employs various engineering designs, operations and maintenance at which complete protection is intended to be provided for all time for the prevention of the release of leachate, gas and dust to the surrounding environment from all wastes deposited therein and against hazard to public health and wildlife resources.
Surface Impoundment <sup>2</sup>	A surface impoundment is a natural topographic depression, man-made excavation, or diked area formed primarily of earthen materials, although it may be lined with man-made materials. Impoundments are designed to hold an accumulation of liquid wastes and wastes containing free liquids.

Note: <sup>1</sup>Can be classified as a treatment or disposal facility under the current Health and Safety Code, Division 20 and Title 22, Division 4, Section 66122, of the California Administrative Code, respectively.

<sup>2</sup>Can be classified as a treatment, storage or disposal facility depending on the amount of time the waste remains in the structure.

Source: Los Angeles County Department of Public Works, December 1987

surface impoundments, waste piles and deepwell injection, unless certain standards are met. Recently amended California State legislation (Chapter 6.5 of Division 20 of the Health and Safety Code) will prohibit land disposal of untreated hazardous waste by May 8, 1990. Additionally, the discharge of "restricted" hazardous wastes, as defined, into surface impoundments has been prohibited since July 1, 1985. The discharge of any liquid hazardous waste or any hazardous waste containing any free liquid into a surface impoundment within a 1/2 mile radius of a potential supply of drinking water was also prohibited by June 30, 1988, unless determined otherwise by the California Regional Water Quality Control Board. After January 1, 1988, this is further restricted to preclude all discharges unless the surface impoundment is equipped and monitored as specified in Section 25208.5 of the Health and Safety Code (i.e., double lined, leachate collection, etc.). Due to enactment of new legislation resulting in changes in regulations and revisions of standards, the viability and effectiveness of management options must be assessed by the proponent.

#### IV. ALTERNATIVE TECHNOLOGIES

##### A. General

The use of alternative technologies for the treatment of hazardous waste is the first step away from dependence on land disposal. Accordingly, alternative treatment technologies together with the long term storage of dry residuals remaining from treatment processes are considered to be the central focus of California's program for the effective and safe management of hazardous wastes.

Treatment technologies reduce the hazard level directly or facilitate its reduction through such means as changing the physical or chemical nature of the waste, separating waste constituents, reducing the waste volume, or reducing the concentration of hazardous substances in the waste. A comparison of some of the hazard reduction treatment technologies is presented in Table 4-2.

During the last several years, a great deal of new technical literature has been developed on treatment, incineration, solidification and long term storage technologies for hazardous waste management. The EPA has identified over 70 different potential alternatives [3] to land disposal. Alternative technologies such as biological, chemical, physical and thermal are described below. Also provided is a discussion on residuals repositories. The application of these processes and their environmental aspects are presented in Appendix 4A.

##### B. Biological Treatment Technologies

Biological waste treatment is a treatment process whereby the waste acts as substrate for the growth of microorganisms. This microbial conversion process reduces the waste to inorganic solids and relatively inert organic solids so that the waste is

TABLE 4-2  
COMPARISON OF SOME HAZARD REDUCTION TECHNOLOGIES

Treatment		
	Incineration and other thermal destruction	Emerging high-temperature decomposition <sup>a</sup>
Effectiveness: How well it contains or destroys hazardous characteristics	High, based on field tests, except little data on specific constituents	Very high, commercial-scale tests
Reliability Issues:	Monitoring uncertainties with respect to high degree of DRE; surrogate measures, PICs, incinerability <sup>c</sup>	Limited experience Mobile units; onsite treatment avoids hauling risks Operational simplicity
Environmental media most affected	Air	Air
Least compatible wastes: <sup>b</sup>	Highly toxic and refractory organics, high heavy metals concentration	Some Inorganics
Costs: Low, Mod, High	M-H (Coincin. =1)	M
Resource recovery: potential	Energy and some acids	Energy and some metals
		Possible building material
<p>Note:</p> <p><sup>a</sup>Molten salt, high-temperature fluid wall, and plasma arc treatments.</p> <p><sup>b</sup>Wastes for which this method may be less effective for reducing exposure, relative to other technologies.</p> <p>Wastes listed do not necessarily denote common usage.</p> <p>CDRE = destruction and removal efficiency. PIC = product of incomplete combustion.</p> <p>Source: Office of Technology Assessment, 1981.</p>		

inoffensive and safe for the environment. Any type of organic waste which is readily biodegradable can be treated by this process. A possible facility configuration utilizing biological treatment technology is presented in Figure 4-1.

#### C. Chemical Treatment Technologies

Chemical treatment technologies operate by altering the chemical structure of the constituents in the waste through the use of chemical additives. This process alters the waste constituents, rendering them innocuous and reducing their volume. Some processes can also be designed and constructed in mobile units, allowing for on-site treatment. Chemical treatment operations commonly used in treating wastes are: neutralization, precipitation, ion exchange, chemical dechlorination and chemical oxidation/reduction. The schematic of a chemical treatment facility is included in Figure 4-2.

Processes such as "solidification" and "stabilization" are chemical treatment systems designed to accomplish one or more of the following: (1) improve the handling of the waste; (2) improve the physical characteristic of the waste; (3) decrease the surface area across which pollutants can transfer; (4) limit the solubility of any hazardous constituents contained in the waste. Stabilization involves the addition of materials to ensure that the hazardous constituents are maintained in their least soluble and/or toxic form, by solidifying the waste mass and/or chemically complexing the hazardous constituents.

#### D. Physical Treatment Technologies

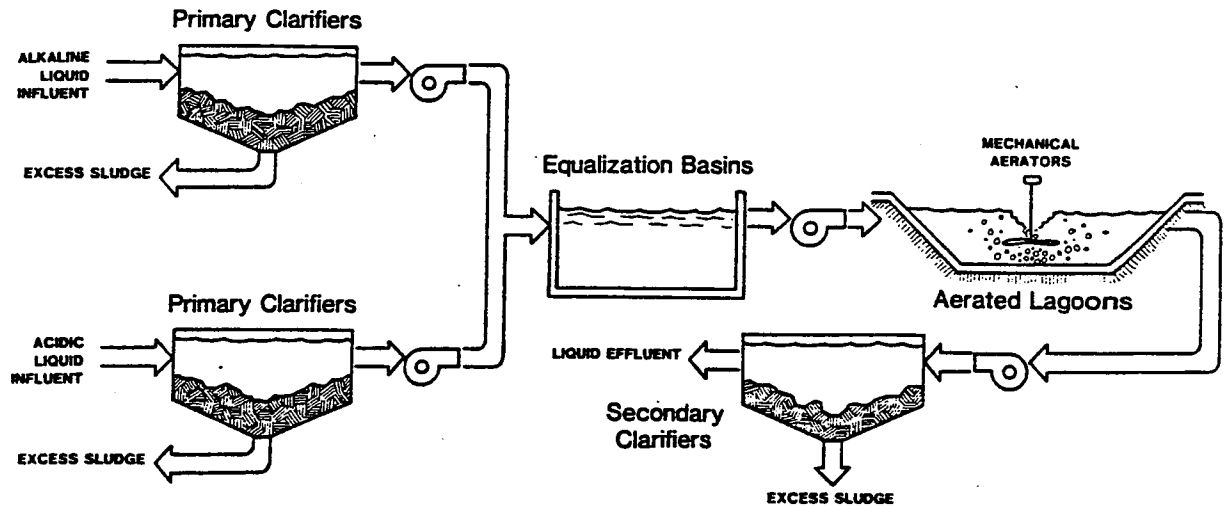
Physical treatment technologies are processes which separate components of a waste stream or change the physical form of the waste without altering the chemical structure of the constituent materials. The configuration of a physical treatment process is presented in Figure 4-3. Physical treatment techniques are often used to separate materials within a waste stream so they can be reused or detoxified by biological and/or chemical treatment, or destroyed by high-temperature incineration. Physical processes are very useful for:

- o Separating hazardous materials from an otherwise non-hazardous waste stream so the former may be properly treated or disposed;
- o Separating various hazardous components for different treatment processes; and
- o Preparing a waste stream for ultimate destruction in a biological or thermal treatment process.

#### E. Thermal Treatment Technologies

Thermal destruction is the decomposition of waste to simpler compounds by the application of heat. If the process is accomplished in the presence of air or oxygen, the process is called incineration. The combustion process produces carbon dioxide and water. Thermal changes may also be accomplished by

FIGURE 4-1  
BIOLOGICAL TREATMENT OF INDUSTRIAL WASTE

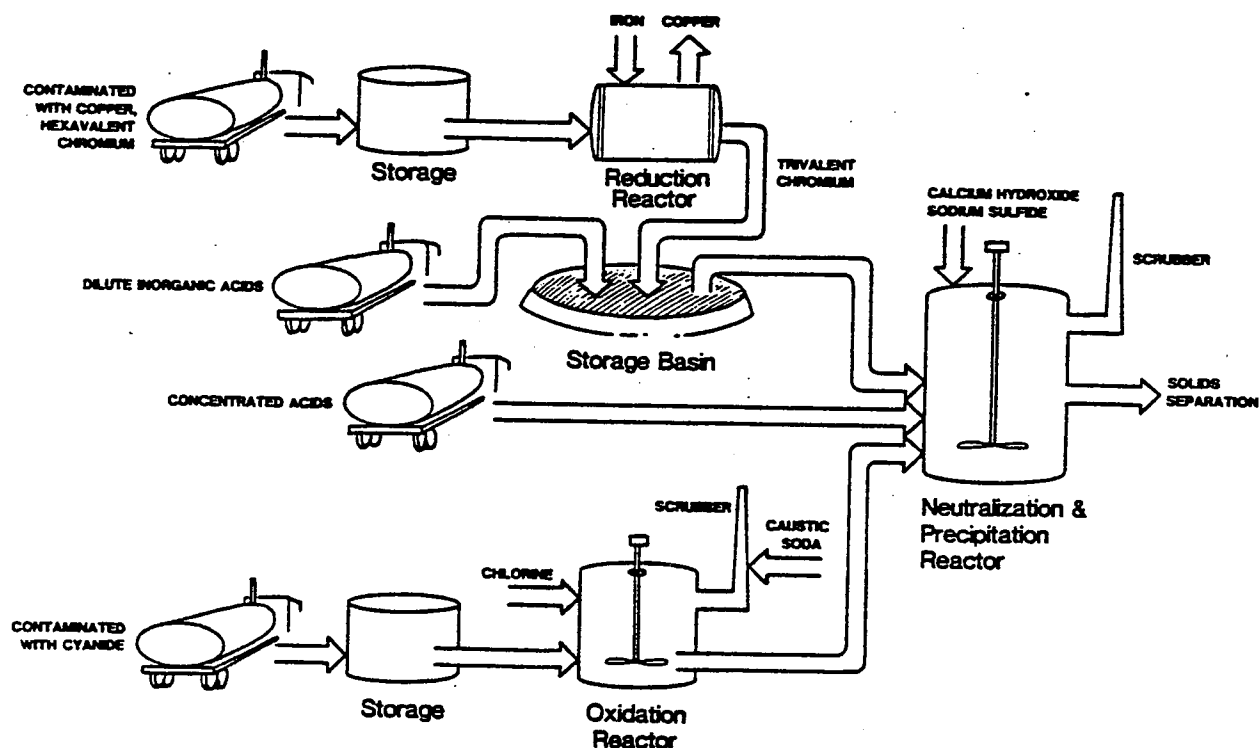


**BIOLOGICAL TREATMENT:**  
Activated Sludge  
Trickling Filters  
Aerated Lagoons  
Waste-Stabilization Ponds  
Anaerobic Digestion  
Landfarming

**PROCESS DESCRIPTION:**  
Micro-organisms present in wastes are allowed to biodegrade the wastes through substrate utilization. In the anaerobic digestion process, the microbial decomposition is usually accompanied by the production of methane gas.

Source: Alternatives to the Land Disposal of Hazardous Wastes - An Assessment for California, Toxic Waste Assessment Group, Governor's Office of Appropriate Technology, 1981.

FIGURE 4-2  
**CHEMICAL TREATMENT**  
 NEUTRALIZATION, PRECIPITATION, AND CHEMICAL OXIDATION/REDUCTION



**CHEMICAL TREATMENT:**

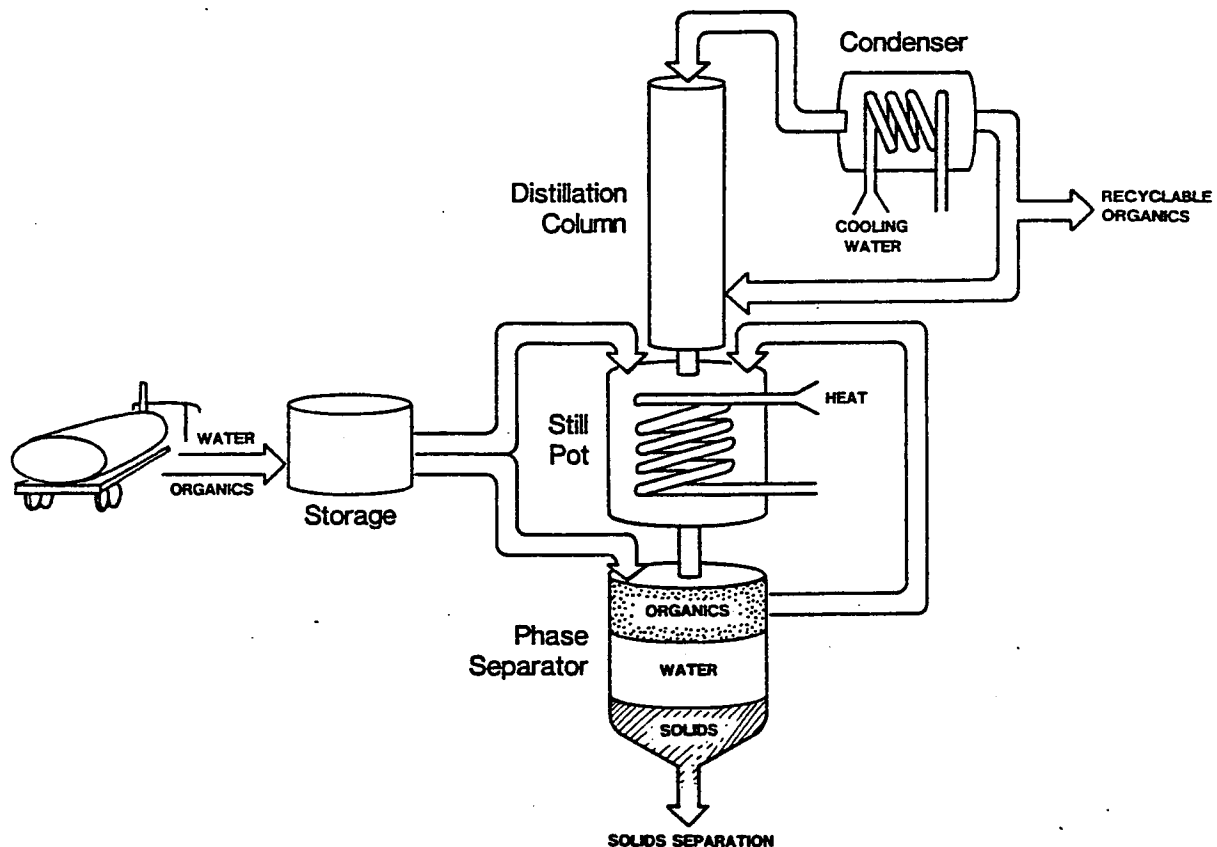
Neutralization  
 Precipitation  
 Chemical Oxidation/Reduction  
 Ion Exchange  
 Chemical Dechlorination

**PROCESS DESCRIPTION:**

Chemical reactions are promoted through chemical additions or condition changes to effect the desired final product.

Source: Alternatives to the Land Disposal of Hazardous Wastes - An Assessment for California, Toxic Waste Assessment Group, Governor's Office of Appropriate Technology, 1981.

FIGURE 4-3  
 PHYSICAL TREATMENT  
 DISTILLATION PROCESS FOR RECOVERING RECYCLABLE ORGANICS



**PHYSICAL TREATMENT:**  
 Solid-Liquid Separation

Screening  
 Sedimentation  
 Flotation  
 Filtration  
 Centrifugation  
 Evaporation  
 Distillation  
 Solvent Extraction  
 Adsorption

**Membrane Separation Processes**

Dialysis  
 Reverse Osmosis  
 Ultrafiltration  
 Electrodialysis

**PROCESS DESCRIPTION:**

Mechanical equipment utilizing physical laws render wastes to more treatable forms, i.e. processes usually separate waste streams.

Source: Alternatives to the Land Disposal of Hazardous Wastes - An Assessment for California, Toxic Waste Assessment Group, Governor's Office of Appropriate Technology, 1981.

heating without air, which is called pyrolysis. Figure 4-4 typifies a rotary kiln incineration facility.

Incineration can eliminate certain health and environmental hazards associated with landfill disposal, reduce the need for landfill capacity and eliminate the possibility of problems occurring in the future. Nevertheless, there are other environmental trade-offs that need to be considered. An impact analysis and feasibility study of incineration developed by the Air Resources Board and the South Coast Air Quality Management District is included in Appendix 4B.

#### F. Long Term Storage Technology/Residuals Repository

A residuals repository is a facility which is generally used for the long-term storage of solid residuals that have resulted from the treatment of hazardous waste. Materials stored in the repositories must meet standards established by Federal and State agencies, or be organic waste that has undergone stabilization, solidification or encapsulation. No free liquid will be accepted.

In general, the residual treatment solids will be either organic or of low organic content, with a relatively low migration potential. Inorganic wastes may contain high concentrations of heavy metals which may be stabilized into a nonreactive form. Wastes that are judged to have a relatively high potential for recovery, such as wastes containing metals, could be separated allowing for reclamation at a future time.

Such a facility can be constructed either above or below ground. It must be designed, developed, operated and maintained in compliance with rules and regulations mandated by the EPA and SDOHS. If the facility is placed below ground, it must meet all the criteria established by the State Regional Water Quality Control Board for a land disposal facility. The type of waste to be accepted will determine whether the facility must comply with Class I or Class II landfill design requirements.

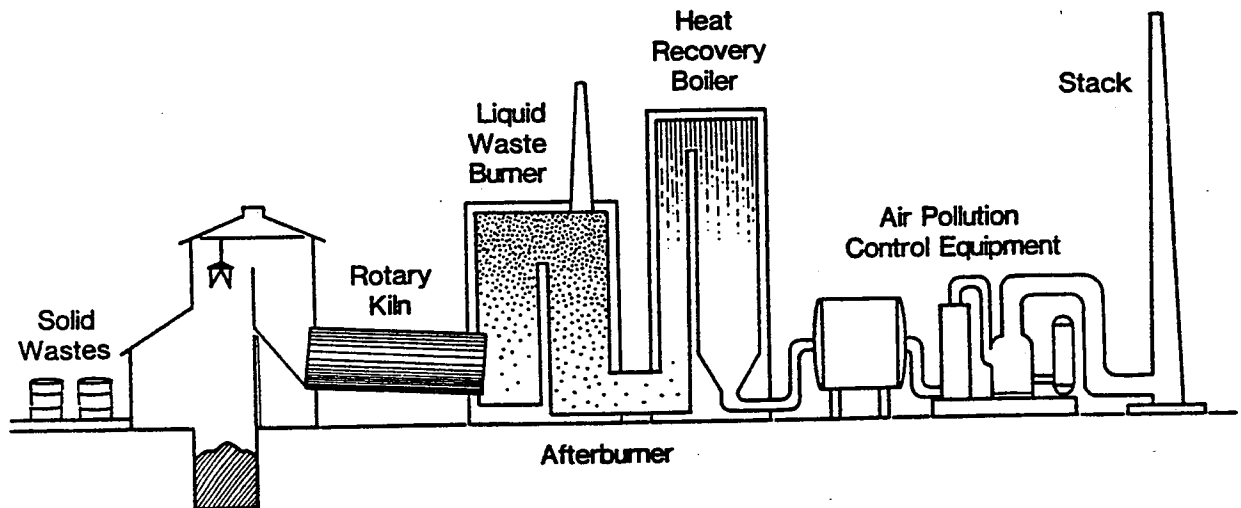
The design and operation of a residuals repository should be such as to keep residuals as dry as possible, to prevent the formation of leachate and to store only compatible, nonreactive waste materials adjacent to each other. A facility designed and operated in this manner would pose little environmental risk.

#### G. Management Selection and Waste Type

The degree of feasibility and appropriateness of a specific management technology for a specific waste depends on many factors, including the characteristics of the waste and the environmental features of the facility.

The selection of the appropriate waste management technology is primarily determined by the type of waste involved. The toxic constituents of a waste stream may be organic or inorganic in nature, allowing for the use of various technological approaches.

FIGURE 4-4  
THERMAL TREATMENT  
ROTARY KILN INCINERATOR WITH HEAT RECOVERY  
AND AIR POLLUTION CONTROL



**THERMAL TREATMENT:**

**Incineration and Pyrolysis**

Rotary Kiln  
Fluidized-Bed Incineration  
Multiple Hearth Incineration  
Liquid Injection Incineration  
Wet Air Oxidation  
Molten Salt Combustion  
At-Sea Incineration  
Cement Kilns  
Coincineration  
Plasma Arc Torch  
Pyrolysis  
High-Temperature Fluid Wall

**PROCESS DESCRIPTION:**

Heat application is used to reduce hazardous wastes to carbon dioxide, waste vapor, ash, some acids and oxides.

Source: Alternatives to the Land Disposal of Hazardous Wastes - An Assessment for California, Toxic Waste Assessment Group, Governor's Office of Appropriate Technology, 1981.

In general, the types of waste requiring land-based containment are residuals from treatment operations, stabilized waste, untreatable waste and relatively low-hazard waste. However, some untreatable wastes are so highly toxic that land disposal should not be used. Changes in the production process, prevention and destruction are the only acceptable alternatives.

Sometimes, a combination of technologies can be used. Many of the treatment processes may be used in conjunction with one another to reduce the volume, hazardous concentration level and pollutant mobility of the waste material. For example, centrifugation and incineration involve both pollutant concentration and a reduction in the volume of the waste requiring disposal. When done in conjunction with chemical fixation, the degree of hazard posed by the residues of these processes is greatly reduced. In addition, when the waste is detoxified or immobilized as well as reduced, the potential danger it presents to communities along transportation routes and near existing disposal sites is minimized.

For small-scale waste generators and for others who find the construction of on-site treatment facilities to be uneconomical, large-scale commercial off-site treatment may represent a viable alternative. Using existing technology, off-site comprehensive regional treatment facilities can detoxify, neutralize, incinerate or otherwise process waste to either reduce the volume or the toxicity of the waste. Residues from the various processes can be stabilized into concrete-like substances for disposal. A sample schematic of this type of facility is shown in Figure 4-5.

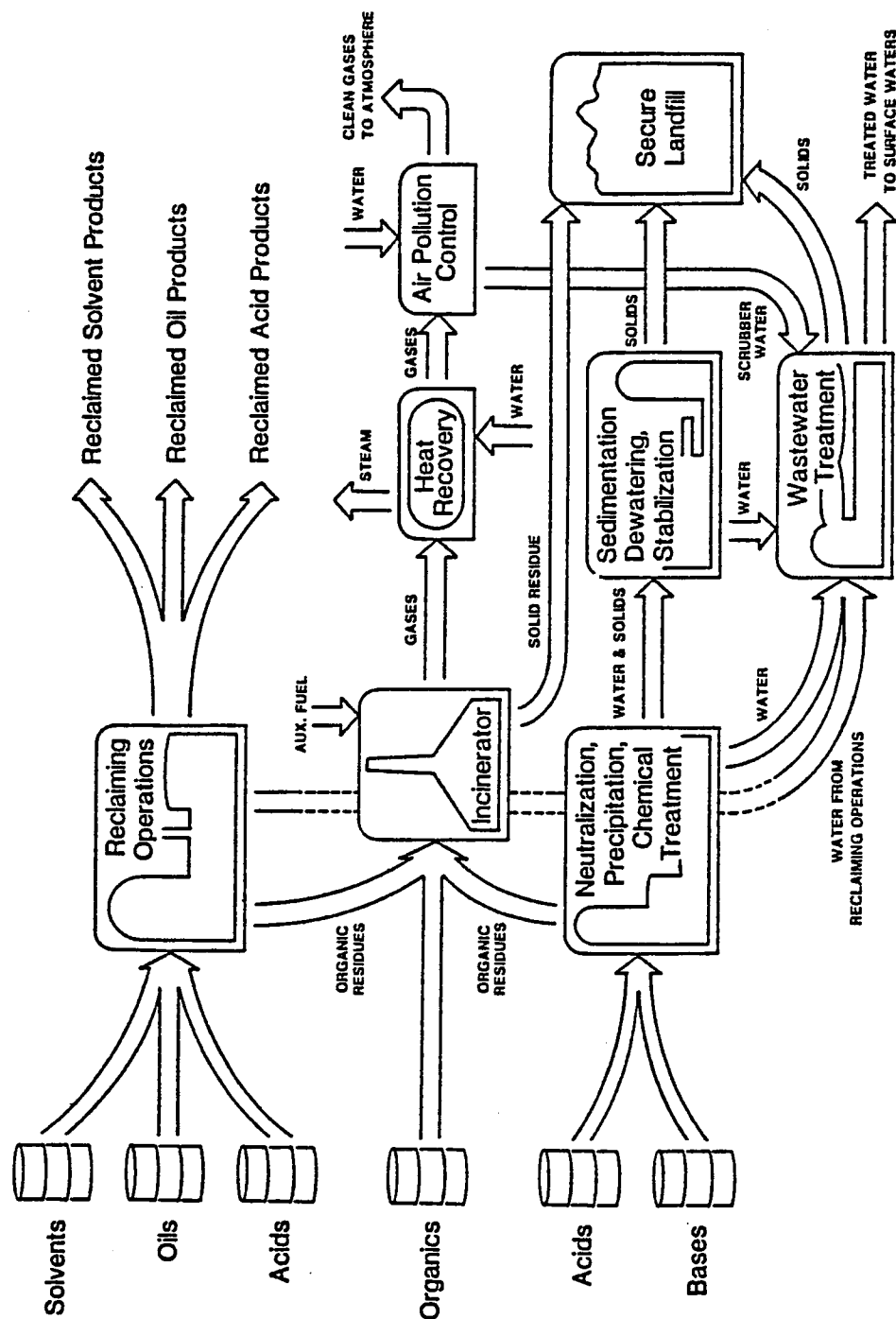
On-site treatment gives the generator more control over processing and handling his own wastes. On-site treatment may also remove some of the manifest requirements for transportation. Additionally, regulatory requirements play a major role in the selection of alternative technologies.

## V. COMPARISON OF TECHNOLOGIES

Numerous treatment alternatives can be used for specific hazardous waste streams or components. Applicability of these alternatives to the wide variety of wastes depends in large measure on their flexibility for use with other processes or operations. Those processes currently considered most applicable for the processing and treatment of the main waste stream are identified in Table 4-3. Unfortunately, no survey has been completed to identify the volume or the percentage each item constitutes.

Due to numerous technical factors, it is difficult to compare treatment and disposal alternatives. The goal of treatment is to eliminate hazard or reduce the degree of hazard while land disposal is for containment and reduction of probability of release. However, no technology can guarantee zero release. Performance capabilities of the different technologies must

FIGURE 4-5  
PROCESS DIAGRAM MODEL COMPREHENSIVE WASTE TREATMENT FACILITY



Source: "Alternatives to the Land Disposal of Hazardous Wastes - An Assessment for California", Toxic Wastes Assessment Group, Governor's Office of Appropriate Technology, 1981.

MAJOR PROCESS/TREATMENT ALTERNATIVES BY PRIMARY WASTE COMPONENTS

TABLE 4-3

	Chemical Oxidation	Solvent Extraction	Chemical Reduction	Sludge Dewatering/Drying	Fixation/Encapsulation	Precipitation	Leaching/Hydrolysis	Incineration	Gravimetric Separation	Adsorption	Biodegradable Treatment (Anaerobic & Aerobic Digestion)	Others
Acids/Alkalines	X	X	X									Neutralization, Membrane Separation
Refractory Organics	X	X	X					X				
Solvents/Oils		X						X	X			Acid, Alkaline, Steam Stripping, Evaporation, Distillation
Biodegradable Organics				X				X			X	Aerobic Filtration
Heavy Metals			X	X	X	X	X		X	X		
Organometallic Compounds	X		X		X	X			X	X		
Inorganic Ions/Compounds				X	X	X	X		X	X		Membrane Separation
Reactive Ions/Compounds	X		X	X	X	X	X					Dissolution

Note: This table is not to be taken as an all inclusive listing, but rather as a guide for available processes.

Source: Extracted from "Alternatives to the Land Disposal of Hazardous Wastes - An Assessment for California", Toxic Waste Assessment Group, Governor's Office of Appropriate Technology, 1981.

therefore be considered in relative terms. Releases that do occur in each technology vary in location, quantity and time. For example, landfills inhibit releases through containment but may leak and contaminate groundwater. Incinerators destroy most of the waste, but some air pollution may occur. Stabilization of waste immobilizes hazardous constituents, but often allows some hazardous constituents to be dissolved, albeit at slow rates. Thus the nature and impact of potential hazardous releases associated with the various waste management technologies must be taken into account when comparisons are made.

Another factor influencing comparisons is that different technologies achieve their objectives with differing efficiencies, such as the degree of destruction, the degree of containment and the degree of stabilization. Another factor to consider is the variation in potential routes of releases, such as air for incinerators and groundwater for landfills. These are important qualitative differences that influence the character of risks. The reliability of different technologies is also important. Reliability depends on the degree of direct process control available, the effectiveness and accuracy of monitoring equipment and practices, and the opportunity to correct deficiencies before any adverse environmental effects can occur. Finally, there are opportunities for energy and material recovery to consider when comparing the various treatment options.

## VI. COST COMPARISON

It is difficult to compare costs of treatment and disposal alternatives on the basis of comparable levels of control because:

1. A consensus is lacking about what constitutes comparable levels of control across technologies;
2. Cost data are specific to applications, locations, and types of waste and are rarely comparable; and
3. Costs are changing as generators try to find lower cost alternatives in response to regulatory and market conditions.

Costs are generally considered on some volume or weight basis for a particular management technique. As cost data are specific to applications, location and waste type, the cost figures presented below are approximated values and should be used as a general guide only.

Costs of various waste management techniques are shown in Table 4-4 for 1981, 1986 and 1987. Waste disposal costs prior to 1980 are not comparable to those today since very few of the early operations included the costs of long-term care and liability. The table shows an increase in land disposal costs while the land treatment (e.g., landfarming, evaporation) costs have remained stable. Incineration costs have risen for highly toxic materials and solids, remained stable for liquids and decreased for clean liquids that had a high fuel value and could replace other fuels.

TABLE 4-4  
COMPARISON OF PRICES FOR HAZARDOUS WASTE MANAGEMENT<sup>a</sup>  
(1981 AND 1986)

Type of Waste Management	Form of Waste	Price			\$ /Metric Ton <sup>b</sup>		
		1981	1986	1987	1981	1986	1987
Land	Drum	\$35-\$50/55 gal. drum	\$41/55 gal. drum <sup>c</sup>	\$40-\$200/55 gal. drum	\$168-\$240	\$198	\$192-\$962
	Bulk	\$50-\$75/ton	\$113-\$238/ton	\$119-\$142 ton	\$55-\$83	\$125-\$262	\$131-\$156
Land Treatment	All	\$0.02-\$0.09/gal.	\$1.35-\$1.85	\$0.65-\$0.85/gal.	\$5-\$24	\$357-\$490	\$717-\$224
Incineration	Relatively clean liquids, high BTU value	\$0.05-\$0.02/gal.	Not available	\$0.05-\$0.50/gal.	\$13-\$53	Not available	\$13-\$132
	Liquids	\$0.20-\$0.90/gal.	\$0.15-\$1.35	\$0.15-\$2.10/gal.	\$53-\$237 <sup>d</sup>	\$40-\$357	\$40-\$556
	Solids, highly toxic	\$1.50-\$3.00/gal.	\$3.34-\$10.43/gal.	\$7.75-\$10.43/gal.	\$395-\$791	\$884-\$2,760	\$2,050-\$2,760
Chemical Treatment	Acids/alkalines	\$0.08-\$0.35/gal.	Not available	\$0.85-\$1.80/gal.	\$21-\$92	Not available	\$224-\$476
	Cyanides, heavy metals highly toxic wastes	\$0.25-\$3.00/gal.	\$0.45-\$1.89	\$1.90-\$2.30/gal.	\$66-\$791	\$170-\$500	\$502-\$608
Resource Recovery	All	\$0.25-\$1.00/gal.	\$0.15-\$1.55/gal.	\$1.00-\$1.20/gal.	\$66-\$264	\$40-\$410	\$264-\$317
Deep Well Injection	Oily wastewaters	\$0.06-\$0.15/gal.	Not available	<sup>e</sup>	\$16-\$40	Not available	<sup>e</sup>
	Toxic rinse waters	\$0.50-\$1.00/gal.	Not available	Not available	\$132-\$264	Not available	Not available

Note: a As quoted by major firms.

b Volumes reported in gallons are transformed into wet metric tons assuming that the waste has the density of water 8.34 pounds per gallon or 0.00378 metric tons per gallon.

c Price includes a 10 percent county tax and \$2.13 federal tax.

d Reclamation of thermal energy from ignitable waste (cement kilns).

e Based on Total Dissolved Solids (TDS). Approximate base price of \$0.01 for TDS < 3,000. Add \$0.01 for every 1,000 TDS > 3,000. Add \$0.05 for every 1,000 TDS > 20,000.

Source: "Booz, Allen & Hamilton, Inc., May 1982". Extracted from Southern California Hazardous Waste Management Project, Final Report on Phase I Activities, January 1984. Updated by the Department of Public Works, November 1987.

Costs of chemical treatment and resource recovery rose, while deepwell injection costs remained stable.

It should be noted that transportation costs to waste management facilities can be quite substantial, with long distances increasing direct costs by as much as 50 to 100 percent. It is generally acknowledged that an increase in disposal and treatment costs of hazardous waste is inevitable due to increases in transportation costs, scarcity of and distance to disposal sites, and inflation. It should be stressed that, although economic efficiency is a management goal of most facilities, the intent of the RCRA is not to balance costs and risks, but rather to protect the public health and environment. Therefore, stricter RCRA regulations and environmental protection law as well as increasing use of waste treatment alternatives are expected.

Although greater use of alternatives to land disposal could increase industry's near-term costs significantly, years and decades from now, cleaning up a site from which there were hazardous releases and compensating the victims could cost 10 to 100 times the additional costs incurred today to prevent releases of hazardous materials. The EPA estimates that the average cost of disposing of hazardous waste in compliance with the new regulations is about \$100 per ton. The EPA estimate of the cost of cleaning up improperly dumped waste could reach about \$2000 per ton. The cost figures, however, are only estimates and are subject to change. Their usefulness is in general comparison. They are only used to emphasize the financial savings that can be incurred by industry over a period of time when regulations are complied with. Other savings incurred by the responsible management of hazardous wastes is in the future payment for damages to human health and the environment. Therefore, when evaluating the cost of various hazardous waste disposal options, it is extremely important to consider the future savings in the cleanup of improperly managed waste and compensation for harm to human health and the environment resulting from inadequate hazardous waste management practices.

## CHAPTER 5

### NEEDS ASSESSMENT

#### I. INTRODUCTION

This Chapter is divided into two sections. The first section discusses the need for on-site treatment facilities. The second section evaluates the available off-site hazardous waste management capacity in Los Angeles County and provides estimates of present and future off-site facility needs in the County for storage, transfer, recycling, treatment and/or disposal.

In this Chapter, facility needs refers to the number of facilities needed to handle the waste generated within Los Angeles County and waste currently imported from areas outside the County. It is the intent of the Plan that Los Angeles County will be responsible for the management of its own waste. This Plan has not included any formal agreement with other counties for management of the regional waste stream (these agreements are not binding nor enforceable upon private industry operations or movements of wastes between jurisdictions). It is expected that regional solutions and issues such as fair share and compensation will be addressed by the Regional Plan which is under preparation by the Southern California Hazardous Waste Management Authority. The Plan further assumes that all wastes that can be treated will be treated.

Overall, the Plan acknowledges the need to cooperate with other counties in dealing with the total hazardous waste management needs in order to achieve the goal of protecting public health, safety, and welfare as well as maintaining the economic viability of the Los Angeles County area and the State.

#### II. NEED FOR ON-SITE HAZARDOUS WASTE MANAGEMENT FACILITIES

Approximately 93 percent of all the hazardous waste in Los Angeles County is managed on-site (see Chapter 2). Although no precise data is available on future on-site treatment facility needs, it is assumed that as facility operators increase their production and waste generation, measures will be implemented to minimize waste generation to the fullest extent utilizing source reduction, recycling and/or treatment of all that is amenable.

This Chapter assumes that on-site treatment will be the responsibility of the generator unless new information become available or a different trend is indicated. Nevertheless, if at some time in the future, on-site treatment fails to provide adequate treatment capacity or services, a domino effect may occur placing unanticipated pressure on off-site management facilities to handle a greater volume of waste. Should this occur and if there is insufficient off-site capacity, generators

will be prohibited from further operation should their discharges exceed pretreatment standards. These standards include those established by the United States Environmental Protection Agency (EPA) and requirements of local sewerage agencies such as Industrial Waste Disposal Ordinances currently being enforced by the County Department of Public Works (DPW), County Sanitation District of Los Angeles County (CSD) and non-contracting DPW and/or CSD cities.

Implementation of State law on the gradual prohibition of land disposal for certain hazardous waste categories since 1983, combined with prohibition on land disposal for untreated hazardous waste by May 8, 1990 (Chapter 1509 of the 1986 State Statutes (SB 1500, Roberti)), unless determined otherwise, has placed emphasis on treatment of waste at its point of generation. As a result, on-site recycling and/or treatment of waste is anticipated to increase. Generators have come to view on-site waste minimization and treatment as the most effective means; not only will they reduce the short-term "high" costs of off-site waste management but will also eliminate the potential for perpetual liability. The management from "Cradle To Grave" becomes an important issue should the off-site management facilities become contaminated in the future.

Furthermore, the California "Hazardous Waste Reduction, Recycling and Treatment Research and Demonstration Act of 1985" and the availability of other loans and grants as described in Chapter 7, Waste Minimization, augment existing incentives to allow industries to expand their treatment capacity or attempt innovative treatment technology. With this increased emphasis, it is possible that wastes which are currently manifested for off-site management may be retained for on-site management.

This Chapter does not specifically address these issues except to note their general effects. It is felt that as more data becomes available through better record keeping and data collection, more precise predictions of on-site management facilities needs will be available.

### III. NEED FOR OFF-SITE HAZARDOUS WASTE MANAGEMENT FACILITIES

#### A. Present Waste Management Needs

To determine the need for off-site hazardous waste management facilities, manifested waste quantities for 1986, their amenable (primary) waste management methods as mandated by the State Department of Health Services (SDOHS), and existing, planned, and proposed facility capacity are evaluated.

As discussed in Chapter 3, an existing facilities is one that is currently in operations and/or have submitted Part B of the application form in response to the Resource and Recovery Act, a "planned" off-site waste management facility is defined as a facility not yet in operation but for which a specific site has been selected and all discretionary permits have been filed (but

not necessarily approved). "Proposed" facilities are known projects in the planning stages for which information has been made available to the DPW, although not all of the appropriate permits have been filed.

Chapter 2, discusses the methodology used and the reasoning that underlies the data analysis whereby the waste codes are matched with the treatment technique most suitable for their management (Table 2-5). Since a variety of management methods (Alternative Treatment Method) might be suitable for a given waste, some judgment has been used in assigning the waste to the most appropriate process. These data are shown in Table 5-1 to Table 5-3.

Table 5-1 presents the total capacity needs for each primary treatment method as stipulated by the SDOHS and quantities of residuals remaining after treatment based on the methodology provided by the SDOHS. These required quantities are calculated based on the following quantities from the 1986 manifest data.

Manifest Waste	616,195 tons
Imported Waste	126,361 tons

Table 5-2 provides a more detailed breakdown of the percentages for estimating residuals remaining for those wastes whose primary treatment method is "Other Recycling" based on the methodology mandated by the SDOHS and information from the Hazardous Waste Association of California.

The need is then compared to the capacity of existing waste management facilities (Chapter 3) in the County. Table 5-3 presents a summary of the net available capacity and/or shortfall at the present time. Table 5-3 also shows present activity and the capacity for the planned and proposed off-site waste management facilities (Chapter 3) for comparing and determining future needs (The latter is further discussed in Section C). It should be noted however, that the proposed capacity are only proposals and should not be construed as definite projects or that the proponent has received any of the necessary permit approvals. Also, there is no information on any closure of the commercial off-site facilities at this time. Should this information be known, it will be reflected to denote the potential change.

Overall, careful judgment should be exercised in understanding the limitations of the analysis prior to any decision based on the assessment shown in Tables 5-1 to 5-3. This is because the treatment techniques mandated by the SDOHS' Guidelines for the preparation of hazardous waste management plans may not be employed by the generators in Los Angeles County due to the availability of other facilities, generators using alternative methods of management, economics, etc. For example, Table 5-1 shows a present need based on 1986 manifest data of only 653 tons for aqueous treatment/organic. This analysis is based on the SDOHS' Guidelines which assumes recycling is the most suitable treatment technique for the management of organic liquid waste.

TABLE 5-1  
CURRENT COUNTY NEEDS FOR OFF-SITE HAZARDOUS  
WASTE TREATMENT/DISPOSAL CAPACITY  
BASED ON WASTE QUANTITIES MANIFESTED  
FOR CALENDAR YEAR 1986\*

GENERALIZED TREATMENT METHOD	WASTE GENERATED IN THE COUNTY			COUNTY GENERATED WASTE AND IMPORTED WASTE		
	REQUIRED TREATMENT CAPACITY EXCLUDING IMPORTED WASTES (TONS/YEAR)	PERCENT OF RESIDUALS REMAINING	QUANTITY OF RESIDUALS REMAINING (TONS/YEAR) <sup>a</sup>	REQUIRED TREATMENT CAPACITY INCLUDING IMPORTED WASTES (TONS/YEAR)	PERCENT OF RESIDUALS REMAINING	QUANTITY OF RESIDUALS REMAINING (TONS/YEAR) <sup>a</sup>
Aqueous Treatment Organic/Chemical Precipitation	653	10b	65	683	10b	68
Aqueous Treatment Metals/Neutralization	75,882	50b	37,941	85,693	50b	42,847
Incineration	129,429	10b	12,943	132,097	10b	13,210
Solvent Recovery	49,596	20b	9,919	59,267	20b	11,853
Oil Recovery	188,066	20b	37,613	277,610	20b	55,522
Other Recycling	127,870	c	106,544-	131,238	c	107,251-
Stabilization	44,699	120b	107,215	55,968	120b	107,989
TOTAL	616,195		258,664- 259,335	742,556		297,913- 298,651

Note:

See Table 2-5, "Quantities of Hazardous Waste Shipped Off-Site by Generators in the County", for the primary and alternative treatment methods and manifest quantities associated with each waste group. It should also be noted that the waste groups used in this analysis does not preclude the use of new waste groups (e.g., infectious waste) in future needs assessments analysis in the CoHMP. The update may also be required to enhance the analysis of selected waste streams (e.g., out of state shipments, pretreatment sludges, etc.)

\*This table is based on the following assumptions:

- 1) All that can be treated will be treated. The quantities shown in this table are not used in Table 5-3 for capacity need; and
  - 2) All hazardous waste is treated prior to landfilling, which will not be the case until May 1990, at the earliest.
- a This table estimates the residuals disposal needs for only one year and not the size of a needed residuals repository.
- b Based on the format and percentages provided by the State Department of Health Services' Technical Reference Manual, Tables B and Q, June 30, 1987.
- c See table 5-2 for percent of residuals remaining from "Other Recycling".

Source: Los Angeles County Department of Public Works, September 1988

TABLE 5-2  
CURRENT COUNTY NEEDS OF HAZARDOUS WASTE TREATMENT  
FOR WASTE GROUP/WASTE CATEGORIES LISTED FOR OTHER RECYCLING  
BASED ON WASTE QUANTITIES MANIFESTED  
FOR CALENDAR YEAR 1986

GENERALIZED TREATMENT METHOD	WASTE GROUP/ WASTE CATEGORIES	WASTE GENERATED IN THE COUNTY			COUNTY GENERATED WASTE AND IMPORTED WASTE		
		REQUIRED TREATMENT CAPACITY EXCLUDING IMPORTED WASTES (TONS/YEAR)	PERCENT OF RESIDUALS REMAINING <sup>a</sup>	QUANTITY OF RESIDUALS REMAINING (TONS/YEAR)	REQUIRED TREATMENT CAPACITY INCLUDING IMPORTED WASTES (TONS/YEAR)	PERCENT OF RESIDUALS REMAINING <sup>a</sup>	QUANTITY OF RESIDUALS REMAINING (TONS/YEAR)
OTHER RECYCLING	ORGANIC LIQUIDS 133, 134, 341, 342, 343	8,575	10	856	11,130	10	1,113
	MISCELLANEOUS WASTES: Empty Containers 511, 512, 513	4,100	90	3,690	4,248	90	3,823
	Metal						
	Waste 172	546	90	491	547	90	492
	Other Inorganic Solid Wastes 181	112,458	90	101,213	112,656	90	101,390
	Off-Spec Aged/ Surplus Organics 331	454	20-50	46-227	728	20-50	146-364
	Photochemicals/ Photo Processing Waste 541	579	20-50	116-290	662	20-50	132-331
	Laboratory Waste Chemicals 551	523	10-30	52-157	550	10-30	55-165
	Detergent and Soap 561	528	10-50	53-264	528	10-50	53-264
	Household Wastes 612	106	25	27	189	25	47
				106,544- 107,215	131,238		107,251- 107,989
	TOTAL	127,870					

Note: <sup>a</sup> Percent of Residuals Remaining - Based on information provided by the Hazardous Waste Association of California, July 1988.

Source: Los Angeles County Department of Public Works, September 1988.

TABLE 5-3  
CURRENT NET AVAILABLE CAPACITY OR SHORTFALL OF EXISTING, PLANNED AND PROPOSED WASTE MANAGEMENT FACILITIES  
IN LOS ANGELES COUNTY  
(TONS/YEAR)

TREATMENT FACILITY	LOCATION	1986 ACTIVITY**	EXISTING CAPACITY	PLANNED CAPACITY	PROPOSED CAPACITY	LOSS OF CAPACITY FROM CLOSING FACILITY	TOTAL	LOS ANGELES COUNTY CAPACITY NEEDS			
								EXCLUDE IMPORTED WASTES		INCLUDE IMPORTED WASTES	
								TOTAL * REQUIRED CAPACITY OR SHORTFALL	(1986) NET CAPACITY	(1986) TOTAL IMPORTED WASTE INTO LOS ANGELES	(1986) NET AVAILABLE CAPACITY REQUIRED OR SHORTFALL
AQUEOUS TREATMENT											
ORGANIC											
BKK Aptec I	Wilmington	---	---	---	187,500 <sup>a</sup>	---	---				
Chem Tech System	Los Angeles	24,880	111,300	---	---	---	---				
National Solder	Long Beach	1	1.5	---	---	---	---				
Oil & Solvent Process	Azusa	---	---	---	35,825	---	---				
Oil Process Company	Los Angeles	4,070	4,200	---	57,500 <sup>b</sup>	---	---				
Rho-Chem Corp.	Inglewood	825	12,600	---	8,400	---	---				
TOTAL		29,776	128,101.5	---	289,225	---	417,326.5	653	+127,448.5	30	683 +127,418.5
AQUEOUS TREATMENT											
METALS/NEUTRALIZATION											
BKK Aptec I	Wilmington	---	---	---	187,500 <sup>a</sup>	---	---				
Chem Clear	Vernon	---	---	246,000	---	---	---				
Chem Tech System	Los Angeles	690	2,100	---	---	---	---				
GNB Inc.	Los Angeles	19,850	33,500	---	---	---	---				
Oil & Solvent Process	Azusa	---	---	---	15,350	---	---				
Oil Process Company	Los Angeles	4,070	4,200	---	57,500 <sup>b</sup>	---	---				
Omega Recovery Services	Whittier	90	315	---	---	---	---				
PGP Industries	Torrance	60	2,500 <sup>c</sup>	---	---	---	---				
Southern CA Chemical	Santa Fe Springs	1,200	4,200	---	---	---	---				
TOTAL		25,900	44,315	246,000	260,350	---	550,665	75,882	- 31,567	9,811	85,693 - 41,378
INCINERATION											
BFI Medical Waste Syst.	Vernon	---	8,000 <sup>d</sup>	---	---	---	---				
CAL Thermal Treatment Services	Vernon	---	---	22,400	---	---	---				
National Solder	Long Beach	13	4,563	---	---	---	---				
Stauffer Chemical	Carson	---	64,000 <sup>e</sup>	---	---	---	---				
TOTAL		13	4,563	22,400	---	---	26,963	129,429	-124,866	2,668	132,097 -127,534

TABLE 5-3 (CONT.)  
CURRENT NET AVAILABLE CAPACITY OR SHORTFALL OF EXISTING, PLANNED AND PROPOSED WASTE MANAGEMENT FACILITIES  
IN LOS ANGELES COUNTY  
(TONS/YEAR)

(TONS/YEAR)												
LOS ANGELES COUNTY CAPACITY NEEDS												
TREATMENT FACILITY	LOCATION	** 1986 ACTIVITY	EXISTING CAPACITY	PLANNED CAPACITY	PROPOSED CAPACITY	LOSS OF CAPACITY FROM CLOSING FACILITY	TOTAL	EXCLUDE IMPORTED WASTES		INCLUDE IMPORTED WASTES		
								TOTAL * REQUIRED CAPACITY OR SHORTFALL	(1986) NET CAPACITY OR SHORTFALL	TOTAL (1986) IMPORTED WASTE INTO LOS ANGELES	(1986) TOTAL REQUIRED CAPACITY	(1986) NET AVAILABLE CAPACITY OR SHORTFALL
SOLVENT RECOVERY												
AAD Distr. & Dry Clean.	Vernon	0	420 <sup>f</sup>	---	---	---	---	---	---	---	---	
American Chem. & Refinery	South - El Monte	168	4209	---	---	---	---	---	---	---	---	
American Labs., Inc.	Los Angeles	1,260	2,016 <sup>h</sup>	---	---	---	---	---	---	---	---	
Detrex Chemical Inc.	Vernon	288	750	---	---	---	---	---	---	---	---	
Oil & Solvent Process	Azusa	2,100	42,000	---	78,000	---	---	---	---	---	---	
Omega Recovery Services	Whittier	1,650	2,730	---	---	---	---	---	---	---	---	
Plastics Materials, Inc	Alhambra	850	1,680	---	---	---	---	---	---	---	---	
Reclamar Corp.	Wilmington	---	200	---	---	---	---	---	---	---	---	
Rho-Chem Corp.	Inglewood	1,790	3,440	---	3,280	---	---	---	---	---	---	
Safety Kleen Corp.	Los Angeles	---	4,200	---	---	---	---	---	---	---	---	
TOTAL		6,678	55,000	---	81,280	---	135,280	49,596	+ 5,404	9,671	59,267 - 4,267	
OIL RECOVERY												
DeMenno Kerdoon	Compton	117,400	23,360	---	---	---	---	---	---	---	---	
Fletcher Oil & Refinery	Carson	---	---	---	22,300	---	---	---	---	---	---	
Industrial Services Co.	Los Angeles	---	3,150 <sup>i</sup>	---	---	---	---	---	---	---	---	
Leach Oil Company	Compton	8,920	42,000	---	---	---	---	---	---	---	---	
Lubrication Company of America	Saugus	0	45,000 <sup>j</sup>	---	---	---	---	---	---	---	---	
Oil & Solvent Process	Azusa	---	---	---	5,200	---	---	---	---	---	---	
Oil Process Company	Los Angeles	550	2,940	---	---	---	---	---	---	---	---	
Petroleum Recycling Co.	Signal Hill	56,670	09,200	---	---	---	---	---	---	---	---	
Tally Brothers	Huntington Park	3,520	8,736	---	---	---	---	---	---	---	---	
TOTAL		187,060	86,236	---	27,500	---	613,736	188,066	+398,170	89,544	277,610 +308,626	
OTHER RECYCLING												
GNB Inc.	Los Angeles	64,410	75,000 <sup>k</sup>	---	---	---	---	---	---	---	---	
Oil & Solvent Process	Azusa	---	---	---	1,080 <sup>l</sup>	---	---	---	---	---	---	
Quemetco	Industry	---	---	---	---	---	---	---	---	---	---	
Southern CAL Chemical	Santa Fe Springs	9,240	16,800	---	---	---	---	---	---	---	---	
TOTAL		73,650	16,800	---	---	---	16,800	127,870	-111,070	3,368	131,238 -114,438	
STABILIZATION												
Chem Clear	Vernon	---	---	---	1,100 <sup>m</sup>	---	---	---	---	---	---	
TOTAL		---	0	---	1,100	---	1,100	44,699	- 44,699	11,269	55,968 - 55,968	
RESIDUALS REPOSITORY <sup>n</sup>												
		---	0	---	---	---	---	259,335	-259,335	---	298,651 -298,651	

TABLE 5-3 (CONT.)  
CURRENT NET AVAILABLE CAPACITY OR SHORTFALL OF EXISTING, PLANNED AND PROPOSED WASTE MANAGEMENT FACILITIES  
IN LOS ANGELES COUNTY  
(TONS/YEAR)

Note: \* Required Treatment Capacity excluding imported waste (Table 5-1)

\*\* Quantities of hazardous waste that were managed during 1986, from Commercial Facility Capacity Summary from the State Department of Health Services (SDHS). For those companies whose 1986 activities were missing, the companies were contacted directly by Department of Public Works for the data. However, no information was received as of the date of printing of the Plan.

- a Total proposed capacity is 375,000 tons per year. This is divided equally between the two type of aqueous treatments, namely Organic and Metals/Neutralization.
  - b Total proposed capacity is 115,000 tons per year. This is divided equally between the two types of Aqueous Treatments, namely Organic and Metals/Neutralization.
  - c Only metals are removed from the waste. As such, this capacity is not included in the needs and assessment analysis.
  - d Incineration of medical waste only. As such, this capacity is not included in the needs and assessment analysis.
  - e Plant handles sulfurous acid only. As such, this capacity is not included in the needs and assessment analysis.
  - f Recovery of dry cleaning solvents. As such, this capacity is not included in the needs and assessment analysis.
  - g Recovery of precious metals from cyanide process. As such, this capacity is not included in the need and assessment analysis.
  - h Recovery of ethylene glycol (Antifreeze) only. As such, this capacity is not included in the needs and assessment analysis. However, the Company is currently seeking insurance.
  - i Actual treatment capacity unknown. 3,150 is the facility's total capacity, as such, this capacity is not included in the needs and assessment analysis.
  - j The Company is presently not operating but capacity is available should the need arise. As such, this capacity is not included in the need and assessment analysis.
  - k Plant feed consists primarily of lead acid batteries. As such, this capacity is not included in the needs and assessment analysis.
  - l Recycling for ethylene glycol only. As such, this capacity is not included in the needs and assessment analysis.
  - m This quantity represents the stabilization of 150 drums per day. These drums were estimated to weigh 40 pounds each.
  - n Table 5-1 identifies residuals waste remaining after treatment, assuming maximum treatment.
- Proposed capacities shown are based on information provided by the prospective developers. However, it is questionable whether developers will move forward with their proposals due to opposition from a variety of interest groups and the general public and time constraints in the permit process. Therefore, it would be highly optimistic to assume that all planned and proposed facilities be operational by 1990. For further analysis refer to other sections in the Chapter.

Source: Los Angeles County Department of Public Works, September 1988

However, since Los Angeles County lacks adequate recycling capacity for this waste stream, generators have used the next available and suitable treatment method for managing their liquid waste, aqueous treatment/organic, as substantiated in Table 5-3, "1986 Activity". This trend is expected to continue until such time as needed facilities are developed.

Based upon current shortfalls, facility needs are found to exist for the following treatment and disposal technologies:

- Aqueous Treatment, Metal/Neutralization
- Incineration
- Other Recycling
- Stabilization
- Residuals Repository

It should be noted that incineration may be a difficult management strategy to implement in Los Angeles County since a portion of the County is located in a non-attainment air basin. However, in order to have a consistent format for Statewide planning purpose, incineration has been considered as one of the management alternatives as stipulated by the SDOHS.

#### B. Facility Needs

For the purpose of determining the range of facility needs, each management technology is sized for three distinct capacities, i.e., small, medium, and large. It should be noted, however, that the three size categories are different for each treatment technology. Table 5-4 presents typical sizing for the various management facilities. By applying these sizing estimates, the type and number of facilities that need to be sited and operated to alleviate current hazardous waste recycling, treatment, and disposal shortfalls in the County is determined. Table 5-5 presents a summary of the number of facilities needed by size category based on current need (Table 5-1). For example, the determined capacity need of 105,130 tons per year (TPY) for incineration can be fulfilled by 4 small (30,000 TPY) facilities, or 1 medium (150,000 TPY), or 1 large (300,000 TPY) facility. The table presents a number of various combinations of small, medium, and large facilities that can be used to meet the required needs.

When considering the size and distribution of these facilities, the following concerns should be considered:

1. There are economies of scale which apply to large facilities, i.e., lower capital costs.
2. More than one type of treatment technology can be located at a single site. This could provide savings in costs through the use of common services such as administration, laboratories, transportation, and emergency response.
3. A large number of small, scattered, non-integrated

TABLE 5-4  
TYPICAL HAZARDOUS WASTE MANAGEMENT FACILITY SIZES  
(TONS PER YEAR)

	<u>Small</u>	or	<u>Medium</u>	or	<u>Large</u>
AQUEOUS TREATMENT ORGANIC/CHEMICAL PRECIPITATION	70,000		175,000		350,000
AQUEOUS TREATMENT METALS/NEUTRALIZATION	70,000		175,000		350,000
INCINERATION	30,000		150,000		300,000
SOLVENT RECOVERY	70,000		175,000		350,000
OIL RECOVERY	75,000		170,000		350,000
OTHER RECYCLING	75,000		170,000		350,000
STABILIZATION	15,000		35,000		85,000
RESIDUALS REPOSITORY	75,000		170,000		360,000
TRANSFER STATION	150		500		2,000
STORAGE	150		500		2,000

Source: Los Angeles County Department of Public Works, September 1988

**TABLE 5-5  
CURRENT HAZARDOUS WASTE MANAGEMENT FACILITY NEEDS  
BASED ON 1986 MANIFEST DATA**

**NUMBER OF FACILITIES**

	EXCLUDING IMPORTED WASTES			INCLUDING EXPORTED WASTES		
	Small	Medium	Large	Small	Medium	Large
AQUEOUS TREATMENT ORGANIC/CHEMICAL PRECIPITATION	0	0	0	0	0	0
AQUEOUS TREATMENT METALS/NEUTRALIZATION	1	1	1	1	1	1
INCINERATION	5	1	1	5	1	1
SOLVENT RECOVERY	0	0	0	1	1	1
OIL RECOVERY	0	0	0	0	0	0
OTHER RECYCLING	2	1	1	2	1	1
STABILIZATION	3	2	1	4	2	1
RESIDUALS REPOSITORY <sup>a</sup>	4	2	1	4	2	1

**Note:** Based on net available capacity without expansion of existing facilities for manifest and imported waste for calendar year 1986.

<sup>a</sup> Facility need is based on the maximum estimate of residuals remaining from the primary treatment method as stipulated by the State Department of Health Services (Table 5-1).

**Source:** Los Angeles County Department of Public Works, September 1988

treatment facilities may increase transportation costs and environmental risks.

4. Storage, transfer, recycling and treatment facilities should be located as close to the area of generation as possible.
5. Residuals repositories should be located in more distant areas from urbanized zones.
6. A detailed analysis of the waste stream in the service area should be done prior to determining the type of facility needed.
7. Incineration may be a difficult management strategy to implement in Los Angeles County since a portion of the County is located in a non-attainment air basin.

Also under examination is the need for commercial storage and/or transfer facilities. It is estimated that they will be proposed as needed. Their needs are anticipated to be minimal as it is the intent of this Plan that the off-site recycling and treatment facilities be located as close to the areas of generation as possible. These facilities would basically allow residuals to be consolidated for economic transfer to a disposal site. At this time, the only known proposed transfer/storage facility is the one being considered by the Oil and Solvent Process Company. The facility is proposed basically to support the expansion of their services (Chapter 3).

As previously stated, it is the goal of this Plan to provide for the management of all of the Los Angeles County's waste, both on- and off-site. The needs and assessment analysis as presented herein is based on the best information available.

In the event that an on-site facility is inoperable due to non-compliance, the generated waste will be redistributed to existing commercial facilities in Los Angeles County. Furthermore, if need be, current needs assessment has a buffer of 23% that can be used for such contingencies (126,361 tons of imported waste and 18,356 tons of waste that is double counted as they were manifested for transfer station as shown later in Table 5-9.

Although this Chapter has not identified specifically those facilities not meeting regulatory requirements specified in the SDOHS' Guidelines for the preparation of the hazardous waste management plan, it is the opinion that the needs and assessment as presented fully addresses the need of the County. In the event that any off-site facility is closed due to non-compliance, other existing commercial facilities (in and out of the County) as identified in Chapter 3, will be able to absorb the excess until other alternatives are identified. DPW has requested SDOHS for permit status and violation citations as well as compliance schedules regarding existing facilities. As the information

becomes available, the DPW will update the treatment scenarios and reflect the outcome in the needs analysis.

### C. Future Waste Management Needs

The methodology used in the preceding section can also be applied to determine the number and type of facilities needed in the future.

The facility capacity needs of 1990, 1995, 2000, and 2005 were determined based on the projections for off-site waste (1986 manifest data) developed in Chapter 2 and Appendix 2A. The projected quantities of waste (Table 2A-4) based on employment growth factor (Table 2A-3) are compared to available facility capacity. Table 5-6 and Figures 5-1 through 5-8 show the excess and shortfall of needs based on two scenarios. Scenario A assumes that none of the planned and proposed facilities, as identified in Table 5-3, are constructed within the planning period (through 2005). This is the no-action scenario. Scenario B assumes that all of these facilities are constructed with the proposed capacity on-line within 2 years (by 1990). This is the maximum (not the probable) capacity scenario. These two scenarios are to serve as boundary conditions. For example, for Year 1995, Figure 5-4 shows a capacity shortfall of 6,511 tons under Scenario A and an excess of 74,769 tons under Scenario B. Based on the projected quantities, Table 5-7 presents the quantities of residuals generation. These quantities are used in determining the need for residuals repository (Table 5-6). However, it should be noted that Table 5-7 does not include projected waste from clean-up activities as estimated in Chapter 11. As more Federal/State Superfund clean-ups are scheduled, it may significantly increase the need under this management strategy.

By comparing the need to typical facility sizes of each management technology (Table 5-5), Table 5-8 presents the off-site facility needs based on the two scenarios. However, it should be noted that Tables 5-6 to 5-8 are all based on 1986 manifest data only. In addition, the tables do not consider the impact of waste minimization as directed by the SDOHS.

It is important to realize that although planned and proposed facilities are considered at this time, it is uncertain, however, whether they will actually become operational. Also, it is highly optimistic to assume that the planned and proposed capacities will be operating by 1990. Opposition to development of these facilities from a variety of special interest groups as well as the general public may delay or indefinitely postpone some of them. Added to these obstacles, there is also the time consuming permitting process. In reality, some of these facilities may never be built.

In light of the Plan's recommendations to implement waste minimization and recycling to the fullest extent possible, it is imperative that the County, cities, private industries and the public take measures to prioritize permitting and the development

**TABLE 5-6**  
**PROJECTED NEEDS AND ASSESSMENT FOR COMMERCIAL**  
**HAZARDOUS WASTE TREATMENT FACILITIES IN LOS ANGELES COUNTY**  
**BASED ON 1986 MANIFEST DATA**  
**EXCLUDING IMPORTED WASTE<sup>a</sup>**  
**(TONS/YEAR)**

GENERALIZED TREATMENT METHOD	1986		1990		1995		2000		2005	
	EXISTING CAPACITY	<sup>b</sup> REQUIRED CAPACITY	PROJECTED <sup>c</sup> CAPACITY REQUIREMENT	PROJECTED CAPACITY EXCESS(+) OR DEFICIENCY(-)	PROJECTED <sup>c</sup> CAPACITY REQUIREMENT	PROJECTED CAPACITY EXCESS(+) OR DEFICIENCY(-)	PROJECTED <sup>c</sup> CAPACITY REQUIREMENT	PROJECTED CAPACITY EXCESS(+) OR DEFICIENCY(-)	PROJECTED <sup>c</sup> CAPACITY REQUIREMENT	PROJECTED CAPACITY EXCESS(+) OR DEFICIENCY(-)
<b>SCENARIO A</b>										
Aqueous Treatment - Organic	128,101.5	653	717	+127,385	810	+127,292	943	+127,159	1,098	+127,004
Aqueous Treatment - Metals/ Neutralization	44,315	75,882	83,303	- 38,988	94,112	- 49,797	109,579	- 65,264	127,588	- 83,273
Incineration <sup>d</sup>	4,563	129,429	142,087	-137,523	160,523	-155,960	186,904	-182,341	217,622	-213,058
Solvent Recovery	55,000	49,596	54,446	+ 554	61,511	- 6,511	71,620	- 16,620	83,391	- 28,391
Oil Recovery	586,236	188,066	206,458	+379,778	233,247	+352,989	271,581	+314,655	316,213	+270,023
Other	16,800	127,870	140,375	-123,575	158,589	-141,789	184,653	-167,853	215,000	-198,200
Stabilization	0	44,699	49,070	- 49,070	55,437	- 55,437	64,548	- 64,548	75,157	- 75,157
Residuals										
Repository <sup>d</sup>	0	259,335	284,696	-284,696	321,637	-321,637	374,498	-374,498	436,044	-436,044
<b>SCENARIO B</b>										
Aqueous Treatment - Organic	417,326.5	653	717	+416,610	810	+416,517	943	+416,384	1,098	+416,229
Aqueous Treatment - Metals/ Neutralization	550,665	75,882	83,303	+467,362	94,112	+456,553	109,579	+441,086	127,588	+423,077
Incineration <sup>d</sup>	26,963	129,429	142,087	-115,124	160,523	-133,560	186,904	-159,941	217,622	-190,659
Solvent Recovery	136,280	49,596	54,446	+ 81,834	61,511	+ 74,769	71,620	+ 64,660	83,391	+ 52,889
Oil Recovery	613,736	188,066	206,458	+407,278	233,247	+380,489	271,581	+342,155	316,213	+297,523
Other										
Recycling	16,800	127,870	140,375	-123,575	158,589	-141,789	184,653	-167,853	215,000	-198,200
Stabilization	1,100	44,699	49,070	- 47,970	55,437	- 54,337	64,548	- 63,448	75,157	- 74,057
Residuals										
Repository <sup>d</sup>	0	259,335	284,696	-284,696	321,637	-321,637	374,498	-374,498	436,044	-436,044

**Note:** Scenario A assumes that none of the planned and proposed facilities identified in Table 5-3 are on line by 1990.  
Scenario B assumes that all of the planned and proposed facilities identified in Table 5-3 are on line by 1990.

<sup>a</sup> Numbers are rounded off where appropriate.

<sup>b</sup> Required capacity excluding imported waste, Table 5-1.

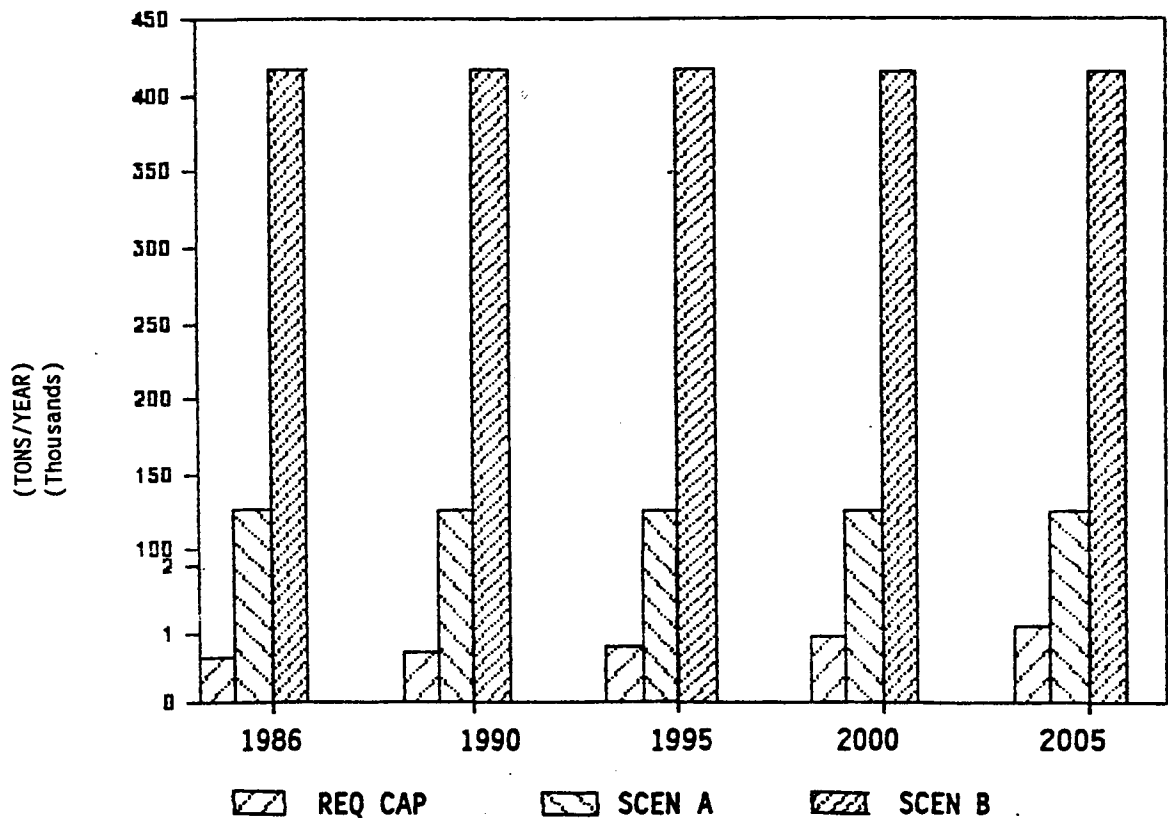
<sup>c</sup> Based on employment growth factors in Table 2A-3.

<sup>d</sup> Based on maximum quantity estimated for residuals in Table 5-7. Does not include projected waste from clean-up activities as estimated in Chapter 11. Otherwise, the required capacity in Incineration will need to subtract the quantity (and its projection) of contaminated soil and, the required capacity in Residuals Repository will need to be increased by 142,600 tons per year.

Source: Los Angeles County Department of Public Works, September 1988

FIGURE 5-1  
CURRENT AND PROJECTED NEEDS ASSESSMENT  
(EXCESS AND SHORTFALL)  
FOR

# AQUEOUS TREATMENT ORGANIC FACILITIES



Note: This figure depicts the excess or shortfall of facility needs based on data from Table 5-7 (excluding imported waste) under Scenario A and Scenario B.

REQ CAP Required capacity in 1986 or projected required capacity for 1990 through 2005.

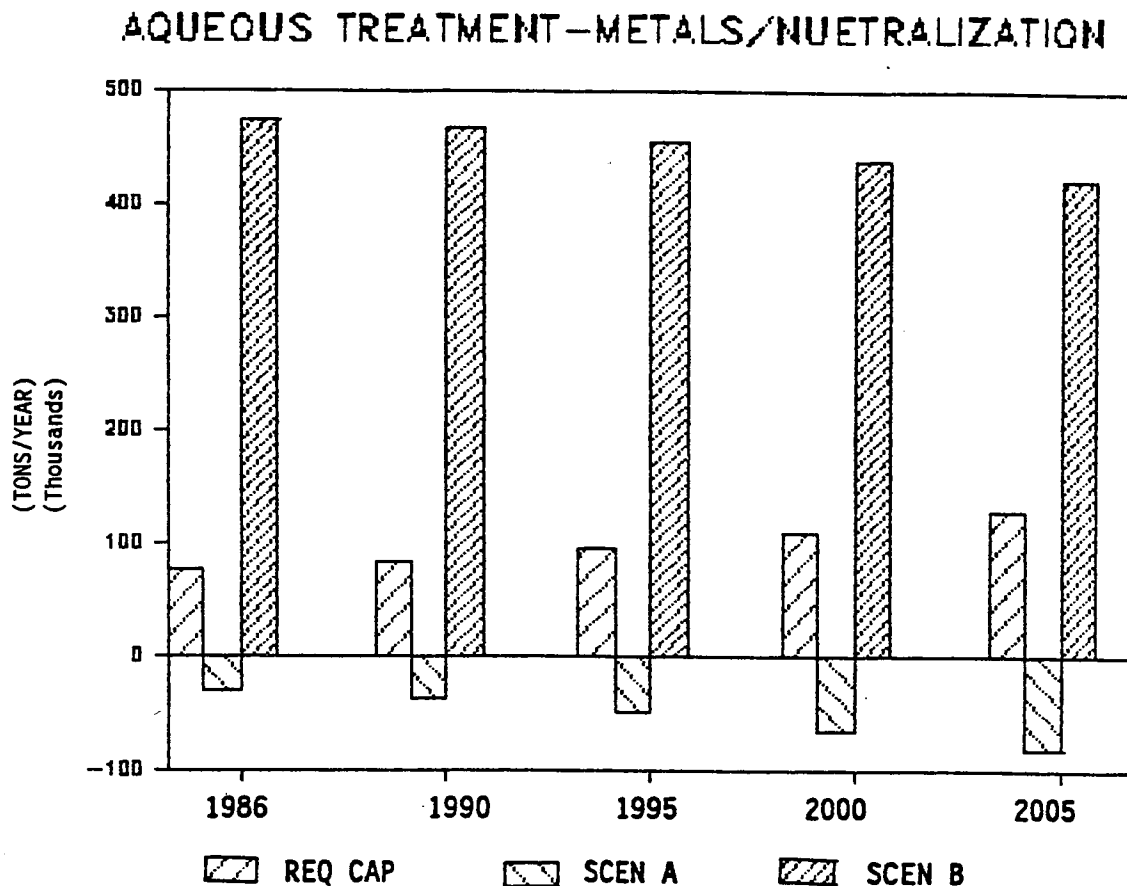
Existing capacity in 1986 or 1990 through 2005 based on the following scenarios:

SCEN A Assumes that none of the planned and proposed facilities identified in Table 5-4 are on line by 1990. Quantity shown is Existing Capacity minus Required Capacity.

SCEN B Assumes that all of the planned and proposed facilities identified in Table 5-4 are on line by 1990. However, it is questionable whether the developers will move forward with their proposed facilities due to opposition from special interest groups and the general public as well as time constraints in the permit process. Therefore, it would be highly optimistic to assume that any of the proposed facilities will be operational by 1990. For further analysis refer to other sections in the Chapter. Quantity shown is Total (Existing/Planned/Proposed) Capacity minus Required Capacity.

Source: Los Angeles County Department of Public Works, September 1988

FIGURE 5-2  
CURRENT AND PROJECTED NEEDS ASSESSMENT  
(EXCESS AND SHORTFALL)  
FOR



Note: This figure depicts the excess or shortfall of facility needs based on data from Table 5-7 (excluding imported waste) under Scenario A and Scenario B.

REQ CAP Required capacity in 1986 or projected required capacity for 1990 through 2005.

Existing capacity in 1986 or 1990 through 2005 based on the following scenarios:

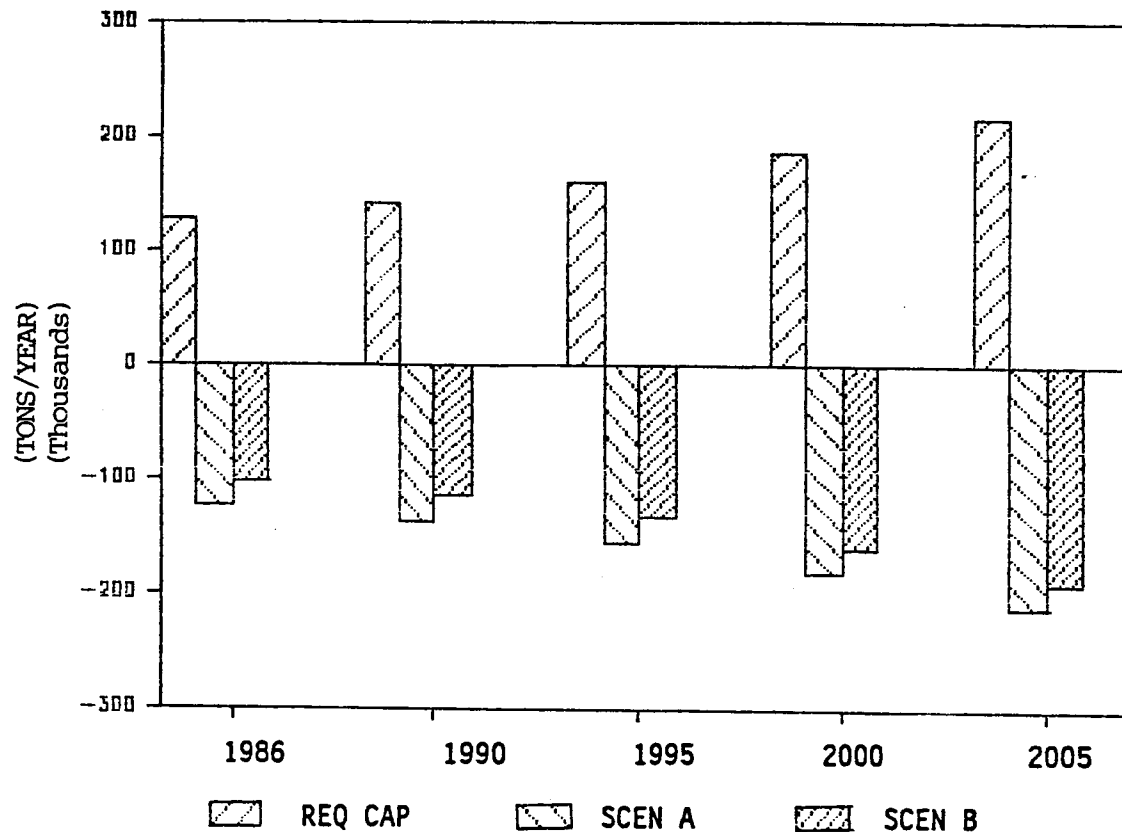
SCEN A Assumes that none of the planned and proposed facilities identified in Table 5-4 are on line by 1990. Quantity shown is Existing Capacity minus Required Capacity.

SCEN B Assumes that all of the planned and proposed facilities identified in Table 5-4 are on line by 1990. However, it is questionable whether the developers will move forward with their proposed facilities due to opposition from special interest groups and the general public as well as time constraints in the permit process. Therefore, it would be highly optimistic to assume that any of the proposed facilities will be operational by 1990. For further analysis refer to other sections in the Chapter. Quantity shown is Total (Existing/Planned/Proposed) Capacity minus Required Capacity.

Source: Los Angeles County Department of Public Works, September 1988

FIGURE 5-3  
CURRENT AND PROJECTED NEEDS ASSESSMENT  
(EXCESS AND SHORTFALL)  
FOR

# INCINERATION FACILITIES



Note: This figure depicts the excess or shortfall of facility needs based on data from Table 5-7 (excluding imported waste) under Scenario A and Scenario B.

REQ CAP Required capacity in 1986 or projected required capacity for 1990 through 2005.

Existing capacity in 1986 or 1990 through 2005 based on the following scenarios:

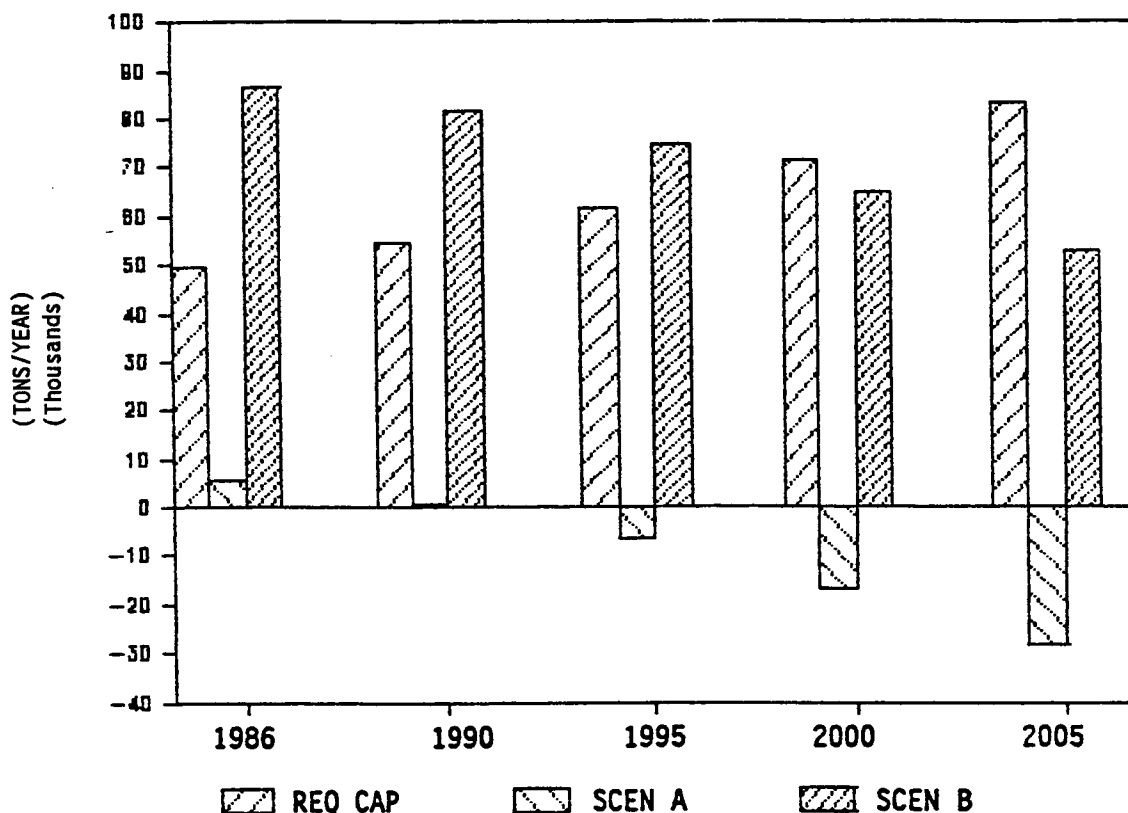
SCEN A Assumes that none of the planned and proposed facilities identified in Table 5-4 are on line by 1990. Quantity shown is Existing Capacity minus Required Capacity.

SCEN B Assumes that all of the planned and proposed facilities identified in Table 5-4 are on line by 1990. However, it is questionable whether the developers will move forward with their proposed facilities due to opposition from special interest groups and the general public as well as time constraints in the permit process. Therefore, it would be highly optimistic to assume that any of the proposed facilities will be operational by 1990. For further analysis refer to other sections in the Chapter. Quantity shown is Total (Existing/Planned/Proposed) Capacity minus Required Capacity.

Source: Los Angeles County Department of Public Works, September 1988

FIGURE 5-4  
CURRENT AND PROJECTED NEEDS ASSESSMENT  
(EXCESS AND SHORTFALL)  
FOR

### SOLVENT RECOVERY FACILITIES



Note: This figure depicts the excess or shortfall of facility needs based on data from Table 5-7 (excluding imported waste) under Scenario A and Scenario B.

REQ CAP Required capacity in 1986 or projected required capacity for 1990 through 2005.

Existing capacity in 1986 or 1990 through 2005 based on the following scenarios:

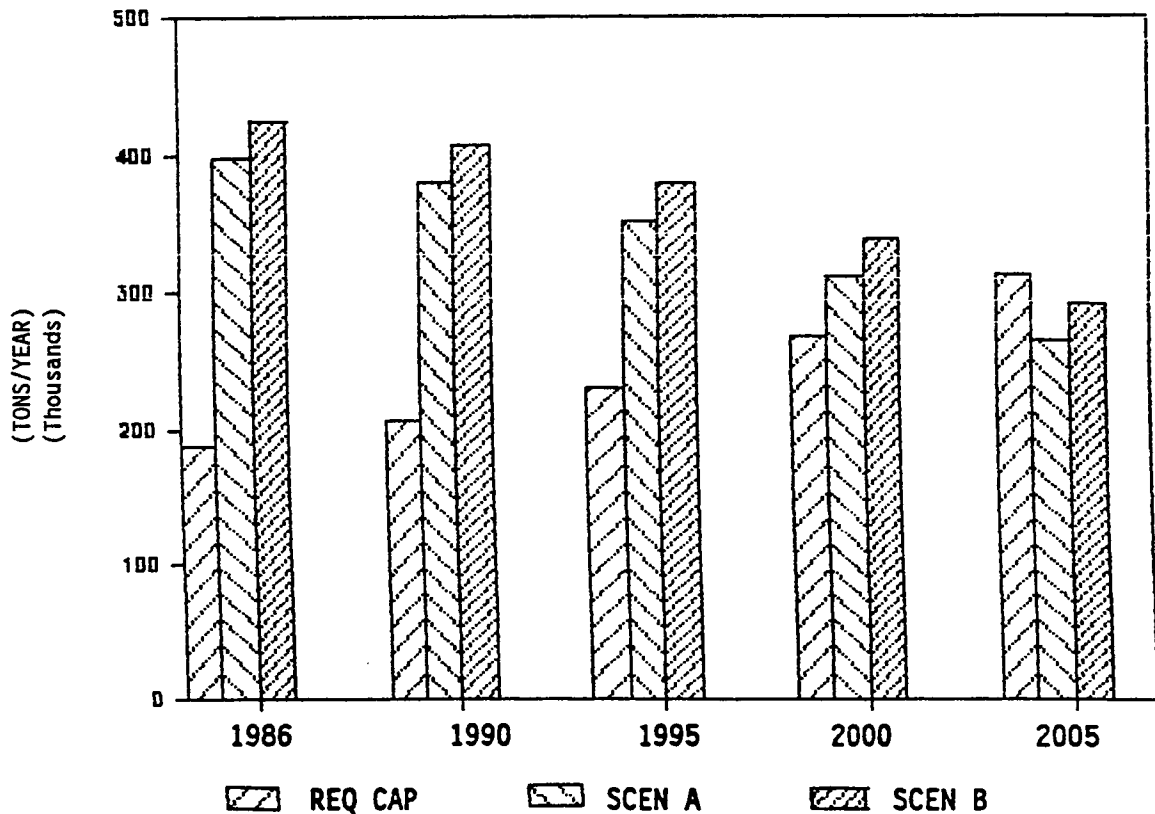
SCEN A Assumes that none of the planned and proposed facilities identified in Table 5-4 are on line by 1990. Quantity shown is Existing Capacity minus Required Capacity.

SCEN B Assumes that all of the planned and proposed facilities identified in Table 5-4 are on line by 1990. However, it is questionable whether the developers will move forward with their proposed facilities due to opposition from special interest groups and the general public as well as time constraints in the permit process. Therefore, it would be highly optimistic to assume that any of the proposed facilities will be operational by 1990. For further analysis refer to other sections in the Chapter. Quantity shown is Total (Existing/Planned/Proposed) Capacity minus Required Capacity.

Source: Los Angeles County Department of Public Works, September 1988

FIGURE 5-5  
CURRENT AND PROJECTED NEEDS ASSESSMENT  
(EXCESS AND SHORTFALL)  
FOR

# OIL RECOVERY FACILITIES



Note: This figure depicts the excess or shortfall of facility needs based on data from Table 5-7 (excluding imported waste) under Scenario A and Scenario B.

REQ CAP Required capacity in 1986 or projected required capacity for 1990 through 2005.

Existing capacity in 1986 or 1990 through 2005 based on the following scenarios:

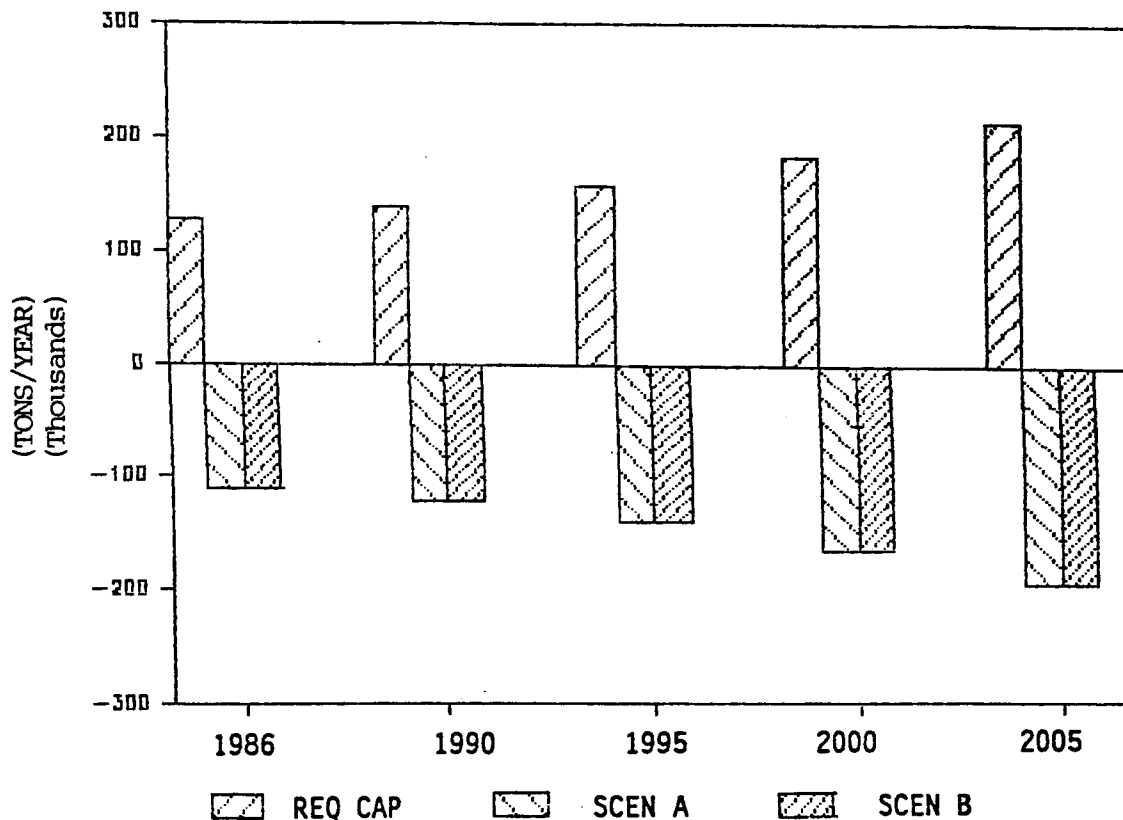
SCEN A Assumes that none of the planned and proposed facilities identified in Table 5-4 are on line by 1990. Quantity shown is Existing Capacity minus Required Capacity.

SCEN B Assumes that all of the planned and proposed facilities identified in Table 5-4 are on line by 1990. However, it is questionable whether the developers will move forward with their proposed facilities due to opposition from special interest groups and the general public as well as time constraints in the permit process. Therefore, it would be highly optimistic to assume that any of the proposed facilities will be operational by 1990. For further analysis refer to other sections in the Chapter. Quantity shown is Total (Existing/Planned/Proposed) Capacity minus Required Capacity.

Source: Los Angeles County Department of Public Works, September 1988

FIGURE 5-6  
CURRENT AND PROJECTED NEEDS ASSESSMENT  
(EXCESS AND SHORTFALL)  
FOR

# OTHER RECYCLING FACILITIES



Note: This figure depicts the excess or shortfall of facility needs based on data from Table 5-7 (excluding imported waste) under Scenario A and Scenario B.

REQ CAP Required capacity in 1986 or projected required capacity for 1990 through 2005.

Existing capacity in 1986 or 1990 through 2005 based on the following scenarios:

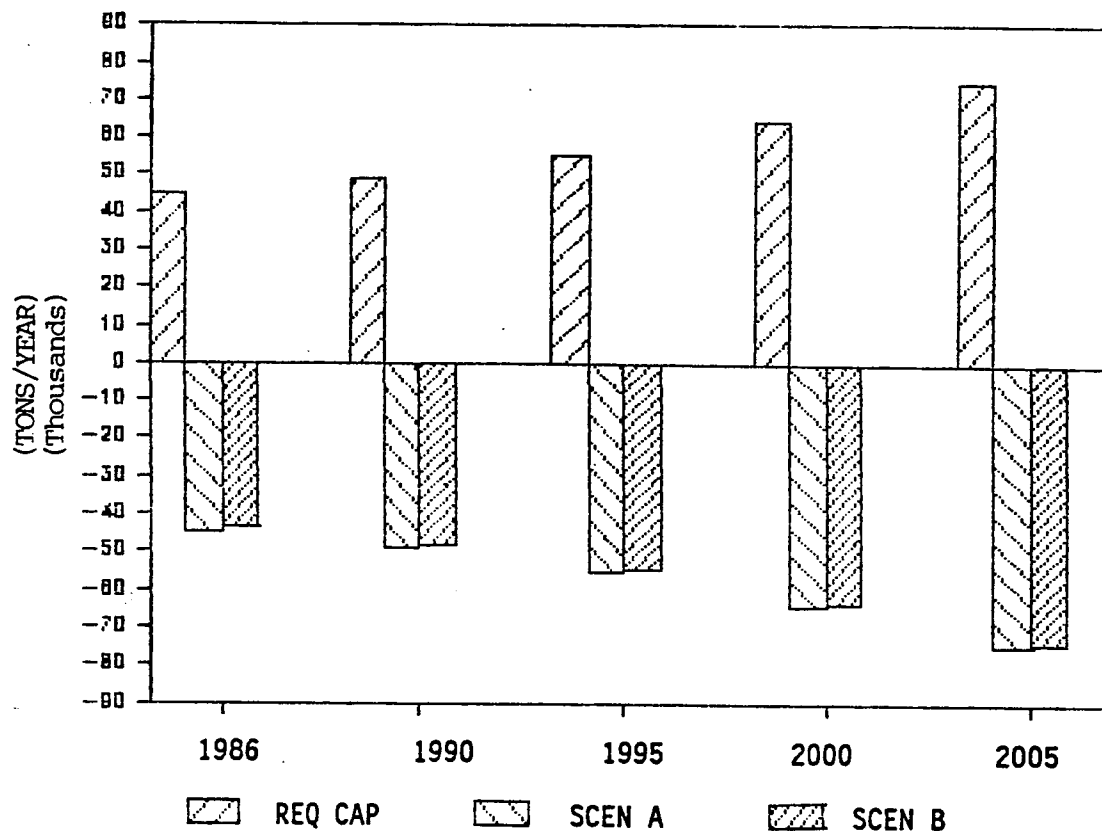
SCEN A Assumes that none of the planned and proposed facilities identified in Table 5-4 are on line by 1990. Quantity shown is Existing Capacity minus Required Capacity.

SCEN B Assumes that all of the planned and proposed facilities identified in Table 5-4 are on line by 1990. However, it is questionable whether the developers will move forward with their proposed facilities due to opposition from special interest groups and the general public as well as time constraints in the permit process. Therefore, it would be highly optimistic to assume that any of the proposed facilities will be operational by 1990. For further analysis refer to other sections in the Chapter. Quantity shown is Total (Existing/Planned/Proposed) Capacity minus Required Capacity.

Source: Los Angeles County Department of Public Works, September 1988

FIGURE 5-7  
CURRENT AND PROJECTED NEEDS ASSESSMENT  
(EXCESS AND SHORTFALL)  
FOR

# STABILIZATION FACILITIES



Note: This figure depicts the excess or shortfall of facility needs based on data from Table 5-7 (excluding imported waste) under Scenario A and Scenario B.

REQ CAP Required capacity in 1986 or projected required capacity for 1990 through 2005.

Existing capacity in 1986 or 1990 through 2005 based on the following scenarios:

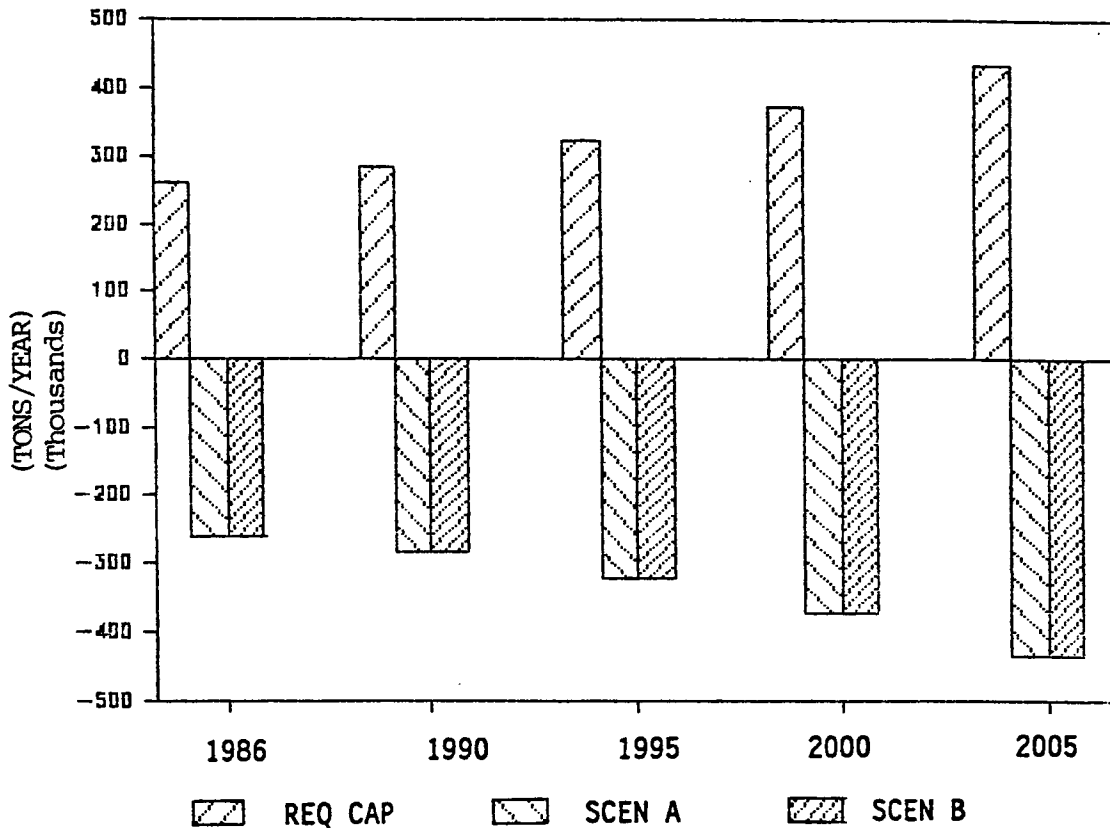
SCEN A Assumes that none of the planned and proposed facilities identified in Table 5-4 are on line by 1990. Quantity shown is Existing Capacity minus Required Capacity.

SCEN B Assumes that all of the planned and proposed facilities identified in Table 5-4 are on line by 1990. However, it is questionable whether the developers will move forward with their proposed facilities due to opposition from special interest groups and the general public as well as time constraints in the permit process. Therefore, it would be highly optimistic to assume that any of the proposed facilities will be operational by 1990. For further analysis refer to other sections in the Chapter. Quantity shown is Total (Existing/Planned/Proposed) Capacity minus Required Capacity.

Source: Los Angeles County Department of Public Works, September 1988

FIGURE 5-8  
CURRENT AND PROJECTED NEEDS ASSESSMENT  
(EXCESS AND SHORTFALL)  
FOR

# RESIDUALS RESPOSITORY FACILITIES



Note: This figure depicts the excess or shortfall of facility needs based on data from Table 5-7 (excluding imported waste) under Scenario A and Scenario B.

REQ CAP Required capacity in 1986 or projected required capacity for 1990 through 2005.

Existing capacity in 1986 or 1990 through 2005 based on the following scenarios:

SCEN A Assumes that none of the planned and proposed facilities identified in Table 5-4 are on line by 1990. Quantity shown is Existing Capacity minus Required Capacity.

SCEN B Assumes that all of the planned and proposed facilities identified in Table 5-4 are on line by 1990. However, it is questionable whether the developers will move forward with their proposed facilities due to opposition from special interest groups and the general public as well as time constraints in the permit process. Therefore, it would be highly optimistic to assume that any of the proposed facilities will be operational by 1990. For further analysis refer to other sections in the Chapter. Quantity shown is Total (Existing/Planned/Proposed) Capacity minus Required Capacity.

Source: Los Angeles County Department of Public Works, September 1988

TABLE 5-7  
CURRENT AND PROJECTED QUANTITIES OF RESIDUALS GENERATION<sup>a</sup>  
BASED ON 1986 MANIFEST DATA

GENERALIZED TREATMENT METHOD	1986					1990		1995		2000		2005		
	REQUIRED TREATMENT CAPACITY EXCLUDING IMPORTED WASTES (TONS/YEAR) <sup>b</sup>	REQUIRED TREATMENT CAPACITY INCLUDING IMPORTED WASTES (TONS/YEAR) <sup>b</sup>	PROJECTED QUANTITY OF RESIDUALS		PROJECTED QUANTITY OF RESIDUALS		PROJECTED QUANTITY OF RESIDUALS		PROJECTED QUANTITY OF RESIDUALS		PROJECTED QUANTITY OF RESIDUALS			
	PERCENT OF RESIDUALS REMAINING (TONS/YEAR)	PERCENT OF RESIDUALS REMAINING (TONS/YEAR)	EXCLUDING IMPORTED WASTES (TONS/YEAR)	INCLUDING IMPORTED WASTES (TONS/YEAR)	EXCLUDING IMPORTED WASTES (TONS/YEAR)	INCLUDING IMPORTED WASTES (TONS/YEAR)	EXCLUDING IMPORTED WASTES (TONS/YEAR)	INCLUDING IMPORTED WASTES (TONS/YEAR)	EXCLUDING IMPORTED WASTES (TONS/YEAR)	INCLUDING IMPORTED WASTES (TONS/YEAR)	EXCLUDING IMPORTED WASTES (TONS/YEAR)	INCLUDING IMPORTED WASTES (TONS/YEAR)		
AQUEOUS TREATMENT ORGANIC	10	65		10	68		71	75	81	85	94	99	109	115
AQUEOUS TREATMENT METALS/ NEUTRALIZATION	50	37,941		50	42,847		41,651	47,037	47,056	53,140	54,789	61,874	63,794	72,043
INCINERATION	10	12,943		10	13,210		14,209	14,502	16,052	16,384	18,691	19,076	21,762	22,211
SOLVENT RECOVERY	20	9,919		20	11,853		10,889	13,012	12,302	14,701	14,324	17,117	16,678	19,930
OIL RECOVERY	20	37,613		20	55,522		41,291	60,952	46,649	68,860	54,316	80,176	63,242	93,355
OTHER RECYCLING		106,544-			107,251-		116,963-	117,740-	132,140-	133,017-	153,857-	154,878-	179,143-	180,331-
	c	107,215		c	107,989		117,700	118,440	132,972	133,808	154,826	155,799	180,271	181,404
STABILIZATION	120	53,639		120	67,162		58,885	73,730	66,525	83,297	77,458	96,986	90,188	112,926
TOTAL		258,664-			297,913-		283,959-	327,048-	320,805-	369,484-	373,529-	430,206-	434,916-	500,911-
		259,335			298,651		284,696	327,748	321,637	370,275	374,498	431,127	436,044	501,984

Note: <sup>a</sup> Based on employment growth rates, Table 2A-3.

<sup>b</sup> See Table 5-1.

<sup>c</sup> See Table 5-2 for percent of residuals remaining from "Other Recycling".

Source: Los Angeles County Department of Public Works, September 1988

TABLE 5-8  
CURRENT AND PROJECTED OFF-SITE HAZARDOUS WASTE FACILITY NEEDS IN LOS ANGELES COUNTY  
BASED ON 1986 MANIFEST DATA  
EXCLUDING IMPORTED WASTE

GENERALIZED TREATMENT METHOD	CURRENT FACILITY NEEDS BASED ON 1986 MANIFEST DATA			1990						1995						2000						2005								
				NUMBER OF FACILITIES			SCENARIO A			SCENARIO B			NUMBER OF FACILITIES			SCENARIO A			SCENARIO B			NUMBER OF FACILITIES			SCENARIO A			SCENARIO B		
	S	M	L	S	M	L	S	M	L	S	M	L	S	M	L	S	M	L	S	M	L	S	M	L	S	M	L	S	M	L
AQUEOUS TREATMENT ORGANIC/CHEMICAL PRECIPITATION	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AQUEOUS TREATMENT METALS/NEUTRALIZATION	1	1	1	1	1	1	0	0	0	1	1	1	0	0	0	1	1	1	0	0	0	2	1	1	0	0	0			
INCINERATION	5	1	1	5	1	1	4	1	1	6	2	1	5	1	1	7	2	1	6	2	1	8	2	1	7	2	1			
SOLVENT RECOVERY	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	1	1	1	0	0	0	1	1	1	0	0	0			
OIL RECOVERY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
OTHER RECYCLING	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	3	1	1	3	1	1	3	2	1	3	2	1			
STABILIZATION	3	2	1	4	2	1	4	2	1	4	2	1	4	2	1	5	2	1	5	2	1	6	3	1	5	3	1			
RESIDUALS REPOSITORY	4	2	1	4	2	1	4	2	1	5	2	1	5	2	1	5	3	2	5	3	2	6	3	2	6	3	2			

Note: S - Small  
M - Medium  
L - Large

Scenario A assumes that none of the planned and proposed facilities identified in Table 5-3 are constructed by 1990.

Scenario B assumes that all of the planned and proposed facilities identified in Table 5-3 and their proposed capacities are on line by 1990.

Source: Los Angeles County Department of Public Works, September 1988

of these needed off-site facilities to relieve the short-term shortfalls.

It should be noted that the future facility needs will be affected by the construction of the planned and proposed facilities as well as by a number of factors including:

1. Changing waste stream - any changes in waste status such as the reclassification of waste from "hazardous" to "nonhazardous" and vice versa such as pretreatment sludges, auto shredder waste, fluorescent light tubes/mercury vapor lamps, ethylene glycol/antifreeze and combustion ash (Appendix 2A), may significantly affect management needs.
2. Changing waste generation rates - the entering and or leaving of new industries as well as the rate of clean-up from contaminated sites (Chapter 11) may affect capacity needs substantially.
3. Acceptance of out-of-county waste other than those currently manifested - the County may enter into a cooperative agreement with neighboring counties to accept their waste (or vice versa), with some form of compensation, as part of the plan to deal with the waste management issues of the entire region. However, it should be noted that such agreements between governmental jurisdictions are not binding or enforceable upon private industry operations and the movement of wastes between jurisdictional boundaries.
4. Enactment of more stringent regulations - as previously mentioned, the prohibition of land disposal of untreated hazardous waste by May 1990 as mandated by Chapter 1509 of the 1986 State Statutes is anticipated to increase treatment and recycling of wastes. Table 5-9 as discussed in the following section has considered this effect; however, clean-up of contaminated sites may significantly impact the analysis.
5. Potential redirection of the waste from off-site to on-site waste management facilities - as benefits (economic, elimination of long term liability, etc.) become more evident and as hazardous waste management alternatives awareness is raised among corporate decision makers, increased on-site management of waste is anticipated. Successful waste minimization efforts may erode the commercial market.
6. Potential redirection of the waste from on-site to off-site waste management facilities. Other than the net growth experienced by the region, many generators simply do not wish to assume the technical and financial burden associated with on-site management processes. Still others experience technical and

financial barriers that impede their ability to develop, evaluate, or implement waste minimization methods.

7. Inclusion of new waste groups in the needs assessment analysis including infectious waste, pretreatment sludges etc.
8. Although Scenario B assumed that the proposed facilities would be built, it is uncertain whether these facilities will progress to an operational state.

#### D. Multi-year Planning

In an attempt to establish a more realistic planning effort for future management needs, SDOHS has taken various factors into consideration and requires future analysis be prepared based on multi-year averages.

As such, Table 5-9 was prepared to represent the multi-year planning estimates in the format stipulated by the SDOHS. The 1986 manifest data is used in its preparation. Although SDOHS has recommended that the table be prepared based on past averages (past two or three years of data), it is determined that the 1986 data is the most representative of the current trend at this time and should be used as the baseline for the following reasons:

Based on the comparison of three years of data in Table 2-5, Chapter 2, the data indicates that most of the quantities of waste manifested for off-site management were relatively stable and increased steadily for those types of wastes that are currently being disposed of in land. This trend is expected to continue until the ban on land disposal of untreated waste by May 1990. Large variations are observed only in those waste groups that were identified to be either recyclable or for which a treatment process could be relatively easily implemented. This included organic liquids, metal containing liquids and sludges. The increase in contaminated soil could be attributed to the increase in enforcement actions and clean up programs that are in place. As waste minimization and enforcement efforts are likely to continue, it is reasonable to assume that the 1986 manifest data is the most representative and the table represents the best information for future planning needs at this time.

Furthermore, there are various deficiencies in the table that need to be updated. These include:

1. Adjust manifest data to account for route service hauler operations.

Some route service operations collect small quantities of waste from a large number of generators and many apply to the SDOHS for a variance so as to enable them to use a modified manifesting procedure. Under this procedure, the route service hauler appears on the manifest as both the generator and transporter, and

TABLE 5-9  
MULTI-YEAR PLANNING ESTIMATE OF QUANTITIES OF HAZARDOUS WASTE  
SHIPPED OFF-SITE BY GENERATORS IN LOS ANGELES COUNTY  
(TONS/YEAR)

WASTE GROUP	(1) TOTAL QUANTITY OF MANIFESTED WASTES FROM L.A. COUNTY	(2) WASTES FROM SITE CLEAN-UPS	(3) WASTES FROM TRANSFER STATION	(4) COLUMN 1 MINUS COLUMNS 2 AND 3	(5) VARIENCED/ EXEMPTED WASTES <sup>a</sup>	(6) WASTE FROM SMALL QUANTITY GENERATORS <sup>b</sup>	(7) TOTAL <sup>c</sup>	TOTAL QUANTITY OF MANIFESTED WASTE FROM OTHER COUNTIES	HOUSE- HOLD WASTES <sup>d</sup>
WASTE OIL	143,355	---	7,195	136,160	---	203,100	339,260	82,818	11,680
HALOGENATED SOLVENTS	8,643 <sup>e</sup>	---	626	8,017	---	16,4989	56,9319	2,284	2,555
NON-HALOGENATED SOLVENTS	40,961 <sup>f</sup>	---	---	32,416	---	---	---	7,387	2,555
ORGANIC LIQUIDS	8,575	---	8,545	---	---	---	---	---	---
PESTICIDES	563	---	39	8,536	---	588	9,124	2,555	---
PCBs & DIOXINS	5,581	---	---	563	---	768	1,331	30	---
OILY SLUDGES	44,711	---	724	4,857	---	16	4,873	574	---
HALOGENATED ORGANIC SLUDGES & SOLIDS	2,054	---	75	44,636	---	---	44,636	6,726	---
NON-HALOGENATED ORGANIC SLUDGES & SOLIDS	25,624	---	8	2,046	---	456	2,502	45	---
SLUDGES & SOLIDS	---	---	11	25,613	---	1,174	26,787	1,549	---
DYE & PAINT SLUDGES & RESINS	11,589	---	110	11,479	---	1,200	12,679	499	7,300
METAL-CONTAINING LIQUIDS	27,718	---	53	27,665	---	2,991	30,656	3,977	---
CYANIDE & METAL LIQUIDS	235	---	---	235	---	344	579	10	---
METAL-CONTAINING SLUDGES	8,000	---	---	8,000	---	572	8,572	7	---
NON-METALLIC INORGANIC LIQUIDS	45,766	---	444	45,322	---	4,576	49,898	5,283	---
NON-METALLIC INORGANIC SLUDGES	3,902	---	2	3,900	---	24	3,924	38	---
CONTAMINATED SOIL	84,581	84,570	11	0	---	---	---	1	---
MISCELLANEOUS WASTES	303	---	---	303	---	---	---	---	---
[141] Off-Spec, Aged, or Surplus Inorganic	19,945	19,663	282	0	---	---	---	---	---
[151] Asbestos- Containing Waste	5,921	---	---	5,921	---	---	---	---	---
[161] Fluid Catalytic Craker Waste	4,895	---	---	4,895	---	---	---	---	---
[162] Other Spent Catalyst	---	---	---	---	---	---	---	---	---

TABLE 5-9 (CONT.)  
MULTI-YEAR PLANNING ESTIMATE OF QUANTITIES OF HAZARDOUS WASTE  
SHIPPED OFF-SITE BY GENERATORS IN LOS ANGELES COUNTY  
(TONS/YEAR)

WASTE GROUP	(1) TOTAL QUANTITY OF MANIFESTED WASTES FROM L.A. COUNTY	(2) WASTES FROM SITE CLEAN-UPS	(3) WASTES FROM TRANSFER STATION	(4) COLUMN 1 MINUS COLUMNS 2 AND 3	(5) VARIENCED/ EXEMPTED WASTES <sup>a</sup>	(6) WASTE FROM SMALL GENERATORS <sup>b</sup>	(7) TOTAL <sup>c</sup>	TOTAL QUANTITY OF MANIFESTED WASTE FROM OTHER COUNTIES	HOUSE- HOLD WASTED
[172] Metal Dust	546	---	---	546	---	---	---	---	---
[181] Other Inorganic Solid Waste	112,459	---	202	112,257	---	---	---	---	---
Containers >30 Gal.									
[513] Other Empty Containers <30 Gal.	1,578	---	1	1,577	---	---	---	---	---
[531] Chemical Toilet Waste	1	---	---	1	---	---	---	---	---
[541] Photochemicals/ Photoprocessing Waste	579	---	1	578	---	---	---	---	---
[551] Laboratory Waste Chemicals	523	---	---	523	---	---	---	---	---
[561] Detergent and Soap	528	---	---	528	---	---	---	---	---
[581] Gas Scrubber Waste	2,163	---	---	2,163	---	---	---	---	---
[591] Baghouse Waste	1,731	---	---	1,731	---	---	---	---	---
[612] Household Waste	106	---	---	106	---	---	---	---	---
MISC. WASTE TOTAL	154,345	19,663	513	134,169	---	28,190	162,359	12,578	1,825
TOTAL	616,203 <sup>h</sup>	104,233	18,356	493,614	---	260,497	754,111	126,361	25,915

Note: a Data for varienced/exempted wastes is currently not available.

b Estimated quantity based on a theoretical formula provided by State Department of Health Services (See Appendix 12B).

c Total does not account for waste imported from other Counties and is the sum of Columns 4, 5, and 6.

d Maximum household hazardous waste generation rate as estimated in Table 13-1, Chapter 13.

e Adjusted +32.2 tons from route service haulers, data from State Department of Health Services.

f Adjusted -24.1 tons from route service haulers, data from State Department of Health Services.

g Combined quantity for Halogenated and Non-Halogenated Solvents.

h Adjusted based on route service haulers data for Halogenated and Non-Halogenated Solvents.

Source: Los Angeles County Department of Public Works, September 1988

records only the totals of each waste type collected per day, per truck on the manifest. The route service operator keeps records of each generator's EPA ID number, and waste amount and type collected, but that information is not included on the manifest copy forwarded to SDOHS. As a result, waste collected in various counties along the route will appear in the SDOHS data as generated in the county where the route service company office is located. To correct this error, actual survey should be conducted to identify these haulers and the waste quantities subtracted from the hauler's county and added to the counties where the wastes originated.

The SDOHS has provided data for only halogenated solvents and non-halogenated solvents. These have been incorporated into Table 5-9.

2. Verify if those wastes from site clean-ups (Column 2) are from actual cleanup operations of contaminated sites or from other sources. The latter quantities should not be used for planning purpose as the wastes are generally varied in nature and unpredictable and most probably a one time occurrence.
3. Verify Column 3 wastes are not new wastes generated at the transfer station site but rather wastes that have been double counted as they leave from point of generation to transfer station and again from transfer station to their point of management.
4. Data on variance/exempt waste (Column 5). It is recognized that regulated wastes are occasionally shipped under a variance. Under certain circumstance, wastes may also be shipped to a hazardous waste management facility without a manifest. In addition, there are wastes not regulated by the SDOHS. These include any of the 14 "Special Wastes" listed in Section 66740, Title 22 of the California Administration Code. Since these wastes can significantly impact facility capacity, they should be added to the total planning quantities.

In Spring of 1988, the Los Angeles County Department of Public Works mailed inquiry letters to all the surrounding disposal facilities requesting this information on variance/exempt waste. Unfortunately, none of the facilities contacted responded to this questionnaire.

5. Data on Small Quantity Generators (Column 6). Although small quantity generators' waste is included in the total column based on SDOHS' Guidelines, the information should be verified or a statistical sample taken prior to using the data for estimating future planning needs. This is because the quantity in Table 5-9 is estimated

based on a theoretical formula provided by SDOHS and local variation may exist. Furthermore, it is the contention of the DPW that the manifest data already includes those of the small quantity generators. As California requires all generators transporting hazardous waste in amounts equal to or greater than 5 gallons or 50 pounds per month be manifested, including the waste in the total column may constitute double counting.

The information for the above listed items will require substantial time and effort in surveying major generators and compiling local knowledge of hazardous waste management practices in the County. However, it is recommended that the various areas of deficiencies be corrected so that better information can be available for future planning efforts.

## CHAPTER 6

### THE SITING OF AN OFF-SITE HAZARDOUS WASTE MANAGEMENT FACILITY

#### I. INTRODUCTION

At the present time, there is no hazardous waste land disposal facility (Chapter 3), nor sufficient treatment capacity (Chapter 5) in Los Angeles County to handle the County's hazardous waste. The single largest obstacle in siting a hazardous waste management facility is finding a suitable site which is acceptable to the proponent, regulatory agencies, local authority and the public. A vital part of the siting process is to protect public health and safety while providing for the protection of our natural environment, gaining the support of the local community and insuring the economic well being of Los Angeles County and the State.

The Guidelines, as developed by the State Department of Health Services (SDOHS) pursuant to Chapter 1504 of the 1986 State Statutes (AB 2948, Tanner) and Chapter 1167 of the 1987 State Statutes (SB 477 Greene), provide that the county hazardous waste management plan must include siting criteria and identify general areas in the cities and county unincorporated areas which might meet the siting criteria and could potentially be suitable for off-site hazardous waste management facilities. This Plan was developed to be consistent with the Guidelines and to establish goals, objectives, and policies which address the wide range of types and sizes of off-site hazardous waste management facilities.

This Chapter has been divided into two parts. Part I addresses the siting criteria which is to be used for the selection of a specific site for an off-site hazardous waste management facility as well as a thorough discussion of the permitting process so as to assist local jurisdictions with land use compatibility planning. Part I also includes a comprehensive community relations and public participation program. The program is specifically geared to allow involvement of the public at the earliest stages of the planning process to ensure their active participation in the safe management of hazardous waste.

Part II of this Chapter identifies the general geographical areas which might meet the siting criteria (Appendix 6A), and could potentially be suitable for off-site hazardous waste management facilities in Los Angeles County. Also provided, is a discussion and the methodology used to identify the areas. It should be noted that the map of general geographical areas identified is illustrative in nature, and is to assure facility consistency with the approved County Hazardous Waste Management Plan (CoHWMP). This map, Figure 6-1, may, but is not required to be used by the County or the cities as a tool to designate lands for future rezoning to accommodate the siting of off-site hazardous waste management facilities.

Furthermore, the areas selected in Figure 6-1 still need to be subjected to careful evaluation (Appendix 6A), should a proponent be interested in siting an off-site hazardous waste management facility in the identified areas. In addition, the facility must have a Finding of Conformancy with the CoHWMP including consistency with the siting criteria, a site specific risk assessment as well as environment evaluation pursuant to the California Environmental Quality Act (CEQA). The standards for a risk assessment (i.e., scope, methodology, and level of risk) shall be based on standards generally applied on a Statewide and regional basis, by the U.S. Environmental Protection Agency, SDOHS and local air quality management district.

The map, Figure 6-3, identifies those areas previously identified by the County for possible siting of residuals repositories based on the basic SDOHS siting criteria (excluding areas identified on Figure 6-2). Specific studies and methodology used beyond application of the siting criteria are discussed in Part II, Section III of this Chapter.

## PART I

### SITING AND PERMITTING PROCESS

#### I. SITING

##### A. General

Location of suitable sites is essential to the development of new or expansion of the existing off-site hazardous waste management facilities. The selection process involves the proponent, the local citizens and the Federal, State, regional and permitting agencies and local authorities. Of great importance are the concerns, views, and knowledge of the public as they all play a major role in the successful siting of an off-site hazardous waste management facility.

The proponent primary interest may lie in the site's proximity to markets, land availability, potential for obtaining the necessary permits and community acceptance. The interest of the local authority centers around protection of the health of the residents, the preservation of its planning policies and goals, its ability to attract desirable business establishments, and maintenance of desirable residential qualities. The regulatory and permitting agencies are charged with the responsibility to protect human health and natural resources and are concerned with the ability of the technology employed to destroy or contain the waste it handles.

##### B. Siting Criteria

The siting of any off-site hazardous waste management facility is certain to arouse substantial local opposition. Residents of

communities where such facilities are proposed invariably assert that a more thorough search would produce a more suitable location than that being proposed. Such arguments are difficult to counter. Without a set of criteria which identifies the risks associated with such facilities and a rating system which permits an unbiased appraisal and comparison of all candidate sites, objective decisions cannot be made. As a result, this issue has been thoroughly studied by many, including those involved in the Southern California Hazardous Waste Management Project (SCHWMP).

In order to avoid duplication of effort, this Plan has combined the criteria developed by SCHWMP as adopted by the Southern California Hazardous Waste Management Authority (SCHWMA) and those of the SDOHS to serve as both a guide and to provide primary selection constraints for any proposed off-site hazardous waste management facility. The portions accepted as appropriate to this Plan are included in Appendix 6A, Siting Criteria. These criteria have been modified based on comments received from the State Department of Health Services (SDOHS) and should be applied to all proposed sites for off-site facilities as a minimum after the adoption of the Plan.

The criteria are developed with the following objectives:

- o Protect the residents;
- o Ensure the structural stability and safety of the facility;
- o Protect surface water;
- o Protect groundwater;
- o Protect air quality;
- o Protect environmentally sensitive areas;
- o Ensure safe transportation of hazardous waste;
- o Protect the social and economic development goals of the community.

Appendix 6A has been prepared with the intent to assist the proponent, the local community, and the local land use authority in making informed decisions. Also included in the Appendix is a description of some of the main characteristics of various types of off-site hazardous waste management facilities pertinent to siting and some examples of typical environmental protection measures that can be used to mitigate potential environmental impacts. By using a uniform set of guidelines and standards, the siting criteria are developed so as to provide planners and decision-makers with a tool to identify both potential sites and significant siting concerns and environmentally acceptable sites.

Facility planners and the public at large should be aware of the inherent limitations of the criteria developed since the issues involved are complex and controversial. While good criteria can help focus on the pertinent factors, they cannot remove all controversy from the process. As such, the criteria are considered the minimum standards that must be met. Additionally, Section 25135.7 (d) of the State Health and Safety Code (Chapter 1167 of the State Statute of 1987, SB 477, Greene), provides authority to a city to attach appropriate conditions to the

issuance of any land use approval for a hazardous waste management facility in order to protect public health, safety, or welfare and does not limit the authority of a city to establish more stringent planning requirements or siting criteria than those specified in the Plan. Environmental mediation and early public involvement are means of constructively channeling conflicts into mutually satisfactory resolutions.

## II. PERMITTING

### A. General

Developers proposing to construct hazardous waste management facilities in Los Angeles County must apply for and be issued a series of both ministerial and discretionary permits, and obtain approvals from Federal, State, and local regulatory agencies. The standard permit processing framework is governed to a great degree by the requirements of the CEQA of 1970, the Permit Streamlining Act of 1977, and by the recently enacted legislation, Chapter 1504 of the State Statutes of 1986 (AB 2948, Tanner).

The CEQA provides a process which requires that governmental decision-makers consider the environmental effects of their permit decisions and take measures to prevent significant, avoidable damage to the environment. The Permit Streamlining Act places time limits on the review and decision-making processes of public agencies. Chapter 1504 establishes the procedure for the SDOHS and the Office of Permit Assistance (OPA) to provide technical assistance to local permitting agencies. Proponents of projects specifically with regard to the hazardous waste facility land-use process can follow specific steps to obtain and/or appeal a hazardous waste land use process decision.

The major permitting entities for hazardous waste management facilities include local government agencies (cities and county), the Environmental Protection Agency, the SDOHS, the Regional Water Quality Control Board, the local Air Quality Management District, and sewerage agents.

### B. Ministerial Permits

Ministerial permits are permits with set and structured standards. The number of ministerial permits required is dependent on the type of facility and its proposed location. These permits generally include:

- Fire
- Building
- Grading
- Plumbing
- Electrical
- Sewer
- Industrial Waste
- Occupational Safety and Health
- Underground Tank Storage of Hazardous Materials

- Road Construction
- Drainage and Flood

The required time for processing the above permits is estimated to be a total of six months.

### C. Discretionary Permits

Discretionary permits (land use, air quality, water discharge requirements, and hazardous waste permits) are permits issued by an agency that exercises judgment, deliberation or decision in issuing the permit, or has conditions or controls placed on the permit.

The Federal, State and local processes and permits that are critical in the permitting of hazardous waste management facilities are further presented in Appendix 6B, Discretionary Permit Process.

While the procedures for siting an off-site hazardous waste management facility are similar to those for siting any major industrial plant, the former are unusually sensitive to public pressure. Proponents must therefore be prepared for a time consuming permitting process. A permit application requires extensive technical documentation of the potential impacts, health risk assessment, and mitigating measures, as well as detailed analysis pertaining to facility design, operation, maintenance, and closure and post closure (land disposal facility). In addition, the application must be supported by detailed site investigations and data analysis that satisfy permitting requirements. Last, but not least, the proponent must be able to demonstrate financial responsibility.

## III. PUBLIC INVOLVEMENT IN THE SITING AND PERMITTING PROCESS

### A. General

The siting of an off-site hazardous waste management facilities is a highly volatile and emotional process. This Plan stresses the importance of early public involvement and public education to ensure adequate opportunities for participation in the planning and siting stages. Public involvement, specific to the siting process, has been included in this Chapter as it is believed that a well informed public is the key to successful hazardous waste management efforts.

The implementation of a public involvement program is important to:

- o Ensure the local community a meaningful voice in those decisions that effect the community;
- o Anticipate potential conflict and attempt to avoid polarization whenever possible; and
- o Establish and maintain standard operation procedures that ensure extensive interaction among citizens, local

government officials, Federal/State officials and the site/facility proponent.

As previously stated, the siting of off-site hazardous waste management facilities is highly sensitive to public pressure. Most citizens are familiar with well publicized waste management mistakes of the past and it is these visual pictures that shape their viewpoints. As such, a public involvement and education program can provide the public with more up-to-date information on hazardous waste management issues, enabling them to understand the importance and need for the safe management of hazardous waste as well as demonstrating that alternative technologies and policies implemented today are safe and effective.

Chapter 1504 of the 1986 State Statutes (AB 2948, Tanner) revises the administrative process to obtain the Land Use Permit to include a "pre-application period" and a "post-application period". Included in Appendix 6C are the Guidelines as developed by the State Office of Permit Assistance (OPA) to encourage public participation by calling for specific notification and informational meetings. These requirements are in addition to the existing system of public hearings and community meetings as provided under the CEQA and Title 22 of the California Administrative Code. Public participation programs that facilitate negotiation, cooperation, and resolution can help to overcome some mistrust and skepticism, as well as avoid some legal conflict.

One of the policies of this Plan is to insure public participation and education as early as possible (Chapter 9). Dialogue between the public and a project proponent should begin as early as possible in the siting process. Once a facility is proposed, there may be only a short time to institute dialogue before individual viewpoints are established. Dialogue should be based on, among other things, credible information about the environmental integrity of a site, management need and its performance characteristics, and the financial stability, competence and integrity of the facility operator. It is the responsibility of industry and government to provide the public with non-adversarial points of contact so as to reduce polarization early in the process and provide an opportunity for questions and concerns to be addressed with candor, clarity, and understanding. Responsive management is seen as a central part of comprehensive planning.

In providing public information on issues as complex as those involving hazardous waste, facts alone are seldom adequate to meet the public's need to be informed. There must be a degree of mutual understanding of the facts among all parties involved. Because much of the information related to these issues is based upon an assessment of a number of variables which are subject to change at any time, limitations must be recognized. The public should be made to realize that risk assessments are based on assumptions subject to future modifications as finite elements are developed. A recognition must be acknowledged that trade-offs and limitations are part of the process. Only fully

informed citizens will be able to participate in the complex decision-making process and be able to evaluate the project objectively.

It should be noted at the onset that the public involvement described herein is not a one-time process, but a commitment of all sides to continuously participate in decisions that will affect both the health and welfare of the community and all concerned. Some basic tenets in hazardous waste activities have become clear from the experience of the past few years:

- o Uncontrolled hazardous waste is dangerous, and the danger can be long lived. The combination of intense concern, increased awareness, and political know-how have given the public a powerful voice in the decision-making process;
- o The public has the right to know and participate in decisions affecting health and welfare; and
- o Public involvement in the entire decision-making process is absolutely essential in finding and implementing acceptable hazardous waste solutions.

Overall, providing information and avenues for response and negotiation regarding public concerns may earn public support of the facility. The negotiation may also result in changes that make the facility acceptable, or justify disapproval of the proposed facility. No matter which outcome it may be, these actions will help the community and the permitting agencies to make informed decisions and ensure that new facilities are sited as safely as possible.

## B. Process

Public involvement should begin in the early planning stage of a project. This is a critical factor in the proponent's understanding of the concerns of the public and the public's acceptance of the proposed site/facility. Furthermore, these meetings should be scheduled before issues become inflamed by media and political forces and before decisions are made.

The public involvement process can be divided into three phases. The first is identification of issues and participants. The second is strategy development and the third is the public participation program. The following summarizes the key components of a public involvement process.

### 1. Identification of Issues and Participants

Below are some factors that should be considered when identifying pertinent issues:

- o The characteristics of the waste to be managed;
- o The nature of the waste management technique(s) to be used;
- o The location of the proposed facility and its proximity to population, surface water, groundwater,

- and important ecological systems;
- o The characteristics of the site, including its topography, geology, hydrogeology and climate;
- o The pathways available for release of hazardous waste constituents into the air, water and soil and the potential for human and ecosystem exposure;
- o The design and operation of the proposed facility;
- o The safeguards and mitigation measures to be used at the facility; and
- o Transportation systems and emergency response capability.

Although some information on the issues may not be available at the early stages of planning, these concerns should be addressed as soon as possible so that they can become part of the evaluation process.

Involving the appropriate people in a public participation program is another key factor. A balance must be achieved between interested and/or affected parties and a workable group size. Participants should include representatives from the general population, community organizations and those who may have a general or particular interest in, or be affected by the siting decision. Serious efforts must be made to inform, involve, and respond to their concerns. Possible participants to be considered are:

- o General public;
- o Public officials both elected and appointed;
- o Representatives of Federal, State, County, and local government agencies and associations;
- o Businesses and industries;
- o Hazardous waste generators
- o Site developers and facility operators
- o Property owners in the vicinity of the site;
- o Public interest groups;
- o Environmental and conservation groups;
- o Consulting scientists, engineers and other experts;
- o Local scientists and engineers;
- o Ad hoc citizen groups;
- o Community and civic associations;
- o Local religious groups;
- o Ethnic groups;
- o Consumer groups;
- o Trade, manufacturing and labor organizations;
- o Public health, scientific and professional societies;
- o Educational institutions; and
- o Media, including editorial boards, and personnel.

## 2. Strategy Development

The strategy development phase is the planning process to devise a mechanism and step by step process for bringing the public into the decision-making process. It should recognize the right of the public to participate in the

decision-making process as well as the fact that they will be affected by the consequences.

Experience has demonstrated that adherence to only the minimally required hearing processes does not provide adequate public participation. The use of early and broad public information and consultation techniques to inform interested parties about the facts of a proposed facility may help to narrow areas of potential conflict. Whether or not required by law, the facility proponent and government should take the initiative in providing information and soliciting participation.

Below is a list of various techniques that can be employed to encourage understanding and the evaluation of a proposed siting project:

- o Information Techniques:
  - Fact Sheets
  - Newsletter
  - Education of the media
  - Use of news media including newsprint, radio, and television
  - Mailers
  - Information centers and project libraries
  - Hotlines
- o Consultation Techniques:
  - Public meetings
  - Public workshops for large and small group discussions
  - Public opinion surveys
  - Advisory committees drawing on major interest groups and representatives of the affected local community
  - Technical advisors

### 3. Public Participation

Public participation programs promote conflict resolution by providing opportunities for individuals and groups from different viewpoints to explore alternative solutions. An important starting point of this process is to:

- o Foster positive involvement and dialogue among the interested and affected parties;
- o Define and focus issues that can identify the areas of real disagreement; and
- o Provide ideas and information that may improve the quality of solutions and facilitate decision making.

The following have been identified as possible avenues:

a. Public Survey

A public survey can consist of a written or oral questionnaire which is mailed, conducted by telephone, administered door-to-door or presented at a central location. These surveys will allow the public to voice their concerns or objections to a hazardous waste facility in their community. In turn, the facility proponent, with an indication of responses, may provide incentives and/or inducements necessary for gaining the community's acceptance.

b. Citizens Advisory Committee

The membership of a Citizen Advisory Committee, usually selected by public officials, should represent a broad base of community interest including residents. Representatives should include special and general interest groups (technical and environmental experts). A properly balanced and adequately staffed committee can ensure functional two-way communication and provide an on-going link between citizens and the agencies involved.

c. Task Force or Ad Hoc Committee

This body is usually a small group of people who have been assigned to research a specific problem in a limited time frame. Its membership, selected by the responsible local agency, should consist of those with the expertise or interest necessary for the specific problem.

d. Local Assessment Committee

The Committee is a formal review group created by a host or abutting community to analyze a proposed hazardous waste management facility. They may be given the authority to negotiate with the facility proponent (on behalf of the community) regarding the conditions under which the facility may be constructed or receive technical assistant grants to hire a consultant to assist them in the process.

e. Public Meetings and Hearings

Public meetings and hearings can vary from a workshop to a formal, stenographically recorded hearing. The main purpose is to afford the opportunity for concerned citizens to present their views (often as part of a project's permanent record or file).

f. Environmental Mediation

Mediation is a voluntary negotiation process in which a neutral mediator assists the disputing parties in

reaching a mutual agreement. Each side must establish priorities, and be prepared to negotiate.

## PART II

### IDENTIFICATION OF GENERAL AREAS POTENTIALLY SUITABLE FOR OFF-SITE HAZARDOUS WASTE MANAGEMENT FACILITIES

#### I. INTRODUCTION

Part II identifies general areas potentially suitable for off-site hazardous waste management facilities in Los Angeles County. These facilities may include transfer stations, storage, recycling, treatment facilities, and/or residuals repositories which are needed for the effective management of hazardous waste in Los Angeles County. Specific definition of each type of facility are provided in Chapter 3. It is the goal of the CoHWMP that sites for storage, transfer, recycling and treatment facilities should be located as close to the areas of generation as possible. In general, manufacturing and/or industrial zoned areas meeting the siting criteria established in this Chapter are considered to be the most appropriate sites for these management facilities. This is because most hazardous waste generators are located in the said zoned areas and their operations, as far as environmental aspects are concerned, are very similar to off-site hazardous waste management facilities (excluding residuals repositories). As for residuals repositories, it is proposed that this type of facility be located in more distant areas from urbanized zones.

#### II. GENERAL AREAS POTENTIALLY SUITABLE FOR OFF-SITE TRANSFER STATIONS, STORAGE, TREATMENT AND RECYCLING FACILITIES

Chapter 1504 of the State Statutes of 1986 (AB 2948, Tanner) and amended by Chapter 1167 of the 1987 State Statutes (SB 477, Green) and the SDOHS' Guidelines require the Plan to identify general areas in the cities and the County which might meet the siting criteria and could potentially be suitable for off-site hazardous waste management facilities. In order to identify these areas, the DPW requested all the cities and the County Department of Regional Planning to provide the following:

- o land use map showing industrial/manufacturing zones;
- o zone definition;
- o current zoning designation that allows the siting of a hazardous waste management facility;
- o criteria used for the review and approval of these facilities; and
- o date of the next scheduled update for the city/County general plan and/or zoning ordinances.

A follow-up request was also made to the cities which did not respond. To clarify matters, a copy of the Guidelines developed by the SDOHS was also provided. The follow-up request informed

the cities that failure to respond would indicate that the industrial/manufacturing zoned areas may be included as potential areas. A copy of each of the letters sent to the cities is included in Appendix 9A.

Based on the information received a map showing the industrial/manufacturing zones within the cities and the County unincorporated areas was prepared and included in the December 1987 draft of the CoHWMP as the general areas potentially suitable for the off-site hazardous waste management facilities.

Following the formal review period, the general area map was revised to address cities' comments (Appendix 9E) and those by the SDOHS (Appendix 9F). Additionally, staff from the DPW met or made contact during the period of May through August 1988 with all those cities that either expressed concerns or failed to respond to the December 1987 draft of the CoHWMP, and where additional information was needed regarding surrounding land uses and/or existing land uses.

Based on the foregoing, Figure 6-1 identifies general areas which might meet the siting criteria and could potentially be suitable for the siting of off-site hazardous waste management facilities (except for residuals repositories).

It should be noted that pursuant to the SDOHS' letter of May 3, 1988, the following were not considered in the preparation of Figure 6-1.

- o Areas within 200 feet from active earthquake faults;
- o All open space areas (BLM land, State parks, regional parks, national parks, and forests, designated open space, prime agricultural land);
- o Military installations.

To assist individuals in evaluating potential hazardous waste management facility sites, the above areas are shown in Figure 6-2.

Overall, the areas identified are within the industrial or manufacturing areas where the majority of the waste is produced. This is because most hazardous waste generators are located in the said zoned areas and their operations, are similar to those of the hazardous waste management facilities (excluding residuals repositories). As previously mentioned, it has been recommended that storage, transfer, recycling, and treatment/incineration facilities should be located as close to the area of waste generation as possible.

It is emphasized that due to limitations created by the physical size of the map, Figure 6-1 shows only the approximate boundaries of the general geographical areas potentially suitable for the off-site facilities. As such, interested parties should contact the Department of Public Works, Waste Management Division for specific information and maps used in the preparation of Figure 6-1 and verification of exact boundaries of the areas (see

**FIGURE 6-1  
GENERAL AREAS POTENTIALLY SUITABLE  
FOR OFF-SITE HAZARDOUS WASTE MANAGEMENT FACILITIES  
(EXCEPT RESIDUALS REPOSITORIES)**

**FIGURE IN FOLD OUT POCKET #1**

**FIGURE 6-2**  
**SELECTED LAND USE DATA TO ASSIST IN**  
**EVALUATING HAZARDOUS WASTE MANAGEMENT FACILITIES POTENTIAL SITES\***

**\*As stipulated by the State Department of Health Services**

**FIGURE IN FOLD OUT POCKET #2**

Appendix 6D for the list and identification of the County/city maps and references used). Furthermore, the areas currently identified may not be the only areas in Los Angeles County potentially suitable for off-site hazardous waste management facilities. Some locations, suggested later, may be equally suitable as those presented herein and each must be evaluated on a case-by-case basis as to their suitability based on the siting criteria in Appendix 6A. Should the new area be found to meet the siting criteria, then it must be considered consistent with the CoHWMP.

It should also be noted that Figure 6-1 is an illustrative map and may, but is not required to be used by the County or the cities as a tool to designate lands for future rezoning to accommodate the siting of off-site hazardous waste management facilities.

It is the intent of this Plan that viable facilities be identified to enable Los Angeles County to manage its hazardous waste. Consistent with this effort, a recent study entitled "Economic Impacts Analysis Project" [27], partially funded by the Siting Project [22] (Chapter 3), was prepared for the DPW, CSD, and Southern California Coalition for Hazardous Materials Management. This project was designed to facilitate funding, construction, operation and use of off-site treatment and disposal facilities in Los Angeles County by identifying and circumventing barriers to the funding and use of such facilities. Los Angeles County continues to be in the forefront of this effort.

### III. GENERAL AREAS POTENTIALLY SUITABLE FOR RESIDUALS REPOSITORIES

As to residuals repositories, it is proposed that this type of facility be located in more distant areas from urbanized zones that are compatible with the siting criteria as developed. Overall, SDOHS mandated the following criteria to be applied Countywide for residuals repositories:

- o 2,000 feet from residence;
- o surrounding land use;
- o areas subject to rapid geologic change;
- o groundwater recharge area;
- o areas of high groundwater (5 feet or less);
- o all open space (BLM land, State parks, regional parks, national parks, and forests, designated open space);
- o military installations.

The following section is a summary of the County's efforts to identify sites for residuals repositories which have gone beyond the identification of general areas which might meet the siting criteria in Appendix 6A. This information has been extracted from the report entitled "Sites for Hazardous Waste Management in Los Angeles County" [22], (Siting Project). Also included are results from subsequent studies.

Based on the results of the Siting Project and subsequent studies, there appears to be no suitable area for a residuals repository in the County. However, it is the County's goal to continue in its effort and work cooperatively with other surrounding counties and any private interest to ensure adequate facilities (residuals repositories) are sited. Although the County's efforts have been extensive, this does not preclude the possibility that some other sites proposed in the future could meet the siting criteria in Appendix 6A. Should such a facility be determined to meet the siting criteria after detailed evaluation, then it must be considered consistent with the CoHWMP.

#### A. Sites for Residuals Repositories in Los Angeles County

As described in Chapter 2, the Los Angeles County Department of Public Works (DPW) and County Sanitation Districts of Los Angeles County (CSD) jointly conducted a study to identify suitable locations for off-site hazardous waste management facilities in the County. This work began in December 1984 and continued for approximately two and a half years. The project grew out of increasing concern of the Los Angeles County Board of Supervisors regarding the lack of an adequate hazardous waste management system in Los Angeles County.

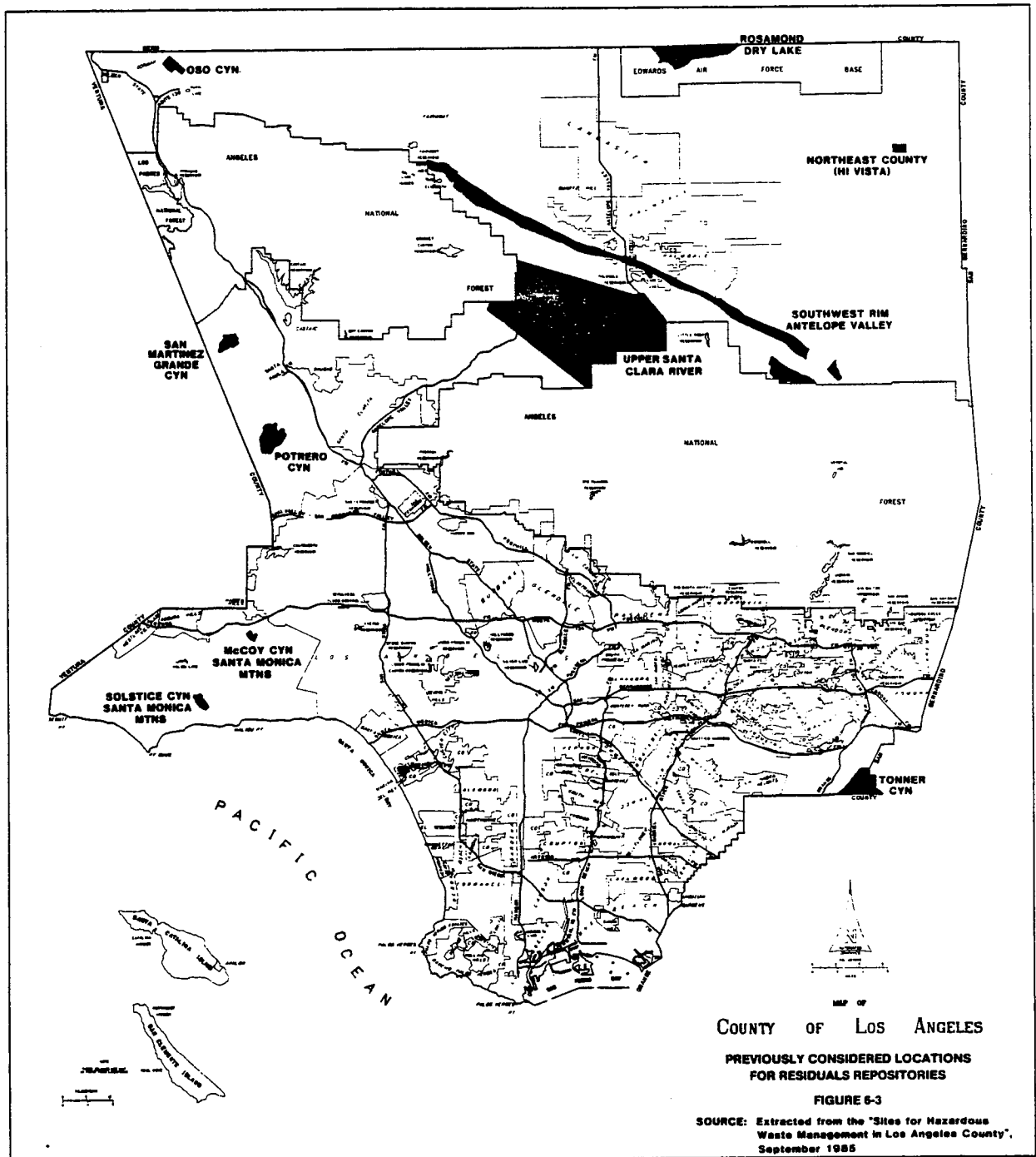
The search for residuals repository sites made use of a considerable body of background information developed by the Southern California Hazardous Waste Management Project (SCHWMP) during its search for Class I landfill sites in the 8-County region from 1981 to 1983. The basic siting criteria set forth in the SDOHS' Guidelines and included in this Plan were used to evaluate the entire County.

In order to avoid land use conflict, the following areas were excluded from consideration:

- o Angeles National Forest
- o Densely Populated Areas
- o Lands draining to Pyramid and Castaic Lakes
- o Flood-Prone Lands
- o Significant Ecological Areas
- o Major Groundwater Recharge Zones
- o Major Fault Zones
- o Areas over significant usable groundwater

After careful screening of the County, the following nine areas (Figure 6-3) were identified as potentially suitable for residuals repositories.

1. The Potrero Canyon area, south of State Route 126 and close to the Ventura County border.
2. The Oso Canyon area, north of State Route 138, and adjacent to the Kern County border.



3. The San Martinez Grande Canyon area, north of State Route 126, adjacent to the Ventura County border, and south of the Lake Piru Drainage Basin.
4. Upper sections of the Santa Clara Valley, between the two portions of the National Forest, the drainage divide between the Santa Clara and Antelope Valleys, and a line roughly connecting Acton and Agua Dulce.
5. Consolidated, non-water bearing rock areas along the southwest rim of the Antelope Valley. (Land within major fault zones was excluded).
6. Portions of the Santa Monica Mountains not previously excluded by virtue of faulting, significant ecologic areas, population or flooding hazards.
7. Tonner Canyon, in the Chino Hills, south of Diamond Bar and east of the Orange (57) Freeway.
8. Hi Vista, Northeast County area.
9. Rosamond Dry Lake area on Edwards Air Force Base.

Four consulting geologists were retained to perform literature studies which resulted in the elimination of five of the sites for the following reasons:

1. San Martinez Grande Canyon Area

The area drains into the Santa Clara River and will impact the Santa Clarita Valley groundwater recharge area. Also, there is evidence of landslide and the area is subject to rapid geologic changes.

2. Upper Santa Clara River Area

The area is in the Antelope Valley water recharge zone and too close to the San Andrea fault.

3. Southwest Rim of the Antelope Valley

The proximity of the San Andreas fault and the heterogeneous nature of rocks throughout the region lead to the conclusion that a sufficient understanding of the seismic event response and subsurface hydrogeology will be difficult and costly to achieve. Also, the underlying geology is highly complex and the area drains into the Santa Clarita River.

4. Santa Monica Mountain (McCoy and Solstice Canyons)

Through literature review, it was determined that no sites in the area had the natural permeability to meet the State permitting standards. In addition, the area is also subject to landslide hazards. As for the only two potential areas,

one is in use as a country club and the other is owned by the Santa Monica Natural Park Preserve.

#### 5. Tonner Canyon

The site is moderately close to an active fault. In addition, the surface and groundwater within the site ultimately flows into the Canyon County Groundwater Basin. This site was concluded to be less desirable for hydrogeologic reasons. It should also be noted that the area is rapidly developing into a major residential center. As such, compatibility of surrounding land uses was also considered.

The Siting Project concluded that no further investigation be recommended or contemplated on the above five sites.

#### B. Subsequent Studies

As to the remaining four sites, on September 24, 1985, Los Angeles County Board of Supervisors approved the recommendation that further feasibility testing be performed on Oso Canyon, Protero Canyon, Rosamond Dry Lake and Hi Vista. In further evaluating these areas, the following six major factors were used:

- o proper geologic setting;
- o adequate size;
- o accessibility by roads capable of carrying heavy vehicles;
- o rail access (if possible);
- o presence of (or close access to) suitable cover material and clay for the construction of liners;
- o selection of areas with low rainfall to simplify operations and minimize the potential for leaching of deposited materials.

The following represents the results from this evaluation including actual geological and hydrological evaluations of these four areas as well as reasons for their elimination from the list of areas potentially suitable for residuals repositories.

#### 1. Oso Canyon

This is a small canyon near the western edge of the Antelope Valley. Oso Canyon is owned by Tejon Ranch. The Tejon Ranch permitted a walk-through geologic inspection on July 18, 1985. Following reports by the County's consultant that there appeared to be some promise of the site as use for a residuals repository, the Tejon Ranch denied any further access to the site for proposed drilling operations. In late 1985, Los Angeles County Board of Supervisors authorized the County Counsel to apply under eminent domain statutes for authority to conduct drilling operations on the land. Following the filing of the request with the County Superior Court, Tejon Ranch requested a change of venue and subsequently, the case was transferred to Imperial County

Superior Court.

In May, 1986, the Imperial County Superior Court granted the County's petition for access into the site to perform detailed mapping and subsurface investigation. These took place from July to November of 1986 and a final report was issued in February 1987 by the County's consultant. The results of the subsurface investigation indicated that an aquifer system did exist at approximately 60 feet below grade under the areas of interest and the permeability of the formations was inadequate to meet either the State's Class I or Class II disposal site standards.

The main canyon is demerited from site consideration based on the size of the drainage area, numerous springs and seeps on the slopes and in the Canyon bottom, and the possibility of active faulting. The extremely large drainage area precludes utilization of the entire width of the canyon bottom for landfill due to flood control constraints. The upper portion of the Oso Canyon within Los Angeles County is underlain by limestone and granite. As such, the utilization of the site with ability to control or monitor fluid movement in the vicinity of a waste disposal site would be extremely complex.

## 2. Potrero Canyon

Two small canyons near San Clarita River were considered potentially suitable for use as a repository. This general area is currently used for oil production. The land owner, Newhall Land and Farming, was also opposed to any use of this property as a hazardous waste residuals repository and initially had denied the County access to the land.

The Board of Supervisors authorized the County Counsel to pursue this matter under eminent domain statutes for permission to examine the land. This was granted by the Los Angeles County Superior Court and an agreement specifying conditions of entry was drafted. As the document was being drafted, Newhall Land and Farming informed the County that they had hired consultants to perform this work and presented the County with geologic reports of the results. These were reviewed by CSD, DPW and Leroy Crandall & Associates (County Consultant on the project).

Geologic tests performed showed the existence of an active groundwater system. Also, the soil underlying both sites is too porous to meet Federal or State standards for a "Class I" hazardous waste management facilities although an artificial lining could bring them up to "Class II" standards.

## 3. Rosamond Dry Lake (Edwards Air Force Base)

Preliminary indications are that the Lake bed and environs are underlain by several hundred feet of clay. This site is easily accessible from major highways and rail lines.

Contacts to gain access to the site were initially made with Edwards Air Force Base by a representative of the County Administrative Office. Two meetings were held with the Base Commander with only limited success. The issue was then transferred to Washington, D.C. for a decision. Requests for approval were made by Supervisor Schabarum and Supervisor Antonovich to the Secretary of the Air Force, and ultimately to Kasper Weinberger, Secretary of Defense. The requests were denied. This site is currently eliminated from further consideration as a potential residuals repository site due to the mandate by the SDOHS that military lands are not to be considered for off-site hazardous waste facilities.

#### 4. Northeast County Area (Hi Vista)

The Hi Vista area investigated is in the southeast corner of Avenue I and 190th Street East and currently is designated as a Wild Flower Sanctuary Park in the County General Plan. Geologists from the DPW and Leroy Crandall & Associates, (County's Consultant) conducted a subsurface geological study at this site. A total of four holes were drilled to an approximate depth of 60 feet to 100 feet. All available information indicates that the immediate area drilled is non-water bearing with sufficiently low water percolation rates at 70 to 90 feet below the land surface and as such, may meet the State permitting requirements.

However, the initial estimate for removing the fractured and weathered top cover to a competent base of unfractured rock is approximately \$100 million. Also, the site is deficient in that consideration must be given to sources of cover and liner materials since there is a scarcity of on-site material for covering operations and liner construction. As such, this area was eliminated from further consideration for residuals repositories.

Based on the above, therefore, it has been concluded that there is no apparent area potentially suitable and economically feasible for a residuals repository in the County, at this time; and, therefore, none has been identified in the CoHWMP. Nevertheless, it should be noted that residuals repositories have not been eliminated from consideration in Los Angeles County. The County will continue its efforts to assure that hazardous waste treatment residuals are appropriately managed. The County will facilitate the permitting of any site proposed by a public or private entity which is determined to meet the siting criteria contained in this Plan. In addition, the County will continue its efforts with the legislature and State regulatory agencies to facilitate the management of hazardous waste treatment residuals in a safe and environmentally sound manner.

## CHAPTER 7

### WASTE MINIMIZATION

#### I. INTRODUCTION

Waste minimization is the undisputed management preference from industry's and society's point of view. This is the most environmentally sound and economically sensible means of addressing the growing waste problem and is fundamental to sound hazardous waste management. This Chapter defines waste minimization to include measures to reduce waste generated at the source; reuse and recycle on-site and off-site; or treat on-site, in that order of preference.

According to the reauthorization of the Resource Conservation and Recovery Act (RCRA) in 1984, which ushered in a new era of hazardous waste regulations, "Congress hereby declares it to be national policy of the United States that, wherever feasible, the generation of hazardous waste is to be reduced or eliminated as expeditiously as possible." Subtitle C of RCRA not only requires "cradle to grave" accountability for hazardous waste, but stipulates that any permittee who treats, stores, or disposes of hazardous waste on the site where it was generated must submit to the United States Environmental Protection Agency (EPA) their programs for reducing waste volume and toxicity, as well as their efforts in minimizing present and future threat to human health and the environment.

It should be noted that the United States Office of Technology Assessment (OTA) and EPA take different positions as to the meaning of waste reduction/minimization. Basically, the OTA definition excludes recycling as true waste reduction unless it occurs within the parameters of a specific process so that the waste does not exit the operation. On the other hand, EPA, in its report to the Congress on waste minimization, includes waste reduction as well as recycling. In California, the State Department of Health Services (SDOHS) interprets waste reduction to include on-site treatment. This Plan follows the State's definition.

California's hazardous waste control programs, by phasing out land disposal and regulating recycling, provide a driving force for moving industry toward waste minimization and alternative technologies. The same purpose is expressed in the Uniform Hazardous Waste Manifest Form that all generators are required to sign, certifying that their proposed treatment, storage, and disposal methods minimize the threat to human health and environment.

It is the intent of the County Hazardous Waste Management Plan (CoHWMP) to set waste minimization as the primary goal and to facilitate the achievement of these waste reduction and recovery

priorities, thereby reducing the volume of hazardous waste to be managed as well as decreasing the County's ultimate dependence on land disposal.

The following waste minimization methods are covered in this Chapter:

- o Source reduction
- o On-site treatment
- o Process modification
- o Substitution (raw material/end product)
- o Material recovery and recycling
- o Source segregation or separation

This Chapter provides the background information on waste minimization and sets its future direction consistent with the policies of the County, the State Legislature and U. S. Congress. The Chapter also includes a summary of current waste minimization efforts in the County together with a discussion on waste minimization barriers and suggested methods for developing an effective waste minimization program.

## II. THE GOAL OF WASTE MINIMIZATION AND ITS IMPACT

It is the intent of the Plan to set waste minimization as the primary goal, thereby reducing the County's ultimate dependence on disposal. The objectives of implementing waste minimization technologies are to reduce the threats to public health and to the environment, to decrease dependence on land disposal, and to reduce/diminish the consumption of raw materials that may lead to the generation of hazardous waste. Through waste reduction, the life of existing hazardous waste disposal facilities could be extended by accepting only non-reclaimable/treated wastes and/or residuals.

Land disposal of untreated hazardous waste will be prohibited in California on and after May 8, 1990. Additionally, the EPA and the State of California have issued regulations that phase out land disposal of certain hazardous materials, thus hastening the application of waste reduction measures. Table 7-1 shows the time constraints on land disposal at the Federal and State levels.

For hazardous waste generators, waste minimization helps to lessen the costs of waste disposal and to limit long-term liability for hazardous waste. Recycling and recovery of waste generated by one plant that may be used as raw material at another facility not only reduces waste, but may increase operating efficiency and lower waste management costs [15].

Typically, capital expenditures for the implementation of a waste minimization process are offset by substantial savings in treatment/disposal fees, hauler fees, raw material costs, and hazardous waste generator fees and disposal taxes. Waste minimization may also provide considerable savings by reducing

TABLE 7-1  
LAND DISPOSAL BAN UNDER THE  
RESOURCE CONSERVATION RECOVERY ACT

A. Federal - Resource Conservation Recovery Act (RCRA) Landfill Prohibitions.

- Bulk Hazardous Liquid	05/08/85
- All Liquids	11/08/85
- Solvents & Dioxin's	11/08/86
- "California List" (See Section B)	07/08/87
- Listed Wastes	
o First Third	08/08/88
o Second Third	06/08/89
o Last Third	05/08/90

B. California List

Effective July 8, 1987, the statute prohibited disposal (except with respect to underground injection into deep injection wells) for the following wastes, listed or identified under Section 3001 of the RCRA.

- a. Liquid hazardous wastes, including free liquids associated with any solid or sludge, containing free cyanides at concentrations greater than or equal to 1,000 mg/l.
- b. Liquid hazardous wastes, including free liquids associated with any solid or sludge, containing the following metals (or elements) or compounds of these metals (or elements) of concentrations greater than or equal to those specified below:
  - i. Arsenic and/or compounds (as As) 500 mg/l;
  - ii. Cadmium and/or compounds (as Cd) 100 mg/l;
  - iii. Chromium (VI and/or compounds (as Cr VI) 500 mg/l;
  - iv. Lead and/or compounds (as Pb) 500 mg/l;
  - v. Mercury and/or compounds (as Hg) 20 mg/l;
  - vi. Nickel and/or compounds (as Ni) 134 mg/l;
  - vii. Selenium and/or compounds (as Se) 100 mg/l;
  - viii. Thallium and/or compounds (as Th) 130 mg/l.
- c. Liquid hazardous wastes having a pH less than or equal to 2.0.
- d. Liquid hazardous wastes containing polychlorinated biphenyls (PCBs) at concentrations greater than or equal to 50 ppm.
- e. Hazardous wastes containing halogenated organic compounds in total concentration greater than or equal to 1,000 mg/kg. (RCRA Section 3004(d)(1) and (2), 42 U.S.C. 6924(d) (1) and (2).

Source: Los Angeles County Department of Public Works,  
September 1988

any future liability in the generator's "cradle to grave" responsibility for hazardous waste. The special requirements for used, reused, recycled, or reclaimed hazardous waste are described in Title 40, Code of Federal Regulations (CFR), Section 261.6.

For hazardous waste management planners, waste minimization reduces, avoids, or eliminates the need for off-site hazardous waste management facilities that would otherwise be needed. To this end, in a survey currently being conducted by the Los Angeles County Department of Public Works to determine waste quantities (Chapter 2), waste generators are requested to provide information on their existing and/or planned waste minimization efforts. The survey, when completed, will be used as a baseline guide to design a Countywide waste minimization program. With the implementation of a Countywide waste minimization program, generators will be contacted and offered assistance in their respective programs. This information will be utilized to update the CoHWMP.

Through vigorous efforts, source reduction and resource recovery are expected to provide the main impetus and driving force for waste minimization.

### III. WASTE MINIMIZATION OPTIONS

Available waste minimization options include:

- o Source reduction
- o On-site treatment
- o Process modification
- o Substitution (raw material/end product)
- o Material recovery and recycling
- o Source segregation or separation

More than one of these approaches are often used simultaneously or sequentially to achieve the most effective waste minimization practice. Table 7-2 addresses the pros and cons of the options to be evaluated.

#### A. Source Reduction

Source reduction is the ideal approach to the management of hazardous waste and implies any action that reduces or eliminates the production of waste in the first place. Source reduction is an all encompassing term and may include reduction in production, process modifications, feedstock substitutions, improvements in feedstock purity, housekeeping and management practices, increases in machinery efficiency, and/or recycling within a process.

#### B. On-site Treatment

Not only does on-site treatment minimize the waste volume, but it can also reduce the hazardous properties of that waste, thus

TABLE 7-2  
A COMPARISON OF THE WASTE MINIMIZATION METHODS

ADVANTAGES	DISADVANTAGES
<p><b>SOURCE REDUCTION</b></p> <ol style="list-style-type: none"> <li>1) Optional waste management method</li> <li>2) Reduces volume of hazardous waste to be managed</li> <li>3) Reduces liability concerns pertaining to hazardous waste productivity</li> </ol>	
<p><b>ON-SITE TREATMENT</b></p> <ol style="list-style-type: none"> <li>1) Reduces hazard and/or volume of waste</li> <li>2) Potentially reduces liability concerns pertaining to hazardous waste productivity</li> <li>3) Moderate-term solution</li> </ol>	<ol style="list-style-type: none"> <li>1) Requires R&amp;D effort; capital investment</li> <li>2) Requires permitting</li> </ol>
<p><b>PROCESS MODIFICATION</b></p> <ol style="list-style-type: none"> <li>1) Potentially reduces both hazard and volume</li> <li>2) Moderate-term solution</li> <li>3) Potential savings in production costs</li> </ol>	<ol style="list-style-type: none"> <li>1) Requires R&amp;D effort; capital investment</li> <li>2) Usually does not have industrywide impact</li> </ol>
<p><b>END PRODUCT SUBSTITUTION</b></p> <ol style="list-style-type: none"> <li>1) Potentially industrywide impact-large volume, hazard reduction</li> </ol>	<ol style="list-style-type: none"> <li>1) Relatively long-term solution</li> <li>2) Many sectors affected</li> <li>3) Usually a side benefit of product improvement</li> <li>4) May require change in consumer habits</li> <li>5) Major investments required-need growing market</li> </ol>
<p><b>RECOVERY/RECYCLING</b></p> <ol style="list-style-type: none"> <li>o In-Plant <ol style="list-style-type: none"> <li>1) Moderate-term solution</li> <li>2) Potential savings in manufacturing costs</li> <li>3) Reduced liability compared to commercial recovery or waste exchange</li> </ol> </li> <li>o Commercial recovery (off-site) <ol style="list-style-type: none"> <li>1) No capital investment required for generator</li> <li>2) Economy of scale for small waste generators</li> </ol> </li> </ol>	<ol style="list-style-type: none"> <li>1) May require capital investment</li> <li>2) May not have wide impact</li> </ol>
<p><b>Waste exchange</b></p> <ol style="list-style-type: none"> <li>1) Transportation costs only</li> </ol>	<ol style="list-style-type: none"> <li>1) Liability not transferred to operator</li> <li>2) If privately owned, must make profit and return investment</li> <li>3) Requires permitting</li> <li>4) Some history of poor management</li> <li>5) Must establish long-term sources of waste and markets</li> <li>6) Requires uniformity in composition</li> </ol>
<p><b>SOURCE SEGREGATION OR SEPARATION</b></p> <ol style="list-style-type: none"> <li>1) Easy to implement; usually low investment</li> <li>2) Short-term solution</li> </ol>	<ol style="list-style-type: none"> <li>1) Liability not transferred</li> <li>2) Requires uniformity in composition of waste</li> <li>3) Requires long-term relationships-two partly involvement</li> </ol>
	<ol style="list-style-type: none"> <li>1) Still have some waste to manage</li> </ol>

Source: Office of Technology Assessment, 1983

lessening the hazard associated with its handling. Overall, on-site treatment can encompass a variety of strategies performed within the confines of the generating facility for altering the toxicity, chemical form, or volume of waste to mitigate any potential negative impact on the environment. Details on specific treatment technologies that can be employed on-site can be found in Chapter 4, Overview of Technology.

#### C. Process Modifications

Process modifications are generally made to improve process efficiencies, increase product yield and reduce costs. Process modifications may range from minor changes such as maintaining optimal temperatures to major changes such as employing new technology and equipment.

Although process modifications may not have had reducing hazardous waste as a primary goal in the past, increased costs of waste management and potential liability have made process modification an attractive tool as a waste minimization alternative. This trend is likely to continue. It should be noted, however, that process modification is likely to be plant specific or process specific and may not be applicable industry-wide. A successful process change depends on intimate knowledge of the specific manufacturing process involved, as well as a knowledge of alternative materials and processing techniques. Some examples of process modification are presented in Table 7-3. The table presents examples of process modifications and is not intended to be an all-inclusive technical description of the processes.

#### D. Substitution (Raw Material/End-product)

Substitution is the replacement of the raw material by a new material or replacement of the product by a new product which eliminates or reduces the generation of hazardous waste as a by-product. Examples of substitution are illustrated in Table 7-4.

Formerly, substitution was generally motivated by lower production costs, reduction of prices to the consumer, improved reliability, and increased product demand, with waste reduction considered only as a secondary benefit. This is no longer true. Recent motivation and incentives include, but are not limited to more stringent regulations, high disposal costs, perpetual liability, scarcer raw materials, anticipated land ban, waste reduction incentives, Federal procurement practices, and broader public information.

#### E. Material Recovery and Recycling

The recovery and recycling of hazardous materials from process effluent offers an excellent means for achieving substantial savings in raw materials and in waste management costs. It also limits potential liability by reducing the volume of hazardous waste needing disposal.

TABLE 7-3  
EXAMPLES OF PROCESS MODIFICATIONS AND PROCESS OPTIONS FOR THE CHLOR-ALKALI INDUSTRY,  
METAL FINISHING INDUSTRY, AND THE CHLOROHYDROCARBON INDUSTRY

### CHLOR-ALKALI INDUSTRY

Modification	Effect on Waste Stream	Reason for Modification
Diaphragm cell	Elimination of mercury contaminated waters	Preferred use of natural salt brines as raw material
Dimensionally stable anode	Elimination of chlorinated hydrocarbon waste	Increased efficiency
Membrane cell	Elimination of asbestos diaphragm waste	Reduce energy costs; higher quality product

### METAL FINISHING INDUSTRY

Modification	Effect on Waste Stream	Reason for Modification
Incorporation of flow controls in rinse stage	Decrease volume of water in rinse	Reduced volume of potentially hazardous sludge
Replacement of nickel and zinc by less hazardous metals in treatment process. First substitute nickel by all zinc. Subsequently, substitute zinc by manganese or iron, depending on metal finishing process required	Decrease amounts of hazardous metallic ions	Reduces degree of hazard of waste stream
Replacement of hexavalent and trivalent chromium in sealer stage. First change hexavalent to all trivalent chromium. Subsequently, replace trivalent chromium with a biodegradable organic compound	Reduces hazard of waste stream	This series of modifications permits the discharge of metal finishing wastewater directly into municipally owned treatment facilities

TABLE 7-3 (CONT.)  
EXAMPLES OF PROCESS MODIFICATIONS AND PROCESS OPTIONS FOR THE CHLOR-ALKALI INDUSTRY,  
METAL FINISHING INDUSTRY, AND THE CHLOROHYDROCARBON INDUSTRY

CHLOROHYDROCARBON (VINYL CHLORIDE) INDUSTRY

Treatment Option	Type	Advantages	Disadvantages
High-efficiency incineration of vent gas only	Add-on treatment	1. Relatively simple operation 2. Relatively low capital investment	1. Second process required to handle liquid waste stream
High-efficiency incineration without HCl recovery	Add-on treatment	1. Relatively simple operation 2. Relatively low capital investment	1. Loss of HCl
High-efficiency incineration with HCl recovery	Recycling	3. High reliability 1. Heat recovery 2. Recover both gaseous and liquid components	1. Exit gas requires scrubbing 2. Requires thorough operator training
Chlorinolysis	Modification of process	1. Carbon tetrachloride generated	1. High temperatures and pressures required 2. High capital investment costs
Catalytic fluidized bed reactor	Recycling	1. Low temperature 2. Direct recycle of exit gas (no treatment required)	3. Weakening market for carbon tetrachloride 1. Limited to oxychlorination plants

Source: Office of Technology Assessment, 1983

TABLE 7-4  
END PRODUCT SUBSTITUTES FOR HAZARDOUS WASTE MINIMIZATION

Product	Use	Ratio of waste <sup>a</sup> original product	Available substitute	Ratio of waste <sup>a</sup> substitute product
Asbestos	Pipe	1.09	Iron Clay PVC	0.1 phenols, cyanides, 0.05 fluorides 0.04 VCM manufacture + 1.0 PVC pipe
	Friction products (brake linings)	1.0+ manufacturing waste	Glass fiber Steel wool Mineral wools Carbon fiber Sintered metals Cement	0
	Insulation	1.0+ manufacturing	Glass fiber Cellulose fiber	0.2
PCBs	Electrical transformers	1.0	Oil-filled transformer Open-air-cooled transformers	0 0
Cadmium	Electroplating	0.29	Zinc electroplating	0.06
Creosote treated wood	Piling		Concrete, steel	0.0 (reduced hazard)
Chlorofluorocarbons	Industrial solvents	70/81=0.9	Methyl chloroform; methylene chloride	0.9 (reduced hazard)
DDT	Pesticide	1.0+ manufacturing waste	Other chemical pesticides	(reduced hazard) 1.0+ manufacturing waste

Note: <sup>a</sup>Quantity of hazardous waste generated/unit of product

Source: Office of Technology Assessment, 1983

Recovery involves the separation of reusable waste constituents from a process effluent. Recycling is the reuse of the recovered components as raw materials. Recovery and recycling may or may not be used together. Waste components recovered from the process effluent, that are not recycled, may be exchanged for other wastes needed as raw materials or sold to help offset costs of recovery and separation.

Table 7-5 provides a description of technologies currently used in the recovery of materials. However, in view of the recent emphasis on serious waste minimization efforts, the Alternative Technology Section, Toxic Substances Control Division of the SDOHS and others have contracted with private consulting firms for specific studies to evaluate wastestreams from industries in an effort to reduce/eliminate waste generation and provide management alternatives. The list of reports compiled as of this date includes:

1. "Waste Audit Study, Automotive Paint Shops", by Stearns, Conrad and Schmidt Consulting Engineers, Inc., Long Beach, California, January 1987.
2. "Waste Audit Study, Paint Manufacturing Industry", by HTM Division, Jacobs Engineering Groups, Inc., Pasadena, California, April 1987.
3. "Waste Audit Study, Printed Circuit Board Manufacturers", by Planning Research Corporation, San Jose, California, June 1987.
4. "What Do Small Firms Need to Reduce Toxic Waste?" A Case Study of Metal Platers" prepared by the California Institute of Public Affairs for The California Forum on Hazardous Materials, Working Paper 2, August 1987.

Other industries and industrial processes to be covered by the studies include: agricultural chemical formulation, electroplating, metal surface treating (other than electroplating), petroleum refining, printing, wood preserving, metal parts cleaning, paint application, process equipment cleaning, plywood manufacturing, agricultural services including pesticide application, oil and gas well drilling, metal products fabrication excluding machinery and transportation equipment, drug manufacturing and processing, building construction and trades, marine maintenance and repair, mechanical equipment repair excluding motor vehicles, photographic processing, educational, scientific and research institution activities, and general medical and surgical hospital practices excluding infectious wastes.

Recovering and recycling operations can generally be divided into three categories:

TABLE 7-5  
DESCRIPTION OF TECHNOLOGIES CURRENTLY USED FOR RECOVERY OF MATERIALS

Technology/description	Stage of development	Economics	Types of waste streams	Separation efficiency <sup>a</sup>	Industrial applications
<b>Electrolysis:</b> Separation of positively/negatively charged materials by application of electric current	Commercial technology; not applied to recovery of hazardous materials	Dependent on concentrations	Heavy metals; ions from aqueous solutions; copper recovery	Good	Metal plating
<b>Carbon/resin absorption:</b> Dissolved materials selectively absorbed in carbon or resins. Adsorbents must be regenerated	Proven for thermal regeneration of carbon; less practical for recovery of adsorbate	Relatively costly thermal regeneration; energy intensive	Organics/inorganics from aqueous solutions with low concentrations, i.e., phenols	Good, overall effectiveness dependent on regeneration method	Phenolics
<b>Solvent extraction:</b> Solvent used to selectively dissolve solid or extract liquid from waste	Commonly used in industrial processing	Relatively high costs for solvent	Organic liquids, phenols, acids	Fairly high loss of solvent may contribute to hazardous waste problem	Recovery of dyes
<b>Chemical transformation:</b> <b>Precipitation:</b> Chemical reaction causes formation of solids which settle	Common	Relatively high costs	Lime slurries	Good	Metal-plating wastewater treatment
<b>Electrodialysis:</b> Separation based on differential rates of diffusion through membrane. Electrical current applied to enhance ionic movement	Commercial technology, not commercial for hazardous material recovery	Moderately expensive	Separation/concentration of ions from aqueous streams; application to chromium recovery	Fairly high	Separation of acids and metallic solutions
<b>Chlorinolysis:</b> Pyrolysis in atmosphere of excess chlorine	Commercially used in West Germany	Inefficient U.S. market for carbon tetrachloride	Chlorocarbon waste	Good	Carbon tetrachloride manufacturing
<b>Reduction:</b> Oxidative state of chemical changed through chemical reaction	Commercially applied to chromium; may need additional treatment	Inexpensive	Metals, mercury in dilute streams	Good	Chromate-plating solutions and tanning operations
<b>Chemical dechlorination:</b> Reagents selectively attack carbon-chlorine bonds	Common	Moderately expensive	PCB-contaminated oils	High	Transformer oils
<b>Thermal oxidation:</b> Thermal conversion of components	Extensively practiced	Relatively high	Chlorinated organic liquids; silver	Fairly high	Recovery of sulfur, HCl

Note: <sup>a</sup>Good implies 50 to 60 percent efficiency, fairly high implies 80 percent, and very high implies 90 percent.

Source: Office of Technology Assessment, 1983

TABLE 7-5 (CONT.)  
DESCRIPTION OF TECHNOLOGIES CURRENTLY USED FOR RECOVERY OF MATERIALS

Technology/description	Stage of development	Economics	Type of waste streams	Separation efficiency	Industrial applications
<b>Physical separation:</b>					
<b>Gravity settling:</b> Tanks, ponds provide hold-up time allowing solids to settle; grease skimmed to overflow to another vessel	Commonly used in wastewater treatment	Relatively inexpensive; dependent on particle size and settling rate	Slurries with separate phase solids, such as metal hydroxide	Limited to solids (large particles) that settle quickly (less than 2 hours)	Industrial wastewater treatment first step
<b>Filtration:</b> Collection devices such as screens, cloth, or other; liquid passes and solids are retained on porous media	Commonly used	Labor intensive; relatively inexpensive; energy required for pumping	Aqueous solutions with finely divided solids; gelatinous sludge	Good for relatively large particles	Tannery water
<b>Filtration:</b> Air bubbled through liquid to collect finely divided solids that rise to the surface with the bubbles	Commercial application	Relatively inexpensive	Aqueous solutions with finely divided solids	Good for finely divided solids	Refinery (oil/water mixtures); paper waste; mineral industry
<b>Flocculation:</b> Agent added to aggregate solids together which are easily settled	Commercial practice	Relatively inexpensive	Aqueous solutions with finely divided solids	Good for finely divided solids	Refinery; paper waste; mine industry
<b>Centrifugation:</b> Spinning of liquids and centrifugal force causes separation by different densities	Practiced commercially for small-scale systems	Competitive with filtration	Liquid/liquid or liquid/solid separation, i.e., oil/water; resins; pigments from lacquers	Fairly high (80%)	Paints
<b>Component separation:</b> <b>Distillation:</b> Successfully boiling off of materials at different temperatures (based on different boiling points)	Commercial practice	Energy intensive	Organic liquids	Very high separations achievable (99+ % concentrations) of several components	Solvent separations; chemical and petroleum industry
<b>Evaporation:</b> Solvent recovery by boiling off the solvent	Commercial practice in many industries	Energy intensive	Organic/inorganic aqueous streams; slurries, sludges, i.e., caustic soda	Very high separations of single, evaporated component achievable	Rinse waters from metal-plating waste
<b>Ion exchange:</b> Waste stream passed through resin bed, ionic materials selectively removed by resins similar to resin adsorption. Ionic exchange materials must be regenerated	Not common for HW	Relatively high costs	Heavy metals aqueous solutions; cyanide removed	Fairly high	Metal-plating solutions
<b>Ultrafiltration:</b> Separation of molecules by size using membrane	Some commercial application	Relatively high	Heavy metal aqueous solutions	Fairly high	Metal-coating applications
<b>Reverse osmosis:</b> Separation of dissolved materials from liquid through a membrane	Not common; growing number of applications as secondary treatment process such as metal-plating pharmaceuticals	Relatively high	Heavy metals; organics; inorganic aqueous solutions	Good for concentrations less than 300 ppm	Not used industrially

### 1. In-House Recycling

This practice is usually performed by the waste generator to recover and recycle raw materials, process waste streams or by-products.

### 2. Commercial (off-site) Recovery

Commercial recovery is the recovery and reuse of wastes combined from several processes or products, usually in limited quantities, by different manufacturers. Commercial recovery involves an agent other than the generator of the waste to handle its collection and recovery.

Commercial recovery facilities accept hazardous wastestreams containing reusable materials and offer the economies of scale to enhance the economic reuse of these wastes. This is of particular importance to the small waste generator who finds on-site recycling economically unfeasible due to the low volumes of waste generated. Depending on the wastestream, the recovery facility may purchase the waste from the generator, or may provide continuous service to the generator by collecting spent materials as needed and then selling the recovered product back to the generator. Appendix 7A lists the commercial recovery facilities operating in Los Angeles County.

Since 1985, owners or operators of off-site hazardous waste recycling facilities have been able to apply for a Resource Recovery Permit, as opposed to a Hazardous Waste Facilities Permit. Depending on the facility's operations and the specific material handled, an operator may be eligible for a Series A, Series B, or Series C Resources Recovery Permit (Appendix 6B). The Resource Recovery Permit provides some regulatory relief to entrepreneurs of such facilities and stresses the positive aspects of recycling.

### 3. Waste Exchanges

Waste exchanges (sometimes referred to as material exchanges) provide and collect information on available wastes and needs. Whenever a supply and demand seem compatible, the generators involved are notified. The broker conveys the information and arranges a transaction between interested parties, but does not take actual possession of the waste.

### F. Source Segregation or Separation

Source segregation or separation is the process of keeping wastes concentrated and isolated rather than producing large volumes indiscriminately mixed. The isolation of hazardous waste from the main wastestream prevents the contamination of nonhazardous wastes, thereby reducing treatment and disposal costs.

The separation of toxic metals from metal-finishing rinse water, for example, permits the wastewater to be discharged through the

industrial/municipal sewage system after minimal treatment. This waste minimization alternative is usually the easiest and least expensive method of reducing large quantities of hazardous waste that are amenable to such separation

#### IV. WASTE MINIMIZATION BARRIERS AND ECONOMIC FACTORS

##### A. General

According to a recent survey conducted by the Chemical Manufacturers Association [28], a portion of the U.S. chemical industry has experienced a general decline in the production of hazardous wastes from 1981 to 1986, as a result of implementing source reduction and recycling techniques. Yet, a number of chemical firms noted dramatic one year increases in 1986 in the amount of their hazardous wastes. This increase is likely to have been caused by the implementation of new regulations.

Overall, waste minimization programs are effective only if the effort is well recognized and committed to. Unfortunately, barriers exists in establishing these programs both at the government and at industry levels.

In the past, governmental agencies have traditionally remained in the regulatory role and assistance programs to generators typically are left to trade associations, manufacturing groups and private consulting enterprises. To modify this trend, resources will need to be reallocated and barriers removed. The latter includes reexamining budgetary constraints, priorities of funding allocations and staff and resources availability. In Los Angeles County, a Countywide waste minimization program is further complicated by the need to effectively coordinate efforts among 86 jurisdictions (85 cities and County unincorporated areas). Substantial time, staff and funding are required to establish a multi-jurisdictional program.

On the private industry side, many industries are also reluctant to introduce waste minimization schemes into their manufacturing processes because the initial expenditure in implementing such efforts can be substantial. However, it should also be recognized that there are many other industries that have already implemented waste minimization programs even though these programs may have been based on easily implementable waste minimization techniques such as good housekeeping practices. Overall, most large industries already have existing waste minimization programs, the remaining are only those practices that may require substantial capital investments or, research for new technology. It is further recognized that many small and medium sized industries may not have implemented any programs because in the past, it was often more economical to landfill the waste rather than invest in ways to reduce its volume. Small industries are often at a disadvantage due to lack of personnel with knowledge of current waste minimization technologies and regulations.

In order to ensure a successful waste minimization program, it must be recognized that economics plays a very important role and is the driving force of most systems. The following are some of the common barriers to implementing waste minimization programs. Although the discussion is geared toward industry, the same concepts can also be applied to governmental agencies.

1. Technical barriers can impede a firm's ability to develop, evaluate or implement waste minimization methods. These may include lack of information on methods, lack of in-house expertise to evaluate and implement a program, or absence of proven, cost effective, readily available technologies for some industries.
2. Financial barriers can prevent a firm from undertaking a waste minimization project if funding is inadequate, especially where there are up-front capital costs, unfavorable tax policies, and/or added transportation charges.
3. Institutional barriers can be either regulatory constraints or lack of awareness, inflexibility or lack of commitment at a firm's decision making level. This includes reluctance of management to deal with permitting requirements or purchasing contract specifications that prevent the use of recycled materials.
4. Physical barriers such as lack of space or suitable location on the generator's property to install a facility or process can also impede the effort.

To alleviate some of the barriers described above, the following factors should be carefully considered when first evaluating waste minimization alternatives:

- o Research and development required prior to implementation of a new technology;
- o Availability of capital required for new raw materials, additional equipment such as recovery and recycling equipment, control equipment, and additional instrumentation;
- o Improvement in process efficiency, energy requirements and the potential for energy recovery;
- o Market potential for recycled material, either in-house or commercially, and anticipated revenues; and
- o Waste management costs resulting from recovery/recycling, i.e., additional manpower, insurance needs, and potential liability.

#### B. Research and Development

Research and development (R&D) on proposed technology changes for reducing hazardous waste streams is necessary prior to the implementation of a technology. Through R&D, a company can

determine if a technology is feasible in terms of both cost-effectiveness and capability for reducing the hazardous waste stream. Performance tests on equipment should be undertaken to determine if the equipment is capable of the desired operations.

#### C. Capital Investment Costs

Capital investment may be required for the purchase of additional equipment, such as instrumentation for monitoring or equipment needed for recovery and recycling.

Capital investment may also be required for new machinery when integrating end-product substitution into the manufacturing process for the production of a new item. In addition, costs may also increase due to price differences between the raw materials.

#### D. Process Efficiency

Process efficiency is an important factor in the manufacturing of products. Low process efficiency levels result in higher energy costs, greater consumption of raw materials, and greater volumes of waste by-products.

Improving efficiency through proper equipment maintenance and/or process modifications can yield substantial savings in energy costs as well as promote conservation and reduced raw materials costs. This may contribute to lower overall waste management costs.

#### E. Market Potential

The market potential for recycled materials, either in-house or commercial, needs to be considered when evaluating waste minimization techniques. Anticipated expenditures and revenues for a recycled material should also be estimated. For wastestreams with no market potential, other waste minimization alternatives should be investigated.

Market demand, and the quality or purity of the recovered material are governing factors in the reuse or exchange of recovered wastes. Meeting minimum purity standards can enhance reuse and exchange value.

#### F. Waste Management Costs

Revenues from the recovery of materials along with savings in hazardous waste disposal fees, taxes, and potential savings from the long term liability for the waste may counter the costs of reduction or elimination of the hazardous wastestream. For example, the recycling of returnable barrels may seem a minor consideration, but it could eliminate otherwise necessary disposal costs.

## G. Public Relations

A firm's effort in reducing its hazardous waste stream can create a positive public attitude toward the facility and gain local community acceptance. In addition, good public relations can advertise the company's name and products, and may encourage further waste minimization practices among others in the industry.

## V. INCENTIVES FOR WASTE MINIMIZATION

A commitment to limit the generation of hazardous wastes and the cost of perpetual liability weighs heavily toward the implementation of waste minimization techniques. Incentives for waste minimization can be viewed as falling into three categories: economic incentives; economic disincentives; and regulatory disincentives to direct disposal, which includes the following categories:

- o Economic Incentives
  - Loans for capital investment
  - Tax credits for capital investment
  - Grants and loans for research and development
  - Tax exemptions for waste reduction
- o Economic Disincentives to Direct Disposal
  - Increase in waste-end taxes
  - Increase in disposal fees
  - Increase in feedstock taxes
  - Increase transportation fees
- o Regulatory Disincentives to Direct Disposal
  - Restrictions on landfill disposal
  - Imposition of more stringent standards on transportation, operation, monitoring, etc.
  - Imposition of more stringent disposal standards including publicly or privately owned sewer systems

Direct economic incentives, coupled with regulatory restrictions, can stimulate industry into investigating alternatives that will minimize the generation of hazardous waste. The following section describes some of the economic incentives, economic disincentives, and regulatory disincentives.

### A. Economic Incentives

A major obstacle when incorporating waste minimization measures in the manufacturing process is the need for capital investment for the new or modified equipment or facilities. A Federal or State loan program that offers low interest rates, or long-term repayment schedules could facilitate the adoption of one or more waste reduction alternatives by waste generators.

Incentives for capital investments can also be introduced in the form of tax credits. An investment tax credit can be offered on a time-limited basis to spur capital investment in waste reduction processes. The tax credits may result in short-term loss of revenue for the government, but the capital investment could result in tremendously reducing long-term expenditures for site clean-up.

For certain waste streams where the waste reduction technology is not yet fully developed, R&D efforts may be encouraged by governmental grants and loan assistance to finance pilot plants or other efforts. One such way is to provide long-term, low interest loans to be repaid upon the successful commercialization of the technology.

#### B. Economic Disincentives to Direct Disposal

Disincentives to direct disposal include increasing costs for land disposal to cause firms to re-evaluate their waste management practices.

Taxes are currently being collected from hazardous waste generators, hazardous waste management facilities and generators who dispose of their wastes on land.

While the State imposes an economic disincentive on land disposal, it offers financial relief for waste reduction equipment and limited long-term liability for recycled wastestreams as positive incentives for waste reduction.

#### C. Regulatory Disincentives to Direct Disposal

As required under the provisions of California Hazardous Waste Control Law to promote the recycling of hazardous wastes, the State Department of Health Services (SDOHS) continues to develop disincentives to direct disposal.

One such disincentive is the restriction on land disposal of certain specified hazardous wastes. After determining that adequate recycling and treatment capacity exists in the State, SDOHS restricted the land disposal of: (1) cyanide waste; (2) toxic metal waste, acid waste, and polychlorinated biphenyls; (3) liquid waste containing halogenated organic compounds; (4) sludges and solids containing halogenated organic compounds; and (5) completely banned the placement of non-categorized liquids. The characteristics and concentrations of each category of waste can be found in Section 66900, Title 22, of the California Administrative Code (CAC). Furthermore, the newly enacted legislation, Chapter 1504 of the 1986 State Statutes, which prohibits the land disposal of untreated hazardous waste by May 8, 1990, would provide additional incentive for waste generators to implement waste minimization efforts.

Another regulatory disincentive is the compulsive recycling of hazardous wastes which the SDOHS has determined to be economically and technologically feasible to be recycled. Waste

generators are required to submit to the SDOHS a written justification for disposing of a hazardous waste listed with the SDOHS as being recyclable. If the SDOHS finds the hazardous waste feasible for recycling on-site, as determined by the site operator, or if the SDOHS provides the name of an off-site facility willing to accept the waste, the waste generator must recycle the wastestream by the method described, or face monetary penalties. The listings of recyclable waste, and generator justification requirements, are in Section 66796, Title 22, of the Health and Safety code.

The following are some other regulatory actions that indirectly encourage waste reduction/resource recovery as they increase the cost of direct disposal:

- o Ban on non-containerized liquid hazardous waste from landfills;
- o Criteria on new disposal facilities, including:
  - Double liner and ground water monitoring variance
  - Leachate collection system above and between liners
  - Obligation to institute corrective action;
- o Fewer waste disposal facilities. Higher tipping fees result from fewer sites, less capacity, and stringent governmental regulations; and
- o Increase in transportation costs to haul waste to more distant disposal areas.

## VI. WASTE MINIMIZATION PROGRAM DEVELOPMENT

The following section provides general guidance to assist public agencies and private industries in establishing a waste minimization program. Also presented is an overview of recently published reports which would assist hazardous waste generators in the development of a waste minimization program.

### A. County/City Programs

The following factors should be considered when first assessing the feasibility of a county/city waste minimization program:

- o The number of generators
- o The waste group category each generates
- o The quantity of waste being shipped off-site for treatment/disposal
- o The cost of establishing and maintaining a program
- o The availability of program funding

When establishing such a program, the following may be planned:

1. A survey of the industries must be first conducted to define the baseline and/or the overall state of management. Subsequent surveys can then evaluate implementation effectiveness and determine results of the program. These surveys can provide information on which industries/wastestreams should be targeted first.

2. A waste minimization center may be established to provide reference materials, informational brochures, schedules of forums, and technical assistance to generators involved in the waste minimization program. This is of special importance to small quantity generators (Chapter 12) where many companies are unfamiliar with the latest regulations and may not be in a position to hire a private consultant.

The monthly newsletter "Waste Reduction Update" published by the Local Government Commission offers current information on hazardous waste reduction efforts and should be included as a resource.

3. To encourage and strengthen waste minimization efforts, the county/cities, in cooperation with private industries, can sponsor annual workshops for specific industries to provide the latest regulatory/informational updates, grants, success stories, and recognition.
4. For Los Angeles County, County Sanitation Districts of Los Angeles County, and for those cities that already have industrial waste enforcement programs, inspectors can be provided with in-house training to follow up on the completion of the survey. As part of their inspection visits and with the appropriation of adequate funding or through the expansion of existing fee, these inspectors can assist in the dissemination of information on waste minimization as well as perform preliminary waste audits.

A waste audit is a very simple process whereby a study is conducted to evaluate the in- and out- feeds of each process which lead to the production of the wastestreams to determine where in the processes provide feasible opportunities for waste minimization. This study, in effect, is best conducted by the (in-plant) person most familiar with the processes. Once enough general information is compiled, a check list may be developed to assist other generators in a self help program or for those companies that may want to maintain confidentiality.

5. County/cities should establish an office to monitor, disseminate, as well as provide direction to research in waste minimization similar to those currently being conducted by various institutes such as the Engineering Research Center for Hazardous Waste Control at the University of California, Los Angeles.

#### B. Private Industry Programs

Private industry is in the best position to implement waste minimization programs as they are intimately familiar with their own plant's processes, needs, and costs.

Furthermore, manufacturing/trade associations are in a good position to disseminate the information on effective waste minimization techniques through workshops. As such, private industry is encouraged to work cooperatively with governmental agencies to develop/implement waste minimization information awareness programs. Examples of successful waste reduction techniques that have been implemented by various industries are cited in the "EPA Manual for Waste Minimization Opportunity Assessments, April 1988." This manual, developed by the Jacobs Engineering Group under contract with the EPA, further provides step-by-step procedures for waste minimization assessments.

Table 7-6 presents a sample checklist that can be used in an in-house waste minimization program. To those interested, the references in Section D should also be used to provide guidance on starting and operating a program.

### C. Funding Sources

The following is a list of potential funding sources that may be considered by public agencies for waste minimization programs and for generators desiring to establish their own waste minimization program.

1. Potential sources of funding for programs include the following:

a. Fees

- 1) Generators fees from existing hazardous waste and/or industrial waste management programs, such as Public Health License, Industrial Waste Disposal Permit, etc.
- 2) Additional generator fees for generators who have not developed or implemented an acceptable waste reduction plan.
- 3) Chapter 1504 of the 1987 State Statutes allows collection of up to 10 percent fee based on gross receipts of commercial hazardous waste management facilities by local government.

b. Feedstock Tax

Tax on chemical feedstock materials sold in the County/cities.

c. Penalties collected as a result of enforcement of County/cities environmental ordinances.

d. Private grants

Grants from private or community foundations or local businesses for special projects.

TABLE 7-6  
IN-HOUSE WASTE MINIMIZATION PLAN

1. Substances and Source Inventory
  - a. Substance inventory:
    - List and volume of all chemicals on plant site
    - Materials balance (plant input/output) and analysis
  - b. Waste source inventory:
    - Location and assessment of all chemical storage facilities
    - Location and assessment of all production units (including maintenance and repair) using chemicals
    - Location and assessment of all waste management facilities and points of discharge
    - Why is waste deemed hazardous?
2. Priority Framework (can be designed by the waste generator)
  - a. Review chemical hazard and toxicity characterization
  - b. Risk calculation
    - Assessment of degree of hazard of chemicals, potential for human and environmental exposure, and susceptibility of populations at risk
  - c. Criteria identification
    - List of criteria and weighting for importance
    - Priorities wastes for minimization
3. Alternative Process Description
  - a. Identify housekeeping/production changes for minimization
  - b. Literature and equipment survey
    - Array of alternative practices and technologies
  - c. Cost estimation
    - Estimates of cost, amortization, depreciation, tax rebates, and payback potentials
  - d. Selection of alternative practices and equipment
    - Arrayed by priority and conditions of adoption
4. Schedules and Targets
  - a. Schedule
    - Identification of steps or phases of implementation
    - Task identification and personnel assignments
  - b. Targets
    - Projected dates of completion
5. Monitoring and Evaluation
  - a. Identification of responsibility and authority
    - Identification of reporting procedures
  - b. Establishment of evaluation procedures
    - Identification of evaluation protocol
    - Establishment of outcome objectives and range of acceptability
  - c. Education and involvement of facility personnel.

Source: Environmental Health Department, County of Ventura, January 1986.

2. State Grants/Loans:

- a. Under the Hazardous Waste Reduction Incentive Account created by Section 44558 of Health and Safety Code, financial assistance may be provided to projects for the acquisition, construction, or installation of equipment to recycle, reduce at the source or treat hazardous waste.
- b. The Office of Public Advisor under the South Coast Air Quality Management District offers help to businesses seeking financing from either the U.S. Small Business Administration or the California Pollution Control Financing Authority for the purchase of mandated air-pollution control equipment. More information may be obtained by contacting:

South Coast Air Quality Management District  
9150 Flair Drive  
El Monte, CA 91731  
(818)

or

U.S. Small Business Administration  
Los Angeles, Office  
(213) 894-6852

or

California Pollution Control Financing Authority  
Los Angeles Office  
(213) 620-2362

- c. Small Business Administration Cooperative Loan may allow a number of small companies to pool together and apply jointly to qualify for their loan.
- d. Small Business Administration pursuant to Chapter 1445 of the 1987 State Statutes (SB 788, Garamendi) offers loans at 2 percent below market rate for equipment used for waste reduction. More information may be obtained by contacting:

Office of Small Business  
1121 L Street, Suite 600  
Sacramento, CA 95814  
(916) 322-3592

- e. SDOHS pursuant to Chapter 1030 of the 1985 State Statutes (AB 685, Farr) establishes the California Hazardous Waste Reduction Grant Program and provides grants to universities, governmental agencies, and private organizations to research and develop hazardous waste reduction, recycling, and treatment technologies and to provide grants for

commercial demonstration of these technologies. For more information, please contact:

Alternative Technology Section  
Toxic Substance Control Division  
P. O. Box 942732  
Sacramento, CA 94234-7320  
(916) 324-1807

#### D. Reference Materials

The following materials are available as references to assist public agencies and/or generators in establishing a waste minimization program:

1. "Alternative Technology for Recycling and Treatment of Hazardous Wastes", prepared by State Department of Health Services, Toxic Substances Control Division, Alternative Technology and Policy Section, July 1986.
2. "Serious Reduction of Hazardous Waste - Summary", prepared by the Office of Technology Assessment, Congress of the United States, September 1986.
3. "Auditing For Waste Minimization: Its Role in California", prepared by Michael Eaton with Rory Kessler for the California Institute of Public Affairs, The California Forum on Hazardous Materials, Working Paper 1 November 1986.
4. "Approaches to Source Reduction of Hazardous Waste - Practical Guidance From Existing Policies & Programs", prepared by the California Institute of Public Affairs, An Affiliate of The Claremont Colleges for the Environmental Defense Fund, 1986.
5. "Turning Off The Tap: Strategies for Hazardous Waste Minimization in the City of Los Angeles", prepared by the Cal-Tech Management Associates in collaboration with the Mayor's Advisory Committee on Hazardous Waste Reduction, April 1987.
6. "Hazardous Waste Reduction Guidelines For Environmental Health Programs", prepared by the Ventura County Environmental Health for the Toxic Substance Control Division, Alternative Technology Section, State Department of Health Services, May 1987.
7. "Incentives for Increasing On-site Management of Hazardous Wastes", prepared by the Southern California Hazardous Waste Management Authority, May 1987.
8. "From Pollution to Prevention - A Progress Report on Waste Reduction", (Special Report OTA-ITE-347), prepared by the Office of Technology Assessment, Congress of the United States, June 1987.

9. "Development of A Local Waste Minimization Program - A Model Process", prepared by Morell and Associates for The California Partnership For Safe Hazardous Waste Management, October 10, 1987 (Draft).
10. "Hazardous Waste Minimization - A Resource Book for Industry", prepared by the San Diego County Department of Health Services, November, 1987.
11. "Waste Minimization - Environmental Quality with Economic Benefits", prepared by the Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency, 1987.
12. "The EPA Manual for Waste Minimization Opportunity Assessments", prepared by Jacobs Engineering Group, Inc., April 1988.

In addition to the reference listed above, there are numerous other publications on alternative technologies, recycling, and waste minimization methods and potentials. Interested parties should contact SDOHS and the United States Government Printing Office directly.

#### E. Legislative Assistance

Assistance to generators on waste minimization efforts has also been provided through legislation.

The recently enacted Chapter 1337 of the 1987 State Statutes (AB 1961, Farr) directs the legislature to request the University of California, if funds are available, to develop an internship pilot program on or before June 1, 1988, which would place students in engineering, environmental sciences, or related subject areas with private businesses for the purpose of providing on-site assistance on hazardous waste reduction methods to small quantity generators. These students are to assist small businesses by conducting waste audits, assist in preparing waste reduction plans, and provide information concerning the hazardous waste laws and regulations as they apply to small generators.

University of California, Los Angeles, in cooperation with the Source Reduction Research Partnership and County Department of Health Services, is establishing an internship program, entitled "The Small Quantity Generator Assistance Program", to study waste management practices and alternatives for various industries. The program, scheduled for the fall of 1988, will begin by targeting the airline industry and will investigate various airline wastes including fuels, paints, and solvents to determine effective means of managing these wastes.

In addition, Chapter 838 of the 1987 State Statutes (AB 2234, Bronzan) requires SDOHS to establish specialized training programs to instruct businesses on compliance with the statutes and regulations governing hazardous waste. They also conduct industry specific meetings with trade association representatives

of major small quantity hazardous waste generators to inform the representatives of hazardous waste management laws and regulations and provide suggestions and assistance.

Two other pending legislations that are of interest include:

1. SB 714, Roberti, if enacted, would extend the the Hazardous Waste Reduction and Management Review Act of 1988 and provide for the following:

- i) By January 1, 1990, SDOHS is required to adopt regulations and to establish a technical and research assistance program to assist hazardous waste generators in reducing hazardous waste.
- ii) By September 1, 1990, and every four years thereafter, each generator of hazardous waste generating more than 12,000 kilograms per calendar year is required to:
  - a) Prepare and conduct a source evaluation report and plan specifying source reduction measures which will be implemented by him/her; and
  - b) Prepare a hazardous waste management performance report concerning the hazardous waste management approaches, including source reduction, implemented by him/her.

The reports and plans must be prepared pursuant to regulations adopted by the SDOHS and must be certified by the generator of his/her agent, as defined. Upon 30 days notice, the reports and plans must be submitted to the SDOHS and/or local agency responsible for the administration of the county hazardous waste management plan, as applicable.

Generators would be subject to enforcement action by the SDOHS if the above are not complied with.

- iii) By July 1, 1992, and every two years thereafter, the SDOHS is required to select at least two categories of hazardous waste generators, generating more than 12,000 kilograms per calendar year, by SIC Code with potential for source reduction and review their plans and reports pursuant to Item 2, above. Based on this review, generators would be subject to enforcement action if the SDOHS

determines that they have failed to implement their plan for source reduction.

iv) By July 1, 1992, and every other year thereafter, the SDOHS is required to submit a report to the Governor and the Legislature concerning implementation of this Act.

2. H.R. 2800, Wolpe, known as the Hazardous Waste Reduction Act, calls on EPA to establish a source reduction office and clearinghouse, which will compile information generated by states receiving grants on management, technical and operational approaches to source reduction. The act would authorize EPA to make matching grants to states for programs to promote the use of source reduction techniques by businesses.

#### VII. CURRENT WASTE MINIMIZATION EFFORTS IN LOS ANGELES COUNTY

While there is no one comprehensive waste minimization program currently being implemented by cities or the County, a number of efforts are being made geared to this end. The following section presents an overview of current efforts.

##### A. County

The Los Angeles County Board of Supervisors (Board) has acknowledged the threat to public health and safety posed by hazardous material/waste. On October 1987, the Board established the following policies for Los Angeles County:

1. Reduce the use of hazardous substances and the generation of hazardous waste at the source;
2. Recover and recycle the remaining waste for reuse; and
3. Treat those wastes not amenable to source reduction or recycling so that the environment and community health are not harmed by their ultimate release or disposal.

In an effort to provide for the proper management and reduction of hazardous waste generated by business, representatives from the City of Santa Monica, Los Angeles County Department of Health Services and Department of Public Works formed the Waste Reduction Group in February 1988. The Group was designed to provide various businesses with information on hazardous waste regulations and effective techniques for waste reduction. Specific industries targeted included automotive repair, printing/photographic processing, paint formulating, machine tooling, and dry cleaning. The Group analyzed each industry's wastestream and current operating practices in order to produce fact sheets addressing specific waste reduction potential for various business groups along with a booklet that addresses the general issues of waste reduction. These educational materials

are currently being developed and once completed, they will be distributed to interested businesses by the agencies comprising the Group.

Also, County Department of Health Services has started training its inspectors in waste minimization technology so they are better able to evaluate current industry's effort toward reduction.

Additionally, the DPW conducted a survey on major industry groups to establish the current trend of waste minimization efforts in the County during the summer of 1988. Results of this survey indicated the following:

- o Waste minimization efforts on the part of industry are likely to result in waste reduction of 2 percent each year.
- o Readily implemented processes designed to reduce industry's waste have already been put into place by the large industries.
- o Further progress in the waste minimization area by the large industries must come about through development of new technologies.

#### B. City of Los Angeles

In April, 1988, Cal-Tech Management Associates working under the auspices of the City of Los Angeles' Mayor's Advisory Committee on Hazardous Waste Reduction (MACHWR), issued its final report entitled "TURNING OFF THE TAP: Strategies for Hazardous Waste Minimization in the City of Los Angeles."

Key findings and recommendations from this report are as follows:

- o Endorsement of a resolution or passage of a Waste Minimization Ordinance. This task was completed in January 1988.
- o Establishment of an Office of Waste Reduction. This task was completed in January 1988.
- o Develop workshops, seminars and task forces on waste reduction.
- o Identify "pooled loan financing programs" to provide affordable loans to businesses for waste reduction efforts.

The City, on July 1, 1988, established the Hazardous Toxic Materials Project in the Board of Public Works to monitor and reduce the use and disposal of hazardous materials/wastes. This office's main focus is the Hazardous and Toxic Materials Project, which identifies businesses and city departments that generate hazardous waste and provides technical assistance on how to

properly dispose and minimize hazardous substances. In addition, the office will conduct inspections and distribute pamphlets to companies on proper disposal methods. At this time \$425,000 has been earmarked for the 1988-89 budget.

Further information on the program may be obtained by contacting:

Los Angeles Board of Public Works - Hazardous and Toxic  
Materials Project  
200 N. Spring Street, Room 366  
Los Angeles, CA 90012  
(213) 237-1209

#### C. City of Santa Monica

Concerned about the limited information available on hazardous waste minimization planning efforts, the City of Santa Monica was determined to develop a program that would provide consistent educational materials to community businesses. In February 1988, Santa Monica initiated the previously mentioned Waste Reduction Group (Section A). The City of Santa Monica continues to be a driving force in this area. Up-to-date information on the program may be obtained by contacting:

City of Santa Monica  
1685 Main Street  
Santa Monica, CA 90401  
(213) 458-8228

#### D. Private Industry

Under the current manifest system, large quantity generators must certify that a program is in place to reduce the volume and toxicity of the waste generated that is economically practical and that the method(s) of management selected would minimize present and future threat to human health and the environment. For small quantity generators, they must certify that they have made a good faith effort in minimizing waste generation and have selected the best waste management method that is available and affordable.

In addition, generators must submit a report detailing waste minimization efforts every two years under current Health and Safety Code.

The following are the survey results of some of the waste minimization programs currently implemented in Los Angeles County.

1. Western Oil & Gas: A survey of member company refineries showed that implemented waste minimization programs have accomplished 20 to 50 percent reduction in hazardous wastes shipped off-site.

2. Aerospace Industries: These industries have also implemented programs for the past several years with 20 to 50 percent reduction.
3. General Motors: Changes in paint application techniques have resulted in major cost savings and waste reduction of 50 percent.
4. Crown City Plating: With over 500 employees, this is one of the largest metal plating companies in the United States. It established process changes in the handling of chromic acids, cyanide wastes and metal-bearing sludges and accomplished about 40 percent waste reduction.
5. Source Reduction Research Partnership (SRRP): SRRP is a unique joint venture of the Metropolitan Water District of Southern California and the Environmental Defense Fund. The partnership is sponsoring a study to estimate the potential for source reduction of chlorinated solvents and contaminants commonly found in ground and surface water systems across the United States. The project team is presently developing a detailed industry profile that will include the current industry trends, current hazardous waste minimization measures, percent reduction in waste stream on chlorinated solvent using industries, and discussion on future reduction that can be achieved by adopting individual or a combination of minimization options.
6. ARCO: Over the past five years, ARCO has achieved about a 70 percent reduction in waste. The initial 50 percent can be attributed to common sense measures such as good housekeeping practices, whereas the final 20 percent resulted from various engineering changes. ARCO has striven to implement cost effective technologies resulting in end products that can be reclaimed or recycled. They have an ongoing training program to educate employees on various components of waste minimization including waste segregation and source reduction.
7. Chevron: Chevron has developed a corporate program on waste minimization entitled "Save Money and Reduce Toxics" (SMART). As part of this program, presentations are given to all levels of employees to acquaint them with source reduction, recycling and treatment strategies. By coordinating ideas from different areas of the corporation including the refining, marketing manufacturing, and research divisions, and disseminating this information, it is hoped to stimulate further ideas on waste minimization. The increased awareness resulting from the program has proved valuable in many of Chevron's operations. For example, one idea was to recycle the rinse water used to clean gasoline storage tanks instead of disposing it at a hazardous waste management facility.

This relatively simple operational change, while not being immediately recognizable, has resulted in both savings in water usage and disposal costs.

8. Dow Chemical: Dow has an extensive waste minimization program that was officially formalized several years ago as "Waste Reduction Always Pays" (WRAP). The WRAP program trains engineers on waste reduction methods, educates employees on the need for waste elimination, awards employees for conceiving innovative water reduction projects, and offers a substantial budget for implementation of these projects. Through these efforts, ranging from being as simple as housekeeping to as sophisticated as complete process redesign, Dow has achieved a substantial reduction in its waste.

#### E. Countywide Waste Minimization Program

With the adoption of the Plan the following actions are anticipated:

- o Complete generator survey and licensing of all hazardous waste generators;
- o Develop a database;
- o Develop and implement an Education and Public Awareness Program to seek changes in the way industry and public perceive hazardous waste management issues and encourage industries to develop and implement waste minimization programs.
- o Establish an Information Clearinghouse to answer or provide technical information to the private sector, particularly small businesses.
- o Sponsor meetings/conferences/workshops to discuss and promote waste minimization techniques. Request trade organizations to do the same.
- o Provide fact sheets to generators and offer information/technical assistance on waste minimization issues and hazardous waste regulations.

The generators can use the sample checklist, in Table 7-6, as a model to develop a waste minimization program. As additional resources and personnel are allocated, the appropriate local agency can verify each business's waste minimization plan and ensure its implementation. One recommendation is to accomplish this through the inspectors under the County Hazardous Materials Control Program in the County Department of Health Services. The program can be part of the inspectional process with the generators.

It is estimated that a Countywide waste minimization program (interested cities and unincorporated areas) may take

approximately three years to implement. However, implementation will require substantial manpower and financial resources. As such, grants/funding through legislation may be necessary.

#### F. Waste Minimization Projections

The consumption of raw materials, existing processing practices, on-site treatment and recycling are the main sources that allow for the reduction of wastes. Studies have shown that the substitution of hazardous raw materials can significantly reduce waste quantities generated [4]. Recycling also has a significant impact on waste quantities produced. These practices can be readily implemented and the economic incentives are clearly evident. With the vigorous effort on reduction of waste and resource recovery as advocated in the Plan, it is expected that they will provide the main impetus and driving force for waste minimization.

However, it should be noted that in many instances, process changes by industry are implemented only at incremental step changes; major renovations are rarely undertaken. The underlying reasons behind gradual changes are the high capital costs incurred and the uncertainties associated with process changes. Industry tends to remain status quo unless economic advantages can be clearly demonstrated. For this reason, although process changes may be a significant source of waste minimization, their implementation is expected to be slow.

There are numerous factors to be considered in reliably assessing future waste minimization efforts in the County. For example, based on the latest industry survey (Section A), the Western Oil & Gas Association (WOGA) estimates that waste minimization for the conceivable future will average about 2 percent per year for the following reasons:

- o Most large industries who generate the majority of the hazardous waste in the County have already implemented waste minimization programs and have reduced waste between 20 to 50 percent. Any further efforts will require substantial investments to develop new technologies.
- o More stringent regulations by the EPA and the State may off-set and increase hazardous waste generation in that current waste that are considered nonhazardous can no longer be so managed. For example, EPA is currently proposing a rule that would greatly impact the hazardous waste delisting procedure by generators. This would increase hazardous waste quantities as the rule would classify some nonhazardous waste as hazardous waste.
- o Rule 1166 of the South Coast Air Quality Management District (SCAQMD), adopted August 5, 1988, will substantially limit the on-site treatment of contaminated soil due to emission concerns. This will increase the amount of hazardous wastes to be shipped off-site.

In addition, the proposed Air Quality Management Plan by the SCAQMD will also have a drastic impact on waste generation rate and development of on- and off-site treatment facilities.

Using the waste quantity projections based on employment growth factor as discussed in Chapter 2 and Appendix 2A, Table 7-7 presents the effects of waste minimization for the years 1987 to 2005. This table is presented here for informational purpose only and should be used with discretion when assessing future management needs.

#### VIII. OTHER WASTE MINIMIZATION PROGRAMS

##### A. General

Efforts to promote waste minimization of hazardous waste have resulted in many programs at the State and counties levels in California. Some of these programs are included herein:

##### B. California Waste Exchange

Pursuant to the Hazardous Waste Control Act of 1979, as amended, the SDOHS established the California Waste Exchange (CWE) program which encourages waste exchange and the recycling of industrial waste.

The SDOHS is responsible for the preparation and updating of a list of the hazardous wastes that are deemed to be economically and technologically feasible to recycle. In addition, the SDOHS, as an information clearinghouse for recyclable hazardous waste, is required to make recommendations that can further promote recycling. Table 7-8 lists the types of hazardous waste which SDOHS has determined to be economically and technologically feasible to recycle.

The CWE under the SDOHS annually publishes a "Directory of Industrial Recyclers" where brokers, final users, haulers, processors, and sellers of recyclable materials are listed, along with the desired wastestream. The SDOHS also publishes a quarterly newsletter/catalog. The newsletter keeps industry informed of hazardous waste news (i.e., laws, regulations, technology, etc.). The catalog also provides a listing of waste which is both needed by and available to the industry.

In addition, the SDOHS staff will assist a company in finding methods to recycle their waste. This includes plant inspection, process review, and advising plant representatives on regulatory and/or technological issues.

For more information on this program, inquiries can be sent to:

California Waste Exchange  
State Department of Health Services  
Alternative Technology and Policy Development Section  
714 "P" Street

TABLE 7-7  
PROJECTION OF OFF-SITE HAZARDOUS WASTES FOR LOS ANGELES COUNTY  
BASED ON 1986 WASTE MANIFEST DATA  
WITH WASTE MINIMIZATION EFFORT  
OF 2% EACH YEAR

WASTE GROUP/WASTE CATEGORIES	TOTAL QUANTITY OF MANIFESTED WASTES FROM L.A. COUNTY 1986	1990	1995	2000	2005
WASTE OIL	143,355	145,157	160,712	187,124	217,877
HALOGENATED SOLVENTS	8,611	8,719	9,654	11,240	13,088
NON-HALOGENATED SOLVENTS	40,985	41,500	45,947	53,499	62,291
ORGANIC LIQUIDS	8,575	8,683	9,614	11,194	13,034
PESTICIDES	563	570	631	735	856
PCBs & DIOXINS	5,581	5,651	6,257	7,286	8,483
OILY SLUDGES	44,711	45,273	50,124	58,362	67,953
HALOGENATED ORGANIC SLUDGES & SOLIDS	2,054	2,080	2,303	2,682	3,123
NON-HALOGENATED ORGANIC SLUDGES & SOLIDS	25,624	25,946	28,727	33,448	38,945
DYE & PAINT SLUDGES & RESINS	11,589	11,734	12,992	15,127	17,613
METAL-CONTAINING LIQUIDS	27,718	28,067	31,074	36,180	42,126
CYANIDE & METAL LIQUIDS	235	238	263	306	357
NON-METALLIC INORGANIC LIQUIDS	45,766	46,342	51,307	59,740	69,559
METAL CONTAINING SLUDGES	8,000	8,100	8,968	10,441	12,157
NON-METALLIC INORGANIC SLUDGES	3,902	3,951	4,375	5,094	5,931
CONTAMINATED SOIL <sup>a</sup>	84,581	142,600	142,600	142,600	142,600
MISCELLANEOUS WASTES:					
141 Off-Spec, Aged, or Surplus Inorganics	303	307	340	396	461
151 Asbestos-Containing Wastes	19,945	20,196	22,360	26,035	30,314
161 Fluid Catalytic Cracker Waste	5,921	5,995	6,637	7,729	8,999
162 Other Spent Catalyst	4,895	4,957	5,488	6,390	7,440
172 Metal Dust	546	552	612	712	830
181 Other Inorganic Solid Wastes	112,459	113,873	126,075	146,796	170,921
311 Pharmaceutical Waste	1	1	1	1	1
322 Biological Waste other than Sewage Sludge	90	91	101	118	136
331 Off-Spec, Aged or Surplus Organics	454	459	509	593	691
511 Empty Pesticide Containers > 30 Gallons	14	14	15	18	21
512 Other Empty Containers > 30 Gallons	2,508	2,539	2,811	3,273	3,811
513 Other Empty Containers < 30 Gallons	1,578	1,597	1,769	2,060	2,399
531 Chemical Toilet Waste	1	1	1	1	1
541 Photochemicals/ Photoprocessing Waste	579	587	650	757	881
551 Laboratory Waste Chemicals	523	529	586	682	794
561 Detergent and Soap	528	535	592	690	803
581 Gas Scrubber Waste	2,163	2,191	2,425	2,824	3,288
591 Baghouse Waste	1,731	1,752	1,941	2,260	2,631
612 Household Waste	106	107	118	138	161
Grand Total	616,195	680,894	738,579	836,531	950,576

Note: <sup>a</sup> Based on analysis in Chapter 11, 142,600 tons have been projected over a 10-year period. The number may substantially increase as more clean-ups commence on Federal/State Superfund/Bond expenditure sites.

Source: Los Angeles County Department of Public Works based on State Department of Health Services 1986 Manifest Data, for Los Angeles County, September 1988.

TABLE 7-8  
LIST OF TYPES OF HAZARDOUS WASTES WHICH THE CALIFORNIA STATE  
DEPARTMENT OF HEALTH SERVICES HAS FOUND TO BE ECONOMICALLY  
AND TECHNOLOGICALLY FEASIBLE TO RECYCLE

The list, including examples of chemicals and of potential recycling methods or uses, was excerpted from Section 66796(b), Title 22, California Administrative Code.

1. Commercial chemical products including unused laboratory grade products (return to manufacturer or supplier or turn over to chemical salvager for resale or resource recovery; sell or barter to another consumer).
2. Solvents, used or contaminated (reclaim, in-plant or through custom solvent reclaimer, by purification processes of rectification, ion exchange, adsorption, or extraction; or if combustible, use in-plant or sell for use as energy resource for heating, cooling, or power generation), including:
  - a. Halogenated solvents such as trichloroethane, perchloroethylene, methylene dichloride, chloroform, carbon tetrachloride, Freons®;
  - b. Oxygenated solvents, such as acetone, methyl ethyl ketone, methanol, ethanol, butanol, ethyl acetate;
  - c. Hydrocarbon solvents, such as hexanes, Stoddard, benzene, toluene, xylenes, paint thinner.
3. Used or unused petroleum products, including motor oils, hydraulic fluids, cutting lubricants, fortified weed oils (turn over to reclaimer of motor oils and other petroleum products for recovery of petroleum components; or use in-plant, or sell for use as energy resource for heating, cooling, or power generation).
4. Pickling liquor (recover iron salts by concentration, e.g., by solar evaporation of spent liquor).
5. Unspent acids, such as hydrochloric, hydrofluoric, nitric, phosphoric, sulfuric, in concentrations exceeding 15 percent (use directly as pickling and etching acids; in neutralization of alkaline process waste streams; or in manufacture of useful salt products, e.g., ammonium salts, calcium fluoride).
6. Unspent alkalis, including hydroxides and carbonates of sodium, potassium, and calcium, and acetylene sludge (use directly in certain metal finishing operations; in neutralization of pickling acids and acid process waste streams; in precipitation of heavy metals; or in manufacture of useable products, e.g., calcium oxide, sulfate, fluoride, and chloride).
7. Unrinsed empty containers of iron or steel used for pesticides or other hazardous chemicals:
  - a. Pesticide containers (return to the registrant or, if 30- or 55-gallon size, recondition, pursuant to Section 3143 of Title 3, California Administrative Code; or shred or bale, after removal of pesticide residues by solvent or chemical action or burning, for use as steel scrap).
  - b. Hazardous chemical containers (other than pesticide containers return to product supplier or, if 30- or 55-gallon size, recondition; or shred or bale, after removal of chemical residues by solvent or chemical action or burning, for use as steel scrap).

Source: California Administrative Code

Sacramento, California 95814  
(916) 324-1807

### C. Used Oil Recycling Program

The State of California enacted the Used Oil Recycling Act (Article 9, Chapter 1, Division 3 of the Public Resources Code) in 1978 to require that used oil be collected and recycled to the maximum extent possible, and to prevent the illegal disposal of petroleum-based wastes. The law was amended in 1986 (Chapter 871 of the State Statutes) to further promote used oil recycling by prohibiting its mixture with other wastes and exempting recycling centers from the Hazardous Waste Management Facility Permit under certain conditions.

The California Waste Management Board (CWMB) is the designated agency responsible for the administration of the Act. The CWMB functions include regulating the used oil industry, and encouraging and promoting used oil recycling in California.

In the CWMB's 1983 report, "Used Oil Recycling in California," 103 million gallons of automotive and industrial oils were available for recycling in the calendar year of 1982. Of this total, nearly 55 million gallons of oil were collected and recycled, or approximately 53 percent of the total volume available for recycling in California.

Appendix 7B provides a list of the used oil collection centers and Appendix 7C lists the active haulers in Los Angeles County.

The CWMB has also established a toll-free "hot-line" to allow public access to information regarding the locations of nearby used oil collection centers.

In an effort to increase the recycling of used oil, the CWMB is actively seeking the assistance of gas station operators to act as voluntary collection centers, as well as individual cities or counties to act as local area coordinators. For more information, please contact:

California Waste Management Board  
1020 9th Street, Suite 300  
Sacramento, California 95814  
(800) 553-CWMB

### D. Ventura County Hazardous Waste Volume Reduction/Alternative Technology Program

The following is a summary of the Ventura County waste minimization program as excerpted from their report.

Ventura County industries generate over 38,000 tons of hazardous waste annually, of which a substantial amount is disposed of in landfills. Industries disposed of 76% of the total hazardous waste produced at Camalia Resources Landfill in 1985. The major

wastestreams were oil field production wastes, acid, and aqueous and alkaline solutions that contained between 90 and 98% water.

Ventura County Environmental Health Department, in 1985, began a program to assist hazardous waste generators reduce their dependency on land disposal. In order to accomplish this, information from the State Hazardous Waste Manifest Information System was analyzed to identify the types, quantities, and disposition of hazardous wastes produced by companies in Ventura County from 1982 through 1985.

There are 1,116 companies in Ventura County that generate hazardous waste. Of these, 1,038 companies recycle 5,000 tons of hazardous waste at off-site facilities or dispose of very small quantities once a year or less. It was discovered that a relatively small number of generators, i.e., 75, contributed a 95% of all of the wastes that were shipped from Ventura County in 1985 for land disposal.

It should be noted that Ventura County generators produce less than 3% of the regional waste in Southern California. Ventura's waste profile is also substantially different from the regional waste profile, indicating regional treatment and disposal needs will not meet local generator requirements.

A questionnaire was sent to the 75 companies relying on land disposal to determine if these industries plan to make any major changes in wastestream generation. Projections for future countywide hazardous waste management needs were made from the results of the questionnaire.

The questionnaire results revealed that the major barriers to hazardous waste volume reduction are lack of information, financial constraints, and regulatory impediments. Smaller firms, especially, are faced with problems such as the lack of technical personnel to investigate waste reduction and capital costs for treatment technologies. The immediate results of several of the waste audits conducted by Environmental Health provided solutions for simple, available, and low-cost methods to reduce or eliminate all generation of hazardous wastes. Industries were found to be disposing of recyclable waste, manifesting nonhazardous waste, and unnecessarily generating waste.

The first step in volume reduction typically involves relatively unsophisticated technical approaches such as good housekeeping, separation of wastes, and water conservation. Although technically simple, these steps have the potential for achieving substantial waste reductions. It was also found that attitudes toward change, regulatory issues, costs of land disposal, and availability of information about existing waste reduction methodologies were significant in affecting corporate decisions about waste generation.

The results show that approximately one-half of the 75 major generators have found alternatives to land disposal for their

hazardous wastes. Hazardous waste generation is projected to be 30 to 40 percent less in 1986 as compared to 1985. This projection does not include contaminated soil from hazardous waste sites or wastes from new industry. This amount can be further reduced by treating all liquid wastes and dewatering sludges.

The results of the study further conclude that the major portions of industrial effort in the County is now in the initial phase of hazardous waste minimization. Development of hazardous waste minimization efforts can be expected to improve over time as the major obstacles to volume reduction are addressed.

For more information, please contact:

Ventura County Environmental Health Department  
800 South Victoria Avenue  
Ventura, CA 93009  
(805) 654-5039

#### E. San Diego County Hazardous Waste Minimization Program

The following is a brief summary of the waste minimization program designed by San Diego Department of Health Services. This information is extracted from their report entitled "Hazardous Waste Minimization - A Resource Book for Industry", dated November 1987.

In San Diego County, more than 120,000 tons of hazardous waste was generated by business areas in 1986. This waste consisted of waste oil, inorganic solids, metal containing liquids and sludges, and solvent liquids and sludges. The primary method of disposing these wastes were by recycling and landfilling.

The subject Hazardous Waste Minimization report focuses on the San Diego County Department of Health Services' "Promote Landfill Alternatives Now" (P.L.A.N.) Program. The P.L.A.N. Program was designed as a cooperative effort between government and industry and its goal was to provide educational information on hazardous waste minimization while encouraging incorporation of such waste management alternatives into hazardous waste management plans. The waste management alternatives emphasized source reduction, recycling and reuse, and treatment of hazardous waste.

The P.L.A.N. Program offers several ways in which industry can promote waste reduction. For example, a waste minimization audit can assist in the determination of the types and amounts of waste generated and the sources of those wastes involved in the subject operation. With this information, a realistic evaluation of feasible reduction techniques can be made. Industry can also revise accounting methods such that short and long term costs of managing wastes, including the associated liabilities are included. Much emphasis is placed throughout the Program on educating and training employees to identify waste reduction opportunities at all levels of operation and production.

The report furnishes "success stories" of San Diego County industries that have implemented various waste reduction techniques. Furthermore, a variety of avenues for financing hazardous waste projects are explored for use in hazardous waste projects. Overall, this information was developed not only to provide technical assistance to industry, but to offer proof that waste minimization is an effective and advantageous way of managing hazardous waste.

For further information on the project, please contact:

San Diego County Department of Health Services  
Environmental Health Services  
Hazardous Materials Management Division  
P.O. Box 85261  
San Diego, CA 92138-5261  
(619) 236-2222

## CHAPTER 8

### TRANSPORTATION

#### I. INTRODUCTION

The movement of hazardous waste is regulated by the federal and state governments. Both are charged with the safe conveyance of wastes from the generating facility to the final management facility.

The following aspects in the transportation of hazardous waste are discussed in this Chapter:

- Regulations
- Current transportation system in Los Angeles county
- Factors producing changes in the transportation system
- Projected transportation needs
- Risk assessment and routing guidelines

#### II. FEDERAL REGULATIONS

##### A. General

The regulations for the transportation of hazardous waste, issued under the authority of Section 3003 of the Resource Conservation and Recovery Act (RCRA), were developed jointly by the Environmental Protection Agency (EPA) and the U.S. Department of Transportation (DOT). The regulations, as specified in Sections 262 and 263 of the Code of Federal Regulations (CFR), delegate responsibility to both the generator and transporter of hazardous waste. The responsibilities of the generator are:

1. Obtain an EPA identification number.
2. Use only registered transporters and permitted treatment, storage or disposal facilities (TSDF).
3. Prepare a manifest prior to transportation of the waste to an off-site TSDF.
4. Use DOT specified containers and properly prepare the waste for transport.

The responsibilities of the transporter are:

1. Obtain an EPA identification number.
2. Use DOT specified containers and placards.
3. Comply with the manifest system.
4. Deliver the entire quantity of hazardous wastes to the facility designated on the manifest by the generator of the wastes.
5. Comply with DOT regulations pertaining to reporting of discharges or spills.

6. Cleanup any hazardous wastes discharged during transportation.

B. Pre-Transportation Requirements

Prior to transporting hazardous waste or offering hazardous waste for off-site transportation, a generator must package the waste and label the package in accordance with the applicable DOT regulations under Title 49 Parts 171-177 of the Code of Federal Regulations (CFR). The generator of the hazardous waste is also responsible for providing appropriate vehicle placards to the waste transporters, if the transporters do not already have them. They are placed on the truck to identify the principal hazard(s) associated with the hazardous waste being shipped. Examples of these placards and packing labels are presented in Figure 8-1. In addition, if wastes are to be transported in containers of 110 gallons or less, the generator's name, address and the manifest document number must be displayed on each container.

C. The Manifest

The manifest system was created to contain information needed to protect human health and the environment, as well as to track waste from generator to TSDF. The manifest identifies waste type, volume, generator, transporter and final destination. The goal of the manifest system is to monitor hazardous waste movement from "cradle to grave", to identify legally responsible parties and to minimize the possibilities of illegal disposal.

In March 1984, the EPA and DOT jointly adopted one form - the Uniform Hazardous Waste Manifest (UHW) for use in the transportation of hazardous waste. As of September 20, 1985, all generators and transporters are required to use the UHW form.

The introduction of the UHW has alleviated the problems of multiple manifests and eased some of the burden in record keeping in the transportation of hazardous waste from point of generation to final TSDF.

The form is divided into areas of federal and state required information. States may not require more information than requested under the state section of the UHW. Additionally, the state requested information cannot impede the transportation of the waste nor can enforcement action be taken against non-compliance if the manifest fails to include these items. Required state information may be stipulated by the generator's state or consignment state, but may not be requested by states through which the waste shipment passes. Under no circumstances can more than one manifest be required to accompany the hazardous waste shipment. Although states are allowed to request more information from the generator and transporter on separate forms, the transporter is not obligated to carry these extra forms along with the manifest. These forms are generally sent to the state under separate cover.

## HAZARDOUS MATERIALS PICK-UP CHECKLIST

- List hazardous materials first, or highlight them by color, or show an "X" in an HM column
- Include proper shipping name, hazard class, hazard identification number, quantity by weight or volume, and Shippers certification Abbreviations prohibited except for weight and packaging type.
- Certification must be signed by shipper either manually, by typewriter, or by other mechanical means.
- For hazardous substances the letters "RQ" must be shown either before or after the basic description The "RQ" can be supplemented for the "X" in the HM Column.

- Must include in addition to the information required for shipping papers: a document number, the generator's name, address, phone and EPA number; your carrier's name and EPA number, the disposal facilities name, address and EPA number, the type and number of packages, and, a hand written signature of the shipper.
- At pick-up the driver is required to sign for the waste shipment

- Show proper shipping name, the name and address of the consignee or consignor, and for houlds "This Side (or End) Up"
- Must be durable; in English, and Printed or affixed to the package
- In contrasting color. Unobscured, and Located away from other markings

- Applied by shipper. Securely affixed to package. Bear the proper shipping name; and unobscured by other markings
- Represent hazard class (compare with shipping paper description) Multiple classed materials will have more than one label
- Not shown for "limited quantity" materials except Class B Poisons

- Provided by shipper for hazard class offered unless already on unit
- Represent hazard class (see table to right)
- Affixed to 4 sides of vehicle. Front placard may be on power unit or cargo body. Wording must read horizontal, left to right
- At least 5 inches from other marking, lettering or display, clear of latches, etc. When required multiple placards must be near each other
- Removed when hazardous materials have been taken out of the vehicle

- HM Shipping Papers must be within your reach while you have your seat belt on, and clearly distinguishable from other documentation
- Smoking is prohibited around explosives, flammables and oxidizers

- Set parking brake and place HM Shipping Papers on your seat or when available in a pouch on your door

1. Use the DANGEROUS PLACARD when combining 2 or more "1,000 pound" materials (blue shaded area). If 5,000 pounds or more of any of these materials are loaded at one location use its class placard as shown to the right along with either a dangerous placard or the class placard(s) for the other materials.

2. The class placard for each "Any Quantity" material (Red shaded area) in a mixed load must be displayed regardless of any other placards displayed.



Source: American Trucking Associations, Inc., 1985

Although the use of the UHWM form is prescribed by the EPA, the EPA does not issue the form. The EPA has established a hierarchy through which the forms may be obtained. The process generally consists of obtaining the UHWM form from the consignment state or the generating state.

The EPA requires the generator to provide the following information on the UHWM. The generator is responsible for its preparation regardless of who completes the form. The manifest must contain the following information:

1. A manifest document number.
2. The generator's name, mailing address, telephone number, and EPA identification number.
3. The name and EPA identification number of each transporter.
4. The name, address and EPA identification number of the designated facility and an alternative facility, if any.
5. A description of the waste(s).
6. The total quantity of each hazardous waste by units of weight or volume, and the type and number of containers loaded into or onto the transport vehicle.

The manifest then follows the process outlined in Title 40, Part 263 of the Code of Federal Regulations. The general procedure is as follows:

1. A manifest, signed by the generator, must accompany the waste before acceptance by the transporter.
2. The transporter must sign and date the manifest acknowledging the acceptance of the hazardous waste from the generator before transporting the waste. The transporter must return a signed copy to the generator before leaving the generator's property.
3. The transporter retains a copy of the manifest with the remaining copies going to the next transporter or receiving TSDF.
4. The transporter must ensure that the manifest accompanies the hazardous waste.
5. At the transfer of waste to another transporter or to a TSDF, the date of delivery and signature of the new transporter or the owner/operator of the designated TSDF, as applicable, must be shown on the manifest.
6. The TSDF retains a copy of the manifest and returns one copy each to the State Department of Health Services and the generator verifying that the waste has reached its destination.
7. Every party in the transportation cycle is required to keep a copy of the manifest for 3 years.

The requirements for transportation out of state or country are also detailed in the Code of Federal Regulations. Transportation by rail or water follows similar procedures, with the exception that shipping papers are required instead of the manifest.

To provide a better understanding on the roles of the DOT and the EPA with respect to the transportation of hazardous waste, the U.S. Department of Transportation has recently drafted a publication entitled "Transportation of Hazardous Materials/Hazardous Waste - DOT/EPA Interface Guidance Manual." The manual addresses practical questions involving transportation of hazardous materials/wastes, such as the kinds of packings that may be used, placarding of trucks, proper shipping names for mixed hazardous wastes, classification of waste by DOT hazard class, etc. It also offers an explanation of the manifest system and the use of shipping papers. Inquiries regarding this publication may be directed to:

Information Services Division, DMT-11  
Office of Operations and Enforcement  
Materials Transportation Bureau  
U. S. Department of Transportation  
Washington, D.C. 20590  
(202) 366-2301

### III. STATE REGULATIONS

#### A. General

The State Department of Health Services (SDOHS) is in charge of tracking the hazardous waste through the State via the adoption of the federal manifest system. In addition to the federal requirements, under Title 22, Sections 66475-66485 of the California Administrative Code, each generator must submit a legible copy of the UHWM to the SDOHS within 30 days after the transfer of the waste to the transporter. The owner/operator of the receiving TSDF must also send a completed copy of the UHWM to the generator and the SDOHS within 30 days of receiving the waste. The transporter is also required to submit to the SDOHS a completed copy of the UHWM for each load transported out of the State, within 30 days of the date that the load is transported. The purpose of multiple manifests being sent to the SDOHS is to ensure the tracking of the waste from "cradle to grave".

#### B. State Requirements for Haulers

The SDOHS, acting under the authority of the California Hazardous Waste Haulers Act, requires anyone engaging in the transportation of hazardous waste to have a valid registration with their department, as stipulated in Sections 25160 et seq. of Division 20 of the California Health and Safety Code.

In order to register, the hauler must complete the following forms.

1. A "Hazardous Waste Hauler Application", Form EH 187.
2. An "Application for Vehicle/Container Inspection", Form DHS 8025.
3. A "Certificate of Insurance", Form DHS 8038, with an

original signature. The haulers' insurance company is required to complete Form DHS 8038.

Upon submittal of these forms, the hauler must pay the necessary fees. Currently, a registration fee is assessed annually. In addition, persons generating more than \$35,000 in annual gross revenue from hauling hazardous wastes or who transport hazardous waste in vehicles designed for such transport are assessed annual vehicle fees and vehicle inspection fees.

The SDOHS reviews the forms for completeness and forwards the "Application for Vehicle/Container Inspection" to the California Highway Patrol.

The California Highway Patrol (CHP) inspects each vehicle for compliance with the Vehicle Code. Thereafter, the CHP will make annual inspections of the vehicle(s). The CHP is also to make a determination as to whether the construction, design, equipment, and safety features of said vehicle(s) are in compliance with standards the SDOHS deem necessary for the safe transportation of hazardous wastes.

Once a vehicle is found to be in compliance, the applicant will be registered by the SDOHS and issued a registration number and an EPA hauler identification number. A sticker or other similar device, to be plainly affixed to the vehicle, is also issued to the applicant identifying the vehicle as a registered hauler of hazardous wastes.

Registration may be denied or revoked by the SDOHS if:

1. The required fees are not paid or there is a misrepresentation on the application for original or renewed registration.
2. The applicant fails to comply with regulations regarding the safety of the vehicle to transport hazardous wastes.
3. The applicant fails to permit annual inspections of vehicle(s) by the CHP.
4. The applicant fails to possess the minimum insurance specified by the SDOHS.
5. There is a violation of any provision of the Health and Safety Code, Division 20.

Under State regulations, Section 25163(c) of the Health and Safety Code, persons transporting hazardous wastes to a permitted hazardous waste facility for transfer, treatment, recycling or disposal, not exceeding a total volume of five gallons or a total weight of 50 pounds, are exempt from hauler registration and the manifest requirements upon meeting all of the following conditions:

1. The hazardous wastes are transported in closed containers and packed in a manner that prevents the containers from tipping, spilling, or breaking.
2. Different hazardous waste materials are not mixed within

- a container.
3. If the hazardous waste is extremely hazardous waste, the extremely hazardous waste was not generated in the course of any business, and is not more than 2.2 pounds (1 kilogram).
  4. The person transporting the hazardous waste is the producer of that hazardous waste, and the person produces no more than 220 pounds (100 kilograms) of hazardous waste in any month.

The above presented registration requirements pertain only to the truck per se or the truck owner. However, newly enacted legislation requires the licensing of drivers hauling liquid and hazardous wastes.

Existing law authorizes traffic officers and peace officers to enforce hazardous waste standards and regulations regarding transportation. Newly enacted State Statutes of 1987 (AB 2447, Eastin) additionally authorized these persons to enforce hazardous waste laws regarding used oil.

In addition, recently enacted State Statutes of 1987 (AB 1041, Peace) requires the SDOHS to adopt regulations, consistent with Federal law, concerning the transportation of hazardous waste from this State across international boundaries. The SDOHS is also required to adopt procedures for the purpose of receiving information collected by the Environmental Protection Agency concerning the transportation of hazardous waste across international boundaries. The SDOHS is currently developing regulations and procedures to satisfy the requirements of this law and will make them available on January 1, 1988.

The Department of Motor Vehicles (DMV), in cooperation with the CHP and SDOHS, is required by the newly enacted legislation to adopt regulations containing special requirements for the certification of drivers of hazardous waste vehicles. The regulations, authorized under Chapter 1, Division 6, Section 12804.1 of the Vehicle Code, require a person hauling hazardous wastes to have in his/her possession a valid driver's license for the appropriate class of vehicle and a certificate issued by the DMV permitting operation of the vehicle. However, as of the date of this plan the regulations are being reviewed by the United States Department of Transportation, Offices of Hazardous Materials Transportation Research and Special Programs.

#### IV. CURRENT LOS ANGELES COUNTY HAZARDOUS WASTE TRANSPORTATION SYSTEM

##### A. GENERAL

Based on the results of the survey conducted by the Department of Public Works (DPW) in 1984-85 (latest available data), over 90 percent of hazardous waste generated in Los Angeles County is treated on-site with approximatey 600,000 tons a year being

shipped off-site for treatment and/or disposal. Nearly all hazardous wastes shipped off-site are transported to hazardous waste management facilities by means of motor vehicles utilizing the major transportation routes identified in Figure 8-2.

Transportation of hazardous waste by rail has not been economically feasible in this County due to the great number of small quantity generators scattered throughout the County and lack of adequate hazardous waste transfer and storage facilities. Currently, it is estimated that less than one percent of rail freight consists of hazardous waste in this County. Section V further elaborates on the possibility of rail transportation in Los Angeles County.

As discussed in Chapter 2, land disposal facilities presently receive a majority of the hazardous waste shipped off-site. The three closest disposal sites used by Los Angeles County generators are Casmalia Resources Landfill in Santa Barbara County, International Technology Corporation's Imperial Valley Facility in Imperial County and Kettleman Hills Landfill in Kings County. However, some waste is transported as far as Arizona or Texas. Interstate transporters of hazardous waste utilize Interstate 5 and U.S. 101 for north-south traffic and Interstate 10 and State Highways 60 and 91 for east-west traffic within Los Angeles County.

It is impractical to identify all the major connector roads between hazardous waste generators and hazardous waste management facilities. Furthermore, the California Highway Patrol (CHP) and the California Department of Transportation (Caltrans) do not have a policy of recommending routes to hazardous waste management facilities. However, hazardous routing criteria have been developed by the Los Angeles County Department of Public Works in Section VIII which should be used by all hazardous waste motor vehicle haulers and/or local regulatory agencies having jurisdiction/permitting control over development/operation of a hazardous waste management facility.

Caltrans has developed a State transportation Improvement Program for Los Angeles County. the program was adopted on June 25, 1987. It is the five-year plan for improvements to be made on the State highway system. Current and proposed facility operators may wish to review the program as it may have an impact on routes leading to and from their facility.

Presently, there are approximately 1000 registered hazardous waste hauling firms in California (June, 1987). A list of these haulers is available and may be obtained from the local offices of the SDOHS. A listing of the 255 hazardous waste haulers operating in Los Angeles County may be found in Appendix 8A.

#### B. SURVEY OF HAZARDOUS WASTE HAULERS (1984)

To gain a base of information for the planning of a safe and effective hazardous waste transportation system in Los Angeles

FIGURE 8-2  
MAIN TRANSPORTATION CORRIDORS IN LOS ANGELES COUNTY

FIGURE IS IN FOLD OUT POCKET #3

County and to augment the County's knowledge on the current hazardous waste transportation system, a survey of 356 registered haulers with Los Angeles County zip codes, was conducted by the Los Angeles County Department of Public Works in 1984. These haulers were asked questions pertaining to their operations, costs and waste quantities hauled in 1983/84. Seventy-eight haulers responded, indicating that the data should be taken valid qualitatively, rather than quantitatively. The survey concluded the following:

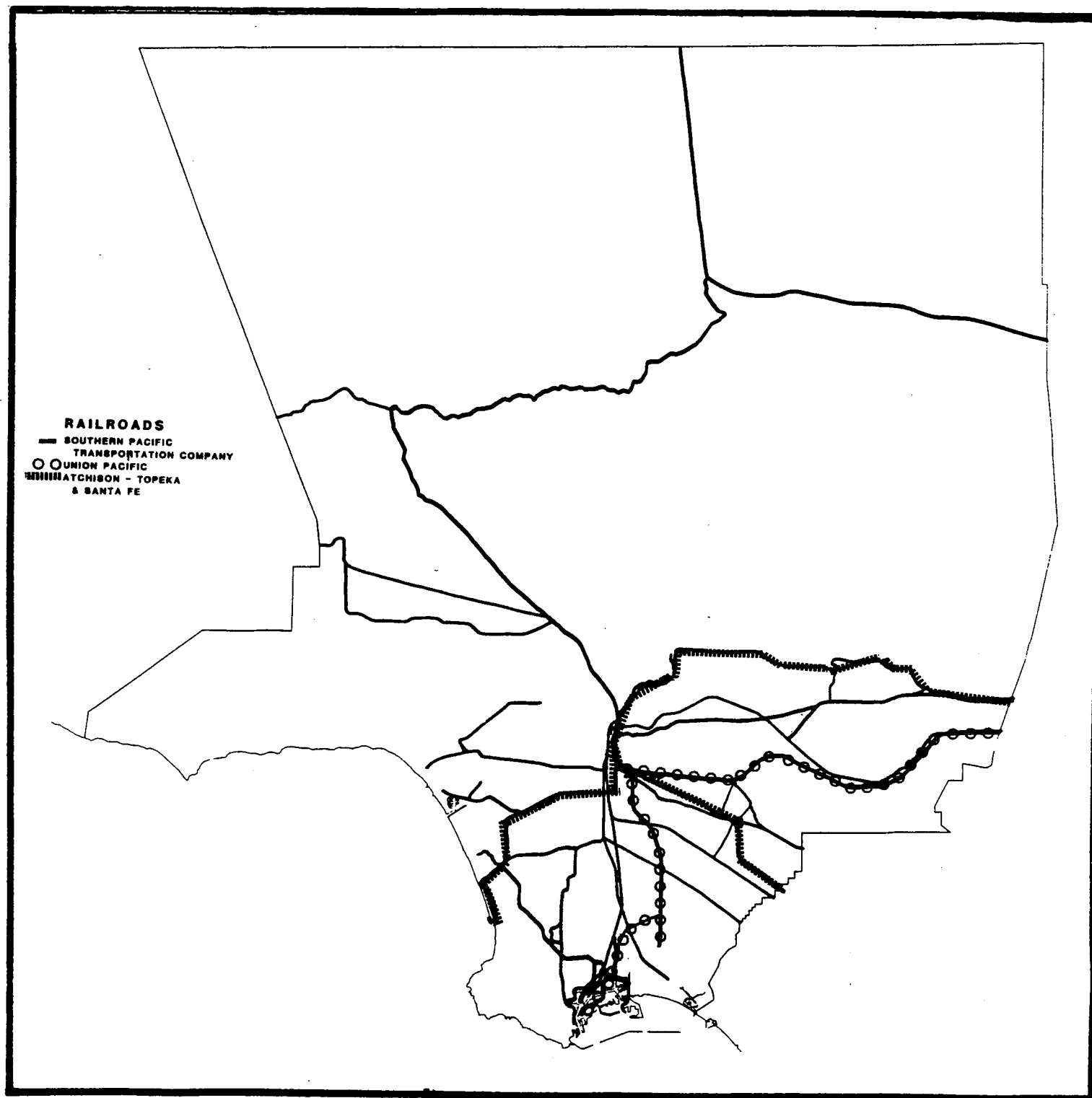
1. The primary mode of hazardous waste transportation in Los Angeles County is by motor vehicle. The following are the most common vehicle types used: trailers; stake bed trucks; vacuum tankers; semi end dumps; flat bed trucks and trailers; and bob-tail trucks and trailers.
2. The rates hazardous waste haulers currently charge, vary from \$45.00 to \$65.00/hour (1987 rates). Some commercial haulers specify minimum operation periods, generally 4 hours, whereas others may specify minimum pick up quantities. It should be noted that the fees reflect only transportation costs and do not include TSDF fees.
3. Currently, the three closest landfills used by Los Angeles County generators for the disposal of hazardous waste are Casmalia Resources Landfill in Santa Barbara County, IT Corporation landfill in Imperial Valley and Kettleman Hills Landfill in Kings County. Haulers do not use any specific freeways en route to these facilities, however, the routes most frequently used are U.S. 101 to Casmalia and Interstate 5 to both Kettleman Hills and Imperial Valley.

#### V. RAIL TRANSPORTATION

Another mode of transportation that may be considered for hazardous waste is by rail. A map of the current freight railway system in Los Angeles County is shown in Figure 8-3. Although hazardous waste transport by rail has been limited in the United States, this mode of transportation may prove to be economically feasible and have potential advantages over truck transport. A study conducted by the Southern California Hazardous Waste Management Project (SCHWMP) entitled "Potential for Hazardous Waste Transport by Rail" compared the risks in truck versus rail transport of waste and the prospects and opportunities for development of rail transport as a mode to supplement the present hazardous waste trucking industry.

Two broad conclusions can be drawn from the specific findings of the SCHWMP study. Rail transportation, in general, involves significantly fewer accidents on a ton-mile basis, and all three of the major rail carriers serving Southern California have very well developed emergency response programs to deal with accidents, should they occur. Secondly, transportation of hazardous waste by rail over distances longer than 450 miles has been found to be economically competitive with conventional

FIGURE 8-3  
RAILWAY SYSTEM IN LOS ANGELES COUNTY



Source: Los Angeles Department of Regional Planning, August 1987

methods of hauling such waste by truck. Although, this figure may actually be reduced due to the less time-sensitive nature of hazardous waste as compared with other commodities.

The development of transfer stations to consolidate waste from the smaller generators would greatly increase the potential for transport of hazardous waste by rail, provided they are located in areas with rail access. If the 144 hour limit on holding waste can be waived in the case of transfer stations, it may be feasible to accumulate waste into larger quantities, suitable for shipment by rail.

## VI. FACTORS PRODUCING CHANGES IN THE HAZARDOUS WASTE TRANSPORTATION SYSTEM

As the industrial sectors of Los Angeles County grow, it is likely that the volume of waste generated will increase, resulting in more trips from generator to TSDF. The following discussion deals with the factors that may cause changes in waste vehicle traffic and its human and environmental consequences.

### A. Hazardous Waste Management Facilities

The closure of hazardous waste management facilities and the siting of new TSDFs will have significant effects on the transportation system. As hazardous waste management facilities close, the waste will need to be re-routed to other facilities.

The State prohibition of land disposal of untreated hazardous waste by May 8, 1990, and the ban on land disposal of liquid hazardous waste as mandated by the 1984 amended RCRA have placed emphasis on treating wastes. It is expected that a larger portion of waste will be destined for treatment facilities prior to final disposal/storage of treatment residue. Although the number and location of the new treatment and disposal/storage facilities are not yet known, it is probable that the number of short trips within the County will increase: instead of one long trip to its ultimate destination, it is probable that there will be frequent short trips to treatment, storage or transfer facilities and transport from these facilities to residuals repositories. However, treatment and/or transfer facilities located near generating centers or on-site could reduce the overall vehicle miles traveled. A reduction in vehicle miles traveled would reduce the risk of exposure to accidents and spills. Currently a Regional Hazardous Waste Management Plan is being developed by the Southern California Hazardous Waste Management Authority and the County should coordinate the planning of regional facilities with the Authority. In addition, as required by the RCRA, generators must make every effort to reduce the amount of waste they generate. Thus, less waste may result in fewer trips to treatment, storage and disposal facilities.

## B. Transfer Stations And Storage Facilities

The use of transfer stations or storage facilities is also seen as a factor that can significantly affect the transportation system. Transfer stations as defined in Section 66212, Title 22 of the California Administrative Code, are facilities where hazardous wastes are transferred from one vehicle to another and/or where hazardous wastes are stored or consolidated for a period not to exceed 144 hours before being transferred elsewhere. A storage facility is defined by Section 25123.3 of the Health and Safety Code as a hazardous waste management facility at which hazardous waste is contained for a period greater than 144 hours at an off-site facility or greater than 90 days at an on-site facility.

The use of transfer stations or storage facilities enables small and medium sized waste generators who do not produce full truckloads of hazardous waste to save on the costs of transportation. Transfer stations and storage facilities can affect the overall transportation system by reducing the number of vehicles on the road going to or coming from a TSDF.

One concern publicly expressed is the expected increase in traffic near the transfer station and the potential for accidents. However, the effects of traffic congestion at transfer stations, as well as at other hazardous waste facilities, can be minimized by effective siting, using criteria established in Appendix 6A and by careful planning of routes as discussed in Section VIII.

## C. Abandoned Site Remedial Action

Currently there are several Federal Superfund and numerous State Superfund sites in California awaiting funding for remedial action. At some sites, remedial action may consist of partial or total excavation of the contaminated area and the transportation of these materials to another treatment or disposal facility resulting in increases in the waste traffic during such time.

Under State regulations, Section 25169.3 Division 20, of the Health and Safety Code, haulers of waste from abandoned site cleanups must submit a transportation and safety plan to the SDOHS outlining safety features and procedures to be used to protect the public during the transportation process.

## VII. RISK ASSESSMENT

The increase in waste generation and hazardous waste vehicle traffic has led to greater emphasis on safe routes for hazardous waste transport. The routes used by haulers will vary as the waste traffic increases and new TSDFs are constructed. The factors to be considered when determining a safe route include: traffic volume, vehicle type, road capacity, pavement conditions, emergency response capabilities, spill records, adjacent land

use, and population density. In managing the risks involved in the transportation of hazardous waste, all these factors must be considered and adjustments made to compensate for any deficiencies.

Every time hazardous waste is moved from its site of generation, opportunities are provided for accidental (unintentional) release. A study conducted by the EPA indicates that the expected number of hazardous waste spills per mile shipped, ranges from one in 100-million to one in one-million, depending on the type of road and transport vehicle used. The EPA analyzed accident and traffic volume data from New Jersey, California, and Texas, using the RCRA Risk/Cost Analysis Model [11] and calculated the accident involvement rates presented in Table 8-1.

Data from California, Texas, Massachusetts and New York manifests were used to formulate the Transport Release Model [11] to calculate the expected release from hazardous waste vehicles en route to TSDFs. As the number of reported hazardous waste accidents was not large enough for statistical analysis, the EPA considered both hazardous waste and hazardous material accidents in developing the accident and release model. This approach was based on the postulation that the accident rate and fractional release models do not depend on the type of substance being shipped, but rather, on the container used.

In this study, cylinders, cans, glass, plastic, fiber boxes, tanks, metal drum/parts, and open metal containers were identified as usual container types. For each container type, the expected fractional release en route was calculated. The study concluded that the release rate for tank trucks are much lower than for any other container type.

Although the information shows the expected release amounts are minute in comparison with the quantities transported, the risks posed to public health and the environment by a spill cannot be dismissed as insignificant. Thus, shipments of hazardous waste should be channeled onto routes, where in the case of spills or accidents, adverse environmental impacts can be better controlled.

The procedure for the assessment of factors to be considered in the transportation of hazardous waste are discussed in Appendix 8B. This procedure is patterned after the Transportation Component of the Southern California Hazardous Waste Management Project (SCHWMP).

## VIII. ROUTING GUIDELINES

### A. General

Although it is informative to identify all routes being used by hazardous waste haulers, the numerous waste generators throughout the County make it impossible to determine all routes to TSDF.

TABLE 8-1  
ACCIDENT INVOLVEMENT RATES  
NUMBER OF ACCIDENTS RESULTING IN RELEASE OF CARGO

HIGHWAY TYPE

INTERSTATES	1 Accident per 7,692,000 truck miles
U.S. & STATE HIGHWAYS	1 Accident per 2,222,000 truck miles
URBAN	1 Accident per 1,369,000 truck miles
COMPOSITE	1 Accident per 3,571,000 truck miles

Source: "Assessing the Release and Costs Associated with Truck Transport of Hazardous Wastes". Environmental Protection Agency, USEPA/530-SW-84-008, June, 1984.

However, Figure 8-2 shows the major transportation routes in Los Angeles County.

Some of the advantages and disadvantages concerning identifying specific routes are listed below.

Advantages include:

- o Increased ability to coordinate emergency response groups in the event of a spill;
- o Increased probability of spotting illegal hazardous waste haulers and perhaps subsequent illegal dumping activities when carriers are not utilizing prescribed routes; and
- o Decreased potential for widespread environmental/health threats from accidents by selecting avenues of low-risk vehicular movement.

Disadvantages include:

- o Negative local response to siting routes in each area;
- o The need for preparation of the appropriate environmental documents for each route would be an enormous task and may require substantial funds;
- o Unexpected changes in traffic conditions; and
- o A systematic and efficient tracking system would require 24-hour management and costly computerization.

The following are some regulatory measures and guidelines for the use in developing a safe hazardous waste transportation route. The following measures are not all-inclusive, but represent some of the factors to be considered in determining a safe route.

#### B. State Requirements

Chapter 5, Division 13, Section 31303 of the Vehicle Code authorizes the California Highway Patrol to enforce the following requirements concerning routes, parking and stopping places permitted for transporters of hazardous waste.

1. Transportation from the point of origin to the appropriate waste management facility shall be by the most direct route, utilizing state or interstate highways wherever possible. When transporting within a city or any other congested area, exceptions to direct routes shall be made in order to avoid congested thoroughfares, places where crowds are assembled, and residential districts. Vehicles may use highways which provide reasonable access to fuel, repair, rest, or food facilities that are designed and intended to accommodate commercial vehicle parking, when that access is consistent with safe vehicle operation and when the facility is within one-half road mile of identified points of entry or exit from the state or interstate highway being used.
2. Only highways of sufficient width and load bearing

capacity for the vehicle or combination of vehicles shall be used.

3. Vehicles shall not be left unattended or parked overnight in a residential district.
4. Deviation from the routes required by this section shall not be excused on the basis of operating convenience, unless in an emergency and with the concurrence of a member of the California Highway Patrol.

Additionally, recently amended Section 31304 of the California Vehicle Code (Chapter 1049 of the 1987 State Statutes) states that the transportation of hazardous materials and hazardous waste on state or interstate highways may be restricted or prohibited. The Department of California Highway Patrol, after consultation with the Department of Transportation or the city or county agency with traffic control jurisdiction over highway, may close the highway if the following requirements are met:

1. The respective highway is appreciably less safe than a reasonable alternate highway as determined by using either, (a) "The Guidelines for Applying Criteria to Designate Routes for Transporting Hazardous Materials" prepared by the Federal Highway Administration (FHWA A-IP-80-15); or (b) The Department of the California Highway Patrol or the city or county, whichever has jurisdiction determines that the respective highway is located within the watershed of a drinking water reservoir which meets all of the following requirements:
  - (i) The reservoir is owned and operated by a district, as defined in Section 11503 of the Public Utilities Code.
  - (ii) The reservoir has a capacity of at least 10,000 acre feet.
  - (iii) The reservoir directly serves a filter plant.
  - (iv) The reservoir is impounded by a dam, as defined in Section 6002 of the Water Code.
  - (v) The reservoir's shoreline is within 500 feet of the highway.
2. The restriction or prohibition on the use of the highway pursuant to this section is not precluded or pre-empted by federal law.
3. The restriction or prohibition does not eliminate necessary access to local pickup or delivery points consistent with safe vehicle operation; does not eliminate reasonable access to fuel, repairs, rest, or food facilities that are designated and intended to accommodate commercial vehicle parking, when that access is consistent with safe vehicle operation and when the facility is within one-half road mile of points of entry or exit from the state or interstate highway being used; or does not restrict or prohibit the use of highways when no other lawful alternative exists.
4. Written concurrence has been obtained from affected surrounding jurisdictions that the proposed restriction or prohibition is not incompatible with through

transportation. If written concurrence is not granted by one of the affected surrounding jurisdictions, that action may be appealed to the appropriate transportation planning agency for final resolution.

5. The highway is posted by the agency responsible for highway signs on that highway in conformity with standards of the State Department of Transportation.
6. A list of the routes restricted or prohibited is submitted to the Department of the California Highway Patrol.
7. The highway is included in a list of highways restricted or prohibited pursuant to this section which is published by the Department of the California Highway Patrol and is available to interested parties for not less than 14 days.
8. Notwithstanding any prohibition or restriction adopted pursuant to subdivision (a), deviation from restricted or prohibited routes is authorized in an emergency or other special circumstances with the concurrence of a member of the agency having traffic law enforcement authority for the highway.

As specified in the Vehicle Code, a list of restricted highways is compiled by the California Highway Patrol every six months. As of the date of this plan there are no restricted highways in Los Angeles County.

### C. Routing Criteria

The following factors and mitigating measures have been developed by the Los Angeles County Department of Public Works for use by local jurisdictions and designers in the selection of the safest transportation route. The intent of these criteria are not to supersede those requirements mandated by the State and Federal regulatory agencies. Some of the factors and mitigating measures which need to be considered when determining the safest direct route from among several alternative routes are listed below.

- o Road conditions, such as capacity, grade, average daily traffic flow and rush hour restrictions;
- o Land use consideration should be provided in reference to local traffic routes, their proximity to residential developments and proximity to large populations of low mobility; and
- o Emergency response capability and coordination by communities and emergency response agencies.

#### 1. Road Conditions

- o Avoid peak hours when traffic is at maximum capacity by curtailing transport during periods of greatest automobile traffic;
- o Avoid minor routes, such as city streets or boulevards containing many restrictions, such as traffic lights, sharp corners or steep grades; and

- o Limit transportation to highways with low to moderate average daily traffic.

## 2. Land Use

- o Avoid use of local city/County street as much as possible
- o Limit travel on minor routes to avoid interference with commercial/residential traffic;
- o Avoid the use of minor routes (residential or city streets and one lane highways) from the major routes (arterials, interstate and divided highways) to the hazardous waste facility which pass through areas where large numbers of non-commercial structures, such as homes, hospitals, and/or schools are located;
- o Limit the use of routes adjacent to large density populations of the elderly and the young because of these individuals' greater sensitivity and lower levels of mobility in reacting to an accident situation; and
- o Organize meetings between routing proponents and residents to develop a routing and time plan that is acceptable to all parties.

## 3. Emergency Response Capability

- o Choose routes that can be efficiently accessed and served by emergency response personnel. When not possible, focus emergency response capability on routes that have been determined as carrying the region's hazardous waste;
- o Arrange regular meetings of emergency response agencies on a monthly basis to discuss, expand, and update programs to respond more efficiently and effectively to hazardous waste incidents and improve the emergency response capabilities; and
- o Encourage stringent enforcement of truck (vehicle) maintenance and safety standards by the California Highway Patrol to reduce the possibility of accidental release or break down.

Some or all of these measures may be employed to provide the optimal safe transportation route. When conditions preclude the use of the most optimal route, precautionary measures should be taken, such as, expansion of existing emergency response programs to address and mitigate the negative impacts which may result.

The "population at risk" index, developed by SCHWMP (Appendix 8B) or a comparable analysis may also be used to determine the safest route, from a choice of several, if there are alternative routes available.

## CHAPTER 9

### PUBLIC PARTICIPATION

#### I. INTRODUCTION

The importance of an effective public participation program, beginning at the earliest planning stages and continuing throughout the planning process, cannot be emphasized enough. An effective public participation program should allow for the expression of public concerns, suggestions for alternatives and new strategies, as well as the review and assessment of the proposed measures. Such a program is essential to the acceptance and support of any plan developed.

To achieve this goal, a hierarchy of increasing public involvement levels has been recognized as follows:

1. Public Information
2. Public Education
3. Community Relations
4. Community Involvement
5. Public Participation

A description of each level is presented below:

1. Public information is the first level in the public participation process. It is usually a one-way directional transfer of information. Information is gathered and made available to the public through channels such as libraries and public service announcements.
2. Public education consists of providing the information on specific subjects to the public by means of brochures, seminars, and local schools, etc. The objective is to raise public awareness and stimulate thought. This process may or may not involve interaction between the two parties.
3. Community relations involves inviting the public to participate and the starting of a dialogue. At this level, the public usually already has an opinion regarding the relevant issues. This is the first step towards creating a two-way directional flow of information.
4. Community involvement is the targeting of specific communities to raise their level of awareness regarding specific issues. Both the agencies and the public engage in discussions to reach a mutual goal that can best serve the entire community.
5. Public participation is the highest level of public involvement. The public is usually aware of the pros and cons of the subject matter(s). This is the stage where

informed opinions are developed and educated decisions are made through negotiations between both sides.

This Chapter does not cover the full spectrum of public participation but, concentrates on the public information and education aspects since they are the foundation of any successful long-range program. The purpose is not to reach full agreement so much as to establish on-going dialogues and discussions. The levels of public involvement can be expected to vary according to the specific needs of each community and the issue(s) involved.

This Chapter discusses the needs and guidelines for developing public education/information programs and recommends the implementation of a County-wide public education/information program. The Chapter also includes a survey of existing educational programs on hazardous waste management as well as a summary of the one implemented by Los Angeles County to increase public participation during the preparation of the County Hazardous Waste Management Plan.

## II. PROGRAM DEVELOPMENT

### A. General

In developing a comprehensive public education program, the following needs should be addressed:

- o Relieve public concern.
- o Increase knowledge and understanding that we are all responsible for the generation of hazardous waste and must share the responsibility for its safe management
- o Increase public understanding of the many complex issues involving hazardous waste management practices and the measures needed to protect public health and welfare and the environment.
- o Solicit public assistance and increase public knowledge of current hazardous waste reduction/treatment technologies and disposal practices.
- o Increase public involvement in the siting of hazardous waste management facilities and related local problem solving (discussed in Chapter 6).

The development of a public education program, in general, consists of 5 phases: (1) analysis, (2) planning (development), (3) implementation, (4) evaluation, and (5) program improvement. The pre-planning phase sets up the criteria needed to plan an effective program. Then, as the plan is implemented, a mechanism for program evaluation is needed to determine its effectiveness and to evaluate the results. If necessary, a revised program may be implemented.

### B. Analysis Phase

The analysis phase is an important step in the development process as it identifies all aspects of the program. A program

sponsor must identify the issues or topics to be addressed, concerned groups/sponsors, communication methods, program concepts and all available resources and alternatives.

#### 1. Identify Issues

Hazardous waste management is a complex topic with many facets. A public education program may concentrate on one specific issue that will have observational results or it may be very broad and act as a prelude to more specific steps at a later date. A common theme is that we are all generators of waste and should, therefore, share in the responsibilities for the safe management of this waste.

To develop an effective program, the scope and specific goals must first be determined. This and the identification of concerned groups (discussed in the following section) go hand in hand. At times the latter may even precede the former, as in the case of working with a community group living near a proposed project.

In general, the primary issues to be addressed in a program will depend on the particular topic(s) of hazardous waste management chosen by the program sponsor. By clearly identifying the subject matter and all related issues, the concerned group(s) can be selected and educational/informational mediums appropriately chosen.

#### 2. Identify Concerned Groups/Sponsors

A comprehensive public education program may be small-scale involving only a specific concerned group or large-scale involving all sectors of the community.

In establishing an effective public education program, influential entities that either directly or indirectly serve public interests and concerns or are involved in hazardous waste management may be identified first and then sought as sponsors or co-sponsors of other public education programs. As such, the relationship between concerned group and sponsor interchanges depending on the issue. In the case of the County Hazardous Waste Management Plan, the Department of Public Works is initially the sponsor and the cities are the concerned group. Then, as the cities become familiar with their responsibilities, they, in turn, become the sponsor as they inform their citizens on the Plan.

Identified in Table 9-1 are the groups depicted as both concerned groups and sponsors and their general responsibilities in the area of hazardous waste management.

Once a concerned group is determined, a survey or study may be initiated to determine the concerned group's level of knowledge on the particular subject matter.

TABLE 9-1  
TARGET GROUP/SPONSOR GROUP IDENTIFICATION

<u>GROUP:</u>	Government Agencies/Elected Public Officials
RESPONSIBILITIES:	Agencies that have a regulatory/enforcement role in hazardous waste management are responsible for ensuring that those regulations are met. Elected public officials are responsible to the citizens they represent, decision-makers and sources of public information, particularly when a hazardous waste facility is proposed in their jurisdiction and when they are involved in promulgating hazardous waste legislation. There is a need for government to restore trust and credibility with the people they serve when dealing with hazardous waste issues.
CONCERNED GROUP:	It is essential for the effective management of hazardous waste that all concerned agencies have correct and updated information regarding the policies and responsibilities of such management. Public officials need to be periodically informed of hazardous waste activities, particularly those in their jurisdiction.
SPONSOR GROUP:	By keeping abreast of federal, state, regional and local policies, government representatives can become a source of accurate and up to date information for cities and the general public. They can assist the public and other entities as an informational referral service.
<u>GROUP:</u>	Municipalities
RESPONSIBILITIES:	Municipalities all share in the county-wide responsibility of providing for proper treatment, storage, and disposal of hazardous wastes on a local level. Because of the need to site new facilities, many municipalities become active in direct hazardous waste management decision making within their city boundaries. Only through city representatives can a county-wide public education effort be effective.
TARGET GROUP:	Municipalities should have a means of discussing their common interests and concerns with hazardous waste management and be aware of the overall status of hazardous waste management in the County. They should be familiar with proper hazardous waste management practices before becoming involved with a siting issue within their jurisdiction. In order to better answer citizens concerns, city officials must have access to accurate and current information.
SPONSOR GROUP:	Community leaders should involve citizens in local hazardous waste management decision making. Municipalities, particularly those with heavy industrial areas, should establish programs for industry and community members on their responsibilities in managing hazardous waste on a local level.
<u>GROUP:</u>	Industry
RESPONSIBILITIES:	As generators of hazardous waste, industry bears a direct responsibility for the proper treatment, storage, and disposal of hazardous waste generated by their facility. Industry is responsible to government agencies that regulate and enforce hazardous waste statutes. A facility operator is also responsible to the surrounding community in establishing measures to protect public health and welfare and the environment.
TARGET GROUP:	Those involved with hazardous materials in industry should be instructed on the safe handling of those materials. Members of industry should be kept abreast of laws and regulations affecting their role in hazardous waste management. Industries should become more involved with agencies responsible for hazardous waste management planning to better provide for industry's needs.
SPONSOR GROUP:	Good public relations should be developed by industry to create a better public perception of industry's involvement and concern with waste management. Cooperative efforts with government agencies and community groups in establishing public education programs should be fostered.

TABLE 9-1 (CONT.)  
 TARGET GROUP/SPONSOR GROUP IDENTIFICATION

<u>GROUP:</u>	Public Interest/Citizen Groups
RESPONSIBILITIES:	Citizens are responsible for the waste generated in their homes as well as the waste generated by the manufacturing of the goods they purchased. They have a voice in hazardous waste management activities within their community.
TARGET GROUP:	A dialogue with government and industry through public relations, can enhance communications and community concerns can be addresses. Citizens and public interest groups should be kept abreast of all local and county-wide hazardous waste management issues. This will enable them to become more involved in the decision making and/or planning process for hazardous waste management.
SPONSOR GROUP:	Public interest groups or community leaders have a close contact with citizens and should act as a liaison or take a lead in educating the public on hazardous waste management. Such groups can act as a means for dissemination of information to community members.
<u>GROUP:</u>	Media
RESPONSIBILITIES:	The media has a responsibility to its audience to report facts and events accurately. They have a powerful role in information dissemination and can have a big influence on public opinion of hazardous waste issues.
TARGET GROUP:	In order that the media report information accurately and fairly a good two-way relationship must be developed to provide for a constant flow of information (newsworthy or not). A program sponsor should appoint one contact person to become familiar with the local media and to become a source of information for them.
SPONSOR GROUP:	The media provide several opportunities to educate/inform the public on issues of public interest. These include news, editorial, interview, talk show and public affairs programs or features. The media can also act as an information referral service for the public on hazardous waste management inquiries.
<u>GROUP:</u>	Educational Institutions
RESPONSIBILITIES:	Educational institutions provide a source of knowledge to students that can influence their future attitudes and actions in society. Changing future society's attitude and behavior toward waste handling must begin early and should be reinforced throughout a student's academic career.
TARGET GROUPS:	Educational institutions should be made aware of hazardous waste practices and activities in the County in order to provide accurate and current information to students. Educators should be trained to provide a curriculum and/or classroom activities on hazardous waste management.
SPONSOR GROUPS:	Schools, with assistance from government agencies, could develop educational programs appropriate for specific age levels. Teachers/lecturers should provide students with basic information about the necessity and importance of proper hazardous waste disposal. Educators could incorporate hazardous waste management activities into environmentally related club functions.

Source: Los Angeles County Department of Public Works, December 1987.

### 3. Identify Program Concepts

There are three types of programs with varying degrees of public interaction that can be implemented. They are as follows:

- a. Public Information/Awareness Program (i.e., pamphlets/flyers) - provide for the dissemination of information to people on facts they have a right and a need to know.
- b. Public Education Program (i.e., lectures/workshops) - provide for a means of reinforcing skills and knowledge acquired on an informational level.
- c. Public Involvement/Participation Program (i.e., public hearings) - provide for the highest level of communication usually to resolve conflicts or to answer particular citizen concerns.

A program may incorporate the concepts of one, two, or all three of the approaches described.

### 4. Identify Methods of Communication

The next step in planning a program is deciding upon the most effective communication methods to use on the concerned population. This usually depends on the complexity of issues, the concerned group's level of knowledge, funding, available resources and the type of program to be implemented. For example, a small scope informational program aimed at industry may employ such mediums as a one-day workshop emphasizing training skills supplemented by written literature. On the other hand, a program with a broad scope intended for the general public will require many types of information dissemination, such as the use of flyers and news articles to initially bring the public up-to-date on a topic prior to the discussion of specifics through the mediums of a public hearing or forum.

There are numerous communication methods such as newsletters, public displays, scale models, newspaper columns, audio-visual presentations, workshops and advisory committees that can be used in a public communication program. The media, being a powerful tool, can assume an important and very positive role in initiating and reinforcing information dissemination on a large scale. All available communication options, singly and in combination, should be investigated.

A program may consist of one or more of the traditional communication methods or a more creative approach such as a kick-off parade or scholarship competition. In the following paragraphs, these communication methods are discussed more fully as to their potential roles in waste management.

#### a. Written Literature

Pamphlets/Brochures - Pamphlets can include introductory and in-depth information on hazardous waste management definitions; descriptions and general information; regulations and regulatory changes; community programs and seminars; household hazardous materials; technical tips on treatment/storage/disposal; information on haulers, recyclers, disposal facilities, waste exchanges, etc. A booklet or one page handout with games and crossword puzzle activities can be designed for children. An example of such literature are the pamphlets published by the Environmental Protection Agency entitled, "Solving the Hazardous Waste Problem" and "Waste Minimization". The American Public Works Association also publishes a booklet entitled, "Hazardous Waste and the Public Works Official".

Newsletters - Newsletters are reinforcers of information and can provide details on an issue. They are intended to keep readers up-to-date on topics such as waste management techniques and processes; proper waste handling; product development and current technologies; etc.

News Releases - News releases can provide news media with accurate information and the status of projects and may include commentaries such as letters-to-the-editor.

Fliers - Fliers can be used for local distribution to announce upcoming waste management activities or events in the community.

#### b. Audio/Visual Broadcasts

Mini-news features and public service announcements can generate public interest in local hazardous waste management issues. Talk shows and community programs aired on television or radio can increase public awareness on special topics.

Video programs on hazardous waste management policies/technologies can be produced and distributed to public/private organizations. They can be used as informational films for community meetings or educational training films for industry groups.

#### c. Educational Centers

An educational center can be established to answer inquiries to general hazardous waste management questions and to produce, maintain, and supply materials and educational films on hazardous waste management practices; treatment, storage, and disposal facilities; Federal, State and local regulations; etc.

d. School Curriculum

A curriculum for K-12 grade is currently available on household hazardous wastes (see section on Survey of Programs). Other curriculum can be developed on various waste management topics.

e. Leadership Training

Workshops on leadership training in hazardous waste management for county/city officials, school administrators, small or large quantity generators, civic leaders, etc. can be sponsored and used as a means to establish communication and contacts among various groups.

f. Community Workshops and Public Seminars

Community workshops and public seminars on hazardous waste management, household hazardous wastes, present and future plans and goals for the community, etc., can be set up to further cooperative efforts and the exchange of information.

g. Telephone "Info-Line"

A special telephone info-line where up-to-date information on both general and technical matters can be obtained can be established. The info-line can provide local referrals, names and telephone numbers of regulatory agencies, information on requirements for waste storage, manifesting, record keeping and reporting.

h. Special Events

Special events such as Household Hazardous Waste Collection Days, Hazardous Waste Awareness Week, and Waste Management Fairs can be conducted to increase public awareness and encourage public participation. These events are seen by many as an effective method to inform the public on the proper handling of hazardous wastes.

i. Coalitions/Professional Associations

Through the formation of alliances with individuals with similar backgrounds and concerns, another effective means of interaction and communication can be established. For example, the Southern California Coalition for Hazardous Materials Management is comprised of various companies and trade associations whose members are committed to seeking cooperative approaches on waste management issues. Recognizing the importance of communication with the public, this coalition has recently announced its support for a program designed to increase public awareness on the dimensions of the waste management crisis facing Southern California.

## 5. Identify Funding Resources

The size of a public education program is a direct function of personnel, resources and available funding. A small program with a limited scope may be staffed by one small group or one person. On the other hand, a larger Countywide, comprehensive program may be most effectively executed if coordinated with various government, industry and community interests. Depending on the topic and geographic area to be served, all appropriate groups as discussed below may be approached for in-kind help or funding.

A public education program can be funded through various public and private sector sources. To secure cooperation among government, industry, and community groups, jointly funded programs are highly desirable. The following presents possible funding mechanisms and resources:

### a. Federal

These are various funds/grants appropriated at the Federal level for public education programs. One such agent is the Superfund Legislation which provides specific funding for community relation programs with regard to remedial and removal actions at hazardous waste sites. Joint efforts may be negotiated for specific projects or programs. Requests can be directed to the Environmental Protection Agency (EPA), Region 9 Office.

### b. State

State agencies may be sources for sponsoring the development of telephone "info-lines" and other specific programs that relate to their responsibilities. Furthermore, legislation can be sought to support imposing an additional hazardous materials tax to specifically fund public awareness programs.

### c. Local Government

County/city government may provide aid for a public education program from "solid waste" and/or "sewer discharge" revenues or generation fees. As a local sponsor, personnel and in-kind contributions may be committed for support.

### d. Public/Private Donations and Service Contributions

Grant money may be secured from philanthropic groups and large corporations that support environmental protection programs. Public and private sector groups may be solicited to contribute labor, materials and/or equipment as appropriate.

### C. Planning (Development) Phase

After evaluating the variables described in the analysis phase, a program sponsor can then effectively determine needs and plan for the program. The following are steps to be taken after the analysis phase is completed:

- o Secure commitments for funding;
- o Prepare and document the program - including a time frame, authority, responsibilities and financial needs; and
- o Secure needed program approvals.

### D. Implementation Phase

Program implementation is usually a direct reflection on the input of effort during the planning process. Several random newsletters, a few newspaper articles and one workshop do not constitute a well thought-out public education program and will have a limited effect and educational merit.

Furthermore, a sponsor must be resourceful in defining and using all avenues for distribution of materials. It is helpful to contact other groups that have developed similar public education programs to find out what implementation techniques have proven successful. An implementation schedule should be monitored with planned activity deadlines and corresponding completion dates closely followed.

### E. Evaluation Phase

A mechanism for evaluation must be incorporated into a program to measure results. For example, a survey or study taken during the pre-planning phase can be used at the end of a program to compare results. Pre-tests and post-tests (to test knowledge) can be administered before and after a lecture, presentation or seminar or incorporated into a school curriculum. Each activity should be evaluated to measure effectiveness and determine whether it should be continued, modified or discontinued. Program evaluation and reports on program results can also help other groups in developing similar programs.

### F. Program Improvement Phase

After the evaluation phase, a sponsor should specify how each aspect of a program can be improved. Then a new, improved plan may be adopted and implemented depending on what resources are still available. This step should be taken even if a program is discontinued, as resources may become available at a later date and other program sponsors may benefit from suggestions for program improvement.

Overall, the most important aspect of a public education program is credibility. A sponsor must establish credibility and maintain it. To be credible, it is important to be trustworthy and show expertise in the topic addressed. Information should

not be withheld and issues must be discussed openly. Any promises or commitments made must be kept. Once credibility is lost, it is difficult if not impossible to regain.

### III. SURVEY OF PROGRAMS

Numerous programs have been implemented to increase public awareness and to provide the public with education/information services in the area of hazardous waste management. Table 9-2 provides a description of some of these programs at the Federal, State/regional and local level varying from a telephone "info-line" to a school curriculum on household hazardous waste. A system for compiling information about current programs can reduce duplication and define areas of additional need.

Included in Table 9-3 is a sample program developed by the State Department of Health Services (SDOHS) for the preparation of this Plan. The program encompasses all the techniques previously discussed in the Chapter.

### IV. PUBLIC INVOLVEMENT DURING PREPARATION OF THE LOS ANGELES COUNTY HAZARDOUS WASTE MANAGEMENT PLAN

In an effort to receive maximum public participation during development of the Los Angeles County Hazardous Waste Management Plan (CoHWMP), the Los County Board of Supervisors and the Los Angeles County Hazardous Waste Management Advisory Committee (Committee) pursued various means to inform and solicit input and comments from private industry, cities, and the public in general. As the CoHWMP was to be designed to reflect Countywide interests, the need for public participation was immediately recognized as crucial. An intensive program was developed and implemented with a public affairs consultant and a public relations intern specially assigned to ensure all avenues of public notification were explored.

Upon completion, the Draft CoHWMP and Draft EIR were made available to the public for review at city halls, at over 200 city and County libraries, the Executive Office of the Board of Supervisors, their regulatory program concerning developments on contaminated sites and the Los Angeles County Department of Public Works Headquarters.

#### A. Involvement with the Cities

An extensive chain of communication was set up with each of the cities in the County (city of Santa Clarita incorporated on December 15, 1987), even prior to the formation of the Committee. Ten individual letters were sent to the cities throughout the CoHWMP preparation period, spanning approximately 12 months. These letters are included in Appendix 9A.

Each city was notified of the County's intention to prepare the CoHWMP and was requested to appoint a contact person throughout

TABLE 9-2  
PUBLIC EDUCATION PROGRAMS AND PUBLICATIONS

<u>PROGRAM/SPONSOR/LEVEL</u>	<u>PROGRAM DESCRIPTION/CONTACT</u>
<b>Federal:</b>	
1. RCRA-Superfund Hotline/ EPA, Office of Solid Waste And Emergency Response/ National	Provides information on RCRA requirements, Superfund activities and related legislative concerns. Call 1-800-424-9346.
2. "We Tip" Hotline/ We Tip Inc./ National and State	Provides the opportunity to report any information on all types of major crimes including illegal disposal of major crimes including illegal disposal of hazardous wastes/materials, with the caller remaining anonymous. Offers rewards of up to \$500. Call 1-800-73-CRIME (State).
3. Metro Toxicant Program/ Municipality of Metropolitan Seattle/ National	Provides a program for household hazardous waste disposal consisting of the following five components: 1) Summary, 2) Toxicants in Consumer Products, 3) Public Opinions and Actions, 4) SLEUTH - Educational Activities and 5) a Directory. Contact: Toxicant Control Planning Section, 821 Second Avenue, Seattle, WA, 98104, (206) 447-5885.
<b>State:</b>	
4. Waste Alert Hotline/ State Department of Health Services (SDOHS)/ Statewide	Provides literature containing general information on hazardous waste laws and regulations and offers rewards of up to \$5000 for reporting violations of the California Hazardous Waste Control Law. Call 1-800-25-TOXIC.
5. Toxic-Info Center/ SDOHS and San Francisco Regional Poison Control Center/ Statewide	The center provides an information brochure and a 24 Hr. HOTLINE staffed by emergency medical professionals ready to respond instantly with health information and guidance for management of exposure to toxic substances. Call 1-800-233-3360.
6. OSHA "Right to Know"/ Labelmaster/ Statewide	Free information number for occupational health and safety personnel giving up to date information on all aspects of right to know legislation. Questions answered by compliance specialists. Call 1-800-358-6200.
7. A Citizens Guide to Hazardous Waste Management California State Senate/ Statewide	A publication which includes information on what the state is doing to protect citizens from dangerous chemicals, how much is their responsibility and how much is the State's. Summarizes prevention and response strategies, upcoming issues, and provides important State agency and legislator's names/phone numbers. Contact: Senate Rules Committee, Room 400, State Capitol, 95814 (916) 445-4311.
8. "Newsbriefs:/ Toxic Substances Control Division (SDOHS)/ Statewide	Bimonthly newsletter which describes recent events in the Toxic Substances Control Division, law and regulation updates, proposals, reports to legislature, and staff reports. Contact: SDOHS, 714 P Street, Sacramento, CA 95814 (916) 324-1789.
9. California Waste Exchange/ Toxic Substances Control Division (SDOHS) Statewide	This program is set up to promote the use, reuse and exchange of industrial waste streams as a service to industry by providing direct assistance, directory of recyclers, and newsletter/catalogs. Contact: SDOHS, 714 P Street, Sacramento, CA 95814 (916) 324-1807.
10. Toxic Chemicals in My Home? You Bet!/ Golden Empire Health Planning Center (GEHPC)/ Statewide	In an effort to educate the public on the potential hazards associated with household products containing toxic chemicals, GEHPC has developed a one week school curriculum for grades K-12 and a "How-To" Handbook on Implementing Collection Programs for Residentially Generated Hazardous Waste. Both programs provide an extensive list of resource materials on all areas of hazardous waste management. Contact: GEHPC, 2100 21st Street, Sacramento, CA 95818 (916) 731-5050.

TABLE 9-2 (CONT.)  
PUBLIC EDUCATION PROGRAMS AND PUBLICATIONS

<u>PROGRAM/SPONSOR/LEVEL</u>	<u>PROGRAM DESCRIPTION/CONTACT</u>
11. EPA Library/ EPA/ Statewide	The EPA Library provides publications on many aspects of hazardous waste management. Contact: EPA Library, 215 Fremont Street, San Francisco, CA 94105 (415) 974-8076.
12. Toxic and Hazardous Substances Program/ University of California at Davis, Irvine, Riverside/ Statewide	UC Davis offers a certificate program and one day workshops to provide current and prospective employees of industry and government with a comprehensive and practical curriculum of study in the field of hazardous materials regulation and management. Similar programs are also offered at UC Irvine and UC Riverside. Contact: Programs Coordinator, University Extension, UC Davis, CA, 95616, (916) 752-6021 UC Irvine, P.O. Box AZ, Irvine, CA, 92716 (714) 856-6412 900 University Ave., Riverside, CA 92521, (714) 787-4105
13. Used Oil Recycling Program/ California Waste Management Board (CWMB)/ Statewide	Provides listing of all service stations in the State acting as used oil collection centers, registered used oil haulers and recyclers. Provides a 24 hr. HOTLINE which tells of local collection center locations. Program seeks to require retail outlets selling new oil products to post information on local used oil collection centers. CWMB provides a manual to groups interested in developing local used oil recycling programs. Contact: Used Oil Recycling Coordinator, CWMB, 1020 9th Street, Suite 300, Sacramento, CA, 95814, (916) 322-1443.
14. If You Store Hazardous Substances or Wastes Underground Brochure/ State Water Resources Control Board (SWRCB)/ Statewide	SWRCB publishes this informational brochure which briefly explains the registration and permitting programs required by law for the storage of hazardous substances underground. This pamphlet explains the regulatory framework for new and existing tanks, lists local program contacts and provides details on new laws affecting underground tanks. Contact: SWRCB, P.O. Box 100, Sacramento, CA, 95801-0100 (916)324-1262
Local:	
15. Public Information Program/ California Waste Management Board (CWMB)/ Statewide	The CWMB is in the process of developing a public education program for household hazardous substances. The program is to provide pamphlets or other written materials which could be used by local governments and agencies in conjunction with household hazardous waste collection and other programs. The CWMB is also charged to assist local governments and other agencies to provide services related to the same. Contact: CWMB, 1020 9th Street, Suite 300, Sacramento, CA 95814, (916) 322-1443
16. "Toxic Chemicals in My Home? Absolutely!/ Los Angeles County Solid Waste Management Committee and CoDOHS/Local	This informational pamphlet is designed to increase public awareness of household chemical products and proper storage and handling of these products. Contact: Los Angeles County DOHS, 313 North Figueroa, Los Angeles, CA, 90012, (213) 744-3244.

Source: Los Angeles County Department of Public Works, December 1987.

TABLE 9-3  
STATE DEPARTMENT OF HEALTH SERVICES GUIDELINES FOR A PUBLIC PARTICIPATION PROGRAM

Public Participation	Community Relations	C. Media: The involvement of the media is essential in all aspects of the planning process. A typical program could include:
<p>1. Select the CHMP Advisory Committee</p> <p>2. Assure continuity of the public participation portion of the CHMP process by having each county designate an individual who will coordinate all of the citizens participation and community relations functions. It may be useful to utilize existing personnel in local public information and community relations offices of the county.</p> <p>3. Hold local informational meetings to identify concerns, areas of interest, community leaders, and economic, social and environmental issues of concern to the citizens of the planning area.</p> <p>4. Involve leaders of disadvantaged and minority communities in the development of the CHMP and ask them to designate active participants from their communities as key contacts throughout the process.</p> <p>5. Provide fact sheets at the beginning of each phase of CHMP development. These should outline the overall program and progress made to date.</p> <p>6. Use local information offices, mobile units, or other in-community means to facilitate and encourage two way communication with individuals not otherwise involved with identified groups.</p> <p>7. Develop displays that effectively demonstrate AB 2948 concepts. Illustrations of hazardous wastes and some forms of alternate technology available to deal with these waste forms should be used to inform the public and help communities clarify the issues and alternatives.</p> <p>8. Provide bilingual staff in those areas that have substantial populations whose primary language is other than English which will be affected by the CHMP. Printed material in other languages would also be of great benefit.</p> <p>9. Hold public workshops and informational meetings (see Section 25135.2 and 25135.6) whenever any process related to AB 2948 directly affects a community and, when possible, develop responses to public questions and concerns.</p> <p>10. The Advisory Committee and the public should be kept informed of the on going operation of hazardous waste management facilities.</p>	<p>The purpose of community relations under AB 2948 is to inform and actively involve the community in the CHMP process. The community relations portion of the CHMP should include as many of the following recommendations as possible.</p> <p><u>A. General:</u> Hold meetings with specific groups in the community to familiarize them with the purpose of the plan, the schedule, how the group can help or become involved and to receive responses to the CHMP as it involves. The names, addresses and areas of interest of these groups should be supplied to the Department with the draft Plan. These groups should include:</p> <ol style="list-style-type: none"> <li>1. Local, federal and state elected officials who represent constituents within the planning area.</li> <li>2. Representatives of local, federal and state agencies which would be affected by the CHMP.</li> <li>3. Representatives of interested groups.</li> <li>4. Individual leaders in the community.</li> <li>5. Leaders of industry.</li> <li>6. Representatives of each city in the planning area.</li> </ol> <p><u>B. Community:</u> Conduct community level meetings. These should be at times and locations that result in the greatest participation by the community. These should include:</p> <ol style="list-style-type: none"> <li>1. Workshops to discuss the legal, technical, economic and social aspects of the CHMP.</li> <li>2. Community meetings (e.g. home owner groups, clubs, civic groups, etc.). These meetings should be geared to the audience and should educate (raise the level of awareness concerning hazardous materials), inform (what the CHMP means to their community), discuss (what options are available), and invite active community participation in the planning process.</li> <li>3. If resources allow, community field offices should be established to facilitate two-way communications throughout the planning process. In addition, mobile display units may be used to disseminate information to the community at shopping malls, sporting events and other areas where large numbers of community members gather.</li> </ol>	<ol style="list-style-type: none"> <li>1. Issuing press releases announcing the receipt of the CHMP Guidelines. These should give an overview of AB 1948 and discuss the need for community and individual involvement and the fact that an Advisory Committee will be formed and how this Committee will be selected.</li> <li>2. Holding press conferences presenting the selected Advisory Committee members to the community.</li> <li>3. Visiting editorial boards to discuss the CHMP and its effects on the community.</li> <li>4. Soliciting the involvement of local commercial and cable television by suggesting that they highlight the CHMP in their programming or their SWEEPS (rating) periods to help inform the community on what the plan means to them.</li> <li>5. Soliciting local radio participation by volunteering to provide experts on the hazardous waste issue for their talk shows and special news formats.</li> <li>6. Identifying reporters that have done stories on the hazardous waste issues and soliciting their involvement by keeping them informed on the progress of the Plan's development.</li> <li>7. Distributing press releases on all CHMP developments as they occur.</li> <li>8. Holding press conferences for all major CHMP developments.</li> <li>9. Producing publications that discuss past and future developments and issues. The publications could be distributed by mail as well as being made available through field offices, mobile units and community meetings.</li> </ol>

Source: Guidelines for the Preparation of Hazardous Waste Management Plans, State Department of Health Services, June 1987.

the CoHWMP's preparation. Information was solicited from the cities on their siting and zoning criteria, enforcement programs, emergency response plans, and their regulatory program concerning developments on contaminated sites. Two copies each of the Notice of Preparation for the Draft Environmental Impact Report (EIR), the draft EIR and CoHWMP were sent to each city along with a fact sheet and public hearing schedule for their review.

#### B. Involvement with the Public

Input was solicited for the public at the earliest possible time. With the formation of the Committee to review progress on the Draft CoHWMP, the meetings (open to the public) were widely published with agendas mailed out to over 400 interested parties and provided to City News Service (CNS) budget wire. Agendas were also posted at the meeting location 72 hours prior to the actual meeting. The first news release announcing the first Committee meeting was released by the Board of Supervisors on July 9, 1987. In addition, four special workshops were conducted during October and November of 1987 in Palmdale, Carson, Van Nuys, and West Covina to receive public input. The last one was co-sponsored by the East San Gabriel Chapter of the League of Women Voters. In addition to news releases, and public notices, the schedules for the meetings and special workshops were mailed to city contact persons, and interested parties such as manufacturing and industry groups, homeowners associations, and environmental groups.

A special Task Force was established to organize and publicize the schedule of public hearings on the Draft CoHWMP and its accompanying Environmental Impact Report. Members of the Task Force included city officials and individuals from private industry, public affairs committees and special public interest groups such as the League of Women Voters and the Sierra Club.

The Task Force scheduled nine public hearings throughout the County in an effort to make these hearings accessible to each citizen in the County. These public hearings, cosponsored by the League of Women Voters, Los Angeles County Division, were designed to allow the public to provide written and oral testimony on the CoHWMP and its accompanying EIR. The location and dates of the public hearings are presented in Appendix 9B.

To promote an atmosphere which would be conducive to a productive rapport, an impartial moderator presided over each public hearing. These public hearings were widely publicized through various media including news releases from the Board of Supervisors, public notices, mass mailings to interested parties, environmental groups, city officials, Chambers of Commerce, and associated groups. Also, announcements concerning the CoHWMP were sent through the CNS budget wire for local newspaper, radio stations, etc. Samples of these aired messages, news releases, and official notices are in Appendix 9C.

Official notices of the public hearings were printed twice in the Los Angeles Times and nine local newspapers. In addition,

numerous newspapers have written articles regarding CoHWMP preparation and the hearings. In order to facilitate exchange of knowledge, information, and concerns on the management of hazardous waste a slide presentation providify an overview of the CoHWMP and its EIR was provided during each hearing and a panel consisting of the Committee members and DPW staff provided responses to the questions raised. Additionally, various materials were also distributed during the hearings. These included the two fact sheets prepared by the DPW (Appendix 9D), a pamphlet detailing household hazardous waste entitled "Toxic Chemicals in My Home? Absolutely!" (Table 13-1) and two EPA booklets entitled "Solving the Hazardous Waste Problem" (EPA/530-SW-86-037) and "Waste Minimization" (EPA/530-SW-87-026).

In addition, in response to requests, staff from the DPW conducted 38 presentations throughout the County from January through June 1988, to cities, Chambers of Commerce, trade organizations and other interested groups. Additionally the DPW's staff provided several radio and television interviews. A list of these presentations is in Appendix 9B.

The minutes of the special workshops and public hearings as well as a summary of the comments received on the Draft Plan are included in Appendix 9E. The specific comments from the SDOHS on the Draft Plan are included in Appendix 9F.

## CHAPTER 10

### EMERGENCY RESPONSE

#### I. INTRODUCTION

This Chapter identifies the responsibilities of Federal, State, County, and local governments with respect to their roles in response to a hazardous waste/material incident and outlines the elements that should go into the development of an emergency response program for hazards posed by the unauthorized release of hazardous waste/material. The Chapter and its appendices further describe the emergency response plans currently being utilized in the County and Cities.

Hazardous material is generally defined as being any substance or mixture of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may either cause, or significantly contribute to an increase in mortality or pose a potential hazard to human health or the environment. A hazardous material includes all original chemicals used in, or created by an industrial or chemical process, including waste product. Hazardous waste is the remaining hazardous residuals from any industrial or commercial process. Pursuant to Chapter 6.95 of the Health and Safety Code, hazardous materials include hazardous wastes; as such, the concepts developed in this Chapter, apply to both.

Recognizing the importance of being prepared for hazardous waste/material incidents, regulations have been passed at both the Federal and State levels which develop procedures and establish data sources for use in responding to incidences involving hazardous waste/material.

The following addresses hazardous material/waste emergency response planning at the Federal, State, and local levels:

- o National Oil and Hazardous Substance Pollution Contingency Plan;
- o Emergency Response requirements under the Superfund Amendment and Reauthorization Act of 1986 (SARA);
- o California Hazardous Material Incident Contingency Plan;
- o County Multi-Hazardous Functional Plan;
- o County Hazardous Material Incident Contingency Plan; and
- o County Area Plan (preliminary draft).

#### II. ROLE OF FEDERAL GOVERNMENT

##### A. General

To provide an effective and comprehensive response to unintentional releases of hazardous waste/material, Congress enacted the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), commonly called Superfund.

(CERCLA has been revised and reauthorized under SARA). This and Section 311 of the Clean Water Act require the Federal Government to work with State and local governments to establish immediate and comprehensive response plans to accidental release of hazardous waste/material. Major provisions of SARA relating to emergency response can be found in Table 10-1.

#### B. Notification Requirements

When a harmful amount of hazardous waste/material as specified in Section 102 of CERCLA has been released to the environment, Sections 102 and 103 of CERCLA require the releaser to notify the National Response Center (NRC) in Washington (800/424-8802) immediately, as well as local response teams as outlined in later sections.

Additional reporting requirements are required under Section 304 of SARA. Specific information regarding the requirements may be obtained by calling the United States Environment Protection Agency (EPA) Informational Hotline at (800/535-0202).

#### C. On-Scene Activities

When the NRC is notified of a release, the lead responsibility for handling the emergency or incident is assumed by the EPA or the United States Coast Guard (USCG). The lead responsibility for accidental releases in or near coastal waters and the Great Lakes is vested in the Coast Guard. Responsibility for all other emergencies occurring on land or inland of the coastal zone, (excluding the Great Lakes), specified ports, and harbors of inland rivers belongs to the EPA, as established by EPA/Coast Guard agreements.

The lead agency appoints an On-Scene Coordinator (OSC) to direct all Federal actions. The Federal OSC determines whether the person responsible for the release or potential release is taking proper actions to cleanup or remove the threat of the incident. If the OSC determines that the person responsible is taking proper actions, the OSC monitors progress and provides advice. Federal response action is undertaken if the responsible party does not act promptly, fails to take proper removal actions, if the responsible party is unknown, or if a potential release is considered to exist.

The actions may include activation of the National or Regional Response Team (NRT and RRT).

As specified in the National Contingency Plan, the following agencies cooperate as members of the NRT and RRT to coordinate activities in emergency situations:

- o EPA or the USCG assumes primary responsibility to respond, depending upon the location of the emergency;
- o Federal Emergency Management Agency (FEMA) is responsible for evacuations;
- o Department of Interior and Department of Commerce conduct

TABLE 10-1  
MAJOR PROVISIONS OF THE  
SUPERFUND AMENDMENT AND REAUTHORIZATION ACT (SARA)  
RELATING TO EMERGENCY RESPONSE

- o The governor of each state is required to appoint a state emergency response commission. The commission is to designate local emergency planning districts and appoint local emergency planning committees.
- o Under SARA, the EPA has published a list of extremely hazardous substances and has established a "threshold planning quantity". If a threshold quantity is present at a facility, that facility would be subject to specified emergency planning requirements.
- o Owners or operators of plants or facilities are required, subject to specified requirements, to notify the state commission of their facilities.
- o Each local committee is required to complete an emergency plan within two years and review it once a year thereafter. The plan is to identify facilities covered; methods to be followed by site operators and local emergency and medical personnel in response to a release site; site and community coordinators; procedures for the notification of emergency personnel or the public of a release; evacuation plans; training programs; and other items. Site operators are required to provide the committees with information needed to develop and carry out the plan. The plans are to be reviewed by the state commissions and superfund regional response teams.
- o Plant or facility operators are required to give immediate notice of a release of a listed extremely hazardous substance in specified circumstances.
- o When immediate reporting is required, plant operators are required to notify local state and emergency coordinators by telephone or radio.
- o Training for hazardous substances emergencies is authorized to be included in existing federal emergency training programs. The bill also authorizes appropriations for the Federal Emergency Management Agency to make grants to state, local, and university programs to improve emergency preparedness, totaling \$5 million annually for fiscal 1987 - 1990.
- o The EPA is required to report Congress on ways to detect and prevent extremely hazardous releases.
- o Further requirements are set for plants and facilities to report the presence of substances in addition to those which are hazardous.
- o Industries are required to report routine releases into the environment of substances that may cause chronic health problems, such as cancer.
- o Unless exempted, each emergency response plan, material safety data sheet, list, inventory form, release form, and follow-up emergency notice must be made available to the general public during normal working hours at designated government offices.
- o The bill provides a system of administrative, civil, and criminal penalties for enforcing the emergency planning and right-to-know provisions.

Source: Summarized by Los Angeles County Department of Public Works, November, 1987.

- research into the effects of the disaster; and
- o Department of Health and Human Services investigates incidents of hazardous substance exposure to humans and threats to public health.

In addition, the following agencies play key roles related to their respective authorities/expertise if the emergency requires their participation:

- o Departments of Agriculture, Defense, Energy, Justice, State and Transportation; and
- o States may designate one representative to the RRT.

Federal response to a hazardous waste/material incident will vary according to the nature of the incident.

In general, the NRT is activated as an emergency response team when an oil discharge or hazardous substance release of the following magnitude occurs:

- o Exceeds the response capability of the region in which it occurs;
- o Crosses regional boundaries;
- o Involves significant population hazards or national policy issues, substantial amounts of property, or substantial threats to natural resources; and/or
- o Occurs and intervention is requested by any NRT member.

The RRT is activated as an emergency response team when a discharge or a release:

- o Exceeds the response capability available to the scene manager in the place it occurs;
- o Crosses regional boundaries; and/or
- o Poses a substantial threat to public health, welfare or to the environment, or to regionally significant amounts of property.

In addition, three U. S. Coast Guard Strike Teams, located on the Atlantic, Pacific and Gulf Coasts and an EPA emergency response team (ERT) are available on a 24-hour alert to supplement these field teams.

#### D. Cleanup Activities

There are three types of removal actions carried out by the EPA in its emergency response program: immediate removal; planned removal; and remedial response.

##### 1. Immediate Removal

Immediate removal is triggered by sudden and significant emergencies involving hazardous waste/material. An immediate removal is a "first-aid" approach to an emergency. It involves cleaning up the hazardous area or spill as necessary to protect life and human health, stopping the hazardous

release and minimizing damage or threat of damage to the environment. If there has been a spill (from a truck, derailed train or barge, for example) the response will continue until the spill is cleaned up.

## 2. Planned Removal

Planned removal occurs when the hazard is substantial and imminent but constitutes something less than an immediate emergency. Such a removal assumes that, while the situation is deteriorating, time is available to plan an appropriate response before reaching the site.

## 3. Remedial Response

The third type of response is intended to deal with the long-term problem of abandoned or uncontrolled sites. Remedial response, which requires more time and money, is intended to achieve a solution consistent with a permanent remedy. This type of response is explained in more detail in Chapter 11, "Inactive Hazardous Waste Sites and Contaminated Sites".

If the Federal government is called upon to provide removal action, the responsible party will be liable for the cost of the cleanup action and may also be liable for punitive damages of up to three times the cost of the removal action for failure to respond properly to the emergency.

## E. Incident Reporting Requirements

Within 60 days after the conclusion of a major discharge, the Federal OSC is to submit to the RRT a complete report on the response operation and the actions taken. The OSC, at the same time, is to send a copy of the report to the NRT. The RRT will review the OSC's report and prepare an endorsement to the NRT for review. This is to be accomplished within 30 days after the report has been received.

If the incident occurred while the hazardous waste/material was in transport, Title 40, Sections 263.30 and 263.31 of the Code of Federal Regulations require the transporter to report in writing, such information as specified in Title 49, Part 171.16 of the Code of Federal Regulations, to the Director, Office of Hazardous Materials Regulations, Materials Transportation Bureau, Department of Transportation, Washington D.C., 20590 within 15 days of the incident.

## III. ROLE OF STATE GOVERNMENT

### A. General

The Carpenter-Presley-Tanner Hazardous Substance Account Act of 1981 commonly referred to as the State Superfund provides the

State with authority and funding to respond to the release of hazardous substances.

As discussed in Chapter 11, "Inactive Hazardous Waste Sites and Contaminated Sites", the State Superfund is maintained at a level of \$15 million to provide funds for removal or remedial actions at hazardous waste sites. Of this amount, \$800,000 is appropriated annually for the purchase, by State or local agencies, of hazardous waste/material emergency response equipment and other preparations for response to the release of hazardous waste/material.

The State Superfund also maintains a minimum of one million dollars in a reserve account for emergencies. The money can be expended only for the purpose of taking immediate corrective action necessary to remedy or prevent an emergency that may be caused by the release or threatened release of a hazardous substance.

In preparing for hazardous waste incidents, the State Office of Emergency Services (OES), acting under Section 8574.7 of the California Government Code, has developed the California State Hazardous Material Incident Contingency Plan. The Plan, adopted by the State Emergency Council, on September 15, 1982, describes the responsibilities of the State agencies in controlling and remedying hazardous waste/materials incidents.

The California Hazardous Materials Release Response Plan and Inventory Implementation Program, Chapter 6.95 of the Health and Safety Code, as added to by the recently enacted legislation AB 2185 (1985), and subsequently amended by AB 2187 (1987) and AB 3777 (1986), requires each owner or operator of any businesses which handle reportable quantities of hazardous materials (55 gallons, 500 pounds, 200 cubic feet of compressed gas) during the year to have a business plan. The Los Angeles County Fire Department (LACFD) is the County's Administrative Agency for developing the program in the unincorporated areas as well as for the 54 incorporated cities as listed in Table 10-2.

The Administrative Agency has the main responsibility to review the business plan and conduct on-site inspections as well as to prepare and implement an Area Plan (emergency response plan), subject to review and approval of the OES. The business plan information required by the LACFD is listed in Table 10-3. Although not all businesses with hazardous material/waste are subject to the disclosure program, Ordinance #87-0001 provides additional authority and responsibility to the LACFD to request all companies to complete the mailed questionnaire as a minimum.

Furthermore, Chapter 6.95 of the Health and Safety Code, created the "Community Right-To-Know Law" and requires businesses to notify their respective communities about the hazardous material(s) present on their premises. The "Worker Right-To-Know" under OSHA also requires employers to advise their workers about the hazardous substances present in their respective work places.

TABLE 10-2  
HAZARDOUS MATERIALS RELEASE  
RESPONSE & INVENTORY IMPLEMENTATION PROGRAM

The Los Angeles County Fire Department is the Administering Agency for developing and implementing the Program in the unincorporated areas of the County and in the following 54 contract cities.

<u>CITY</u>	<u>CONTRACT CITIES</u>	<u>CITY</u>	<u>CONTRACT CITIES</u>
Agoura Hills	X	Lawndale	X
Alhambra		Lomita	X
Arcadia*	X	Long Beach	
Artesia	X	Los Angeles	
Avalon		Lynwood	
Azusa	X	Manhattan Beach	
Baldwin Park	X	Maywood	X
Bell	X	Monrovia	
Bellflower	X	Montebello	
Bell Gardens	X	Monterey Park*	X
Beverly Hills		Norwalk	X
Bradbury	X	Palmdale	X
Burbank		Palos Verdes Estates	X
Carson	X	Paramount	X
Cerritos	X	Pasadena	
Claremont	X	Pico Rivera	X
Commerce	X	Pomona	
Compton*	X	Rancho Palos Verdes	X
Covina		Redondo Beach	
Cudahy	X	Rolling Hills	X
Culver City		Rolling Hills Estates	X
Downey		Rosemead	X
Duarte	X	San Dimas	X
El Monte		San Fernando	
El Segundo		San Gabriel*	X
Gardena		San Marino*	X
Glendale		Santa Fe Springs	
Glendora	X	Santa Monica	
Hawaiian Gardens	X	Santa Clarita	X
Hawthorne		Sierra Madre	
Hermosa Beach		Signal Hill*	X
Hidden Hills	X	South El Monte	X
Huntington Park	X	South Gate	X
Industry	X	South Pasadena*	X
Inglewood		Temple City	X
Irwindale	X	Torrance	
La Canada Flintridge	X	Vernon	
La Habra Heights*	X	Walnut	X
Lakewood	X	West Covina	
La Mirada	X	West Hollywood	X
Lancaster	X	Westlake Village	X
La Puente	X	Whittier	X
La Verne			

Note: \*Los Angeles County Fire Department does not provide fire protection to these cities

Source: Los Angeles County Department of Public Works, September 1988.

TABLE 10-3  
BUSINESS PLAN INFORMATION REQUIRED  
BY THE LOS ANGELES COUNTY FIRE DEPARTMENT

Section I: BUSINESS IDENTIFICATION DATA

A. Facility Unit:

This section is to contain the designation (name, number, etc.) for each separate building, structure or area which is part of the business and contains reportable quantities of hazardous material.

Section II: EMERGENCY RESPONSE PLANS AND PROCEDURES

A. Business Plan Location:

This section is to contain the location where the Business Plan will be filed at the facility. The Plan is to be made available to emergency response and jurisdictional inspection personnel upon release.

B. Emergency Notifications:

In the event of a release or threatened release of hazardous materials at a business, immediate notification must be made to the following agencies. Phone numbers for each agency and the name of the person responsible for making the notification must also be included.

ITEM 1: The agencies in this section are the local police and fire departments. The telephone numbers for both is 911.

ITEM 2: The administering agency for each business in Los Angeles County is the Los Angeles County Fire Department. The telephone number is: (213) 265-2706, Monday through Friday, 8:00 a.m. - 4:30 p.m.

ITEM 3: The telephone numbers for the State Office of Emergency Services are: (805) 852-7550 or (916) 427-4341.

C. Local Emergency Medical Assistance Appropriate for Potential Accident Scenarios in Each Business:

ITEM 1: This Section must contain an identification of the local medical treatment facilities appropriate for aiding persons injured by a release of hazardous materials at a business.

ITEM 2: This Section must contain the agency and phone number which provides emergency medical response for a business.

D. Mitigation, Prevention and Abatement of Hazards:

ITEM 1: This Section is to contain an explanation of a business' safeguards and safety procedures to prevent the release or spill of hazardous materials, and methods of minimizing and removing the hazards.

ITEM 2: A private on-site response team consists of persons within the facility who are necessary to respond to an incident.

E. Immediate Notification of an Evacuation of a Facility:

SECTION III: Employee Training Program

A business' training program shall be reasonable and appropriate for the size of the business and the nature of the hazardous materials handled and shall take into consideration the responsibilities of the employees to be trained.

A description of a business' employee training relating to the five (5) areas specified in Items A-E must be made.

SECTION IV: Certification

This Section is to contain the name, signature and title of the responsible representative of a business.

SECTION V: Inventory

This Section is to contain general business information, purpose of disclosure, emergency contacts, type codes, maximum amounts, annual amounts, unit descriptions, contaminant codes, use codes, material locations, concentration of materials, chemical and common names and chemical abstract service (C.A.S.) numbers for hazardous materials.

In addition to the above requirements, the California Administrative Code, Title 22, Section 67140, requires each owner or operator of a hazardous waste facility to have a contingency plan for his/her facility.

Under existing law, railroad companies are not required to have their business plans approved by the "Administrative Agency" unless loaded cars are to remain at the railroad yards for more than 30 days. Their business plans are subject to the approval of the Public Utilities Commission, as mandated by Section 25503.7 of the Health and Safety Code.

The wide diversity of such incidents dictates a need for a systematic approach to scene management in all cases ranging from small releases to releases of potentially disastrous proportion. As specified in the State Plan, the general organization of the State hazardous material Scene Management System is structured to alter its capabilities in response to the type of incident which triggers activation. For a major incident, the State will provide a multi-agency response. For a minor incident, the State can respond with routine actions of one or two emergency agencies.

#### B. Notification Requirements

The California Highway Patrol (CHP) (highway incident) or the OES (off-highway incidents) is to be the first agency notified, (as well as other Federal, and local agencies as indicated previously) by the releaser of hazardous waste/material. Each will renotify the other agencies to ensure everyone involved is informed.

#### C. On-Scene Activities

State response is effected through the Scene Management System under the direction of the State Agency Coordinator (SAC). The SAC is in charge of coordinating the on-scene operations of all State agencies responding to a hazardous waste incident. For spills which occur on freeways, state-owned crossings and highways within the unincorporated areas, the SAC will be a member of the (CHP). For off-highway hazardous waste incidents, including oil spills, the SAC will be a representative of the Department of Fish and Game.

In the event of a hazardous waste incident, the first State official on the site assumes the duties of the SAC until relieved by the designated SAC.

The SAC is the primary point of contact between the State and the Federal OSC (if present) and between the State and the Scene Manager. The Scene Manager is the government representative responsible for coordinating a systematic response to a hazardous waste/material incident.

The Scene Manager can be either a State or local government representative. The location and circumstances of a hazardous

waste/material incident influence the designation of the Scene Manager. It is the role of the Scene Manager to coordinate proper actions (e.g. provide an initial assessment of the hazards to responding personnel, general public, and environment; prescribe protective measures; issue public warning; etc.) and ensure that appropriate resources are brought to bear in a timely manner.

The Scene Manager for incidents occurring on the highways is usually the CHP.

The SAC will confer with the Scene Manager to determine pertinent facts about the incident, including but not limited to its potential impact on the public health and welfare; nature, amount and location of the material released; probable direction and time of travel of the material; and natural resources and structures which are or may be affected, and the priorities for protecting them. Through a joint conference with the Scene Manager, the SAC then determines the nature of the State agency support needed, and how State resources may be employed most effectively in the incident response operations. He will then assign State resources in accordance with the needs of the Scene Management System. The responsibilities of various State agencies are outlined in Appendix 10A.

The SAC also coordinates necessary support activities and documentation for cost recovery activities.

The OES supports the SAC in procuring and making state resources available to the Scene Manager.

#### D. Cleanup Activities

The Scene Manager takes such steps as are necessary to ensure restoration of the scene to a normal condition after the emergency. Steps to be taken will vary widely depending on the situation. The basic policy which guides the actions of all agencies is that the party responsible for an incident should ultimately pay the cost of cleanup.

As stated previously, cleanup of a hazardous material spill is the responsibility of the individual in possession of the material at the time of the spill. In practice, about 90 percent of all emergency cleanups and removals are handled by the responsible party [17]. However, if the incident occurs on a Federal or State highway and the spiller cannot or does not choose to initiate cleanup, CALTRANS performs the service either directly or under contract, depending on the circumstances, and then seeks reimbursement.

The State Superfund provides limited funding for cleanup actions. However, parties at fault for the release of hazardous waste/material are liable for the costs of damage caused by the release and for cleanup and restoration of the environment.

#### E. Incident Reporting Requirements

The California Contingency Plan requires that an after action report be compiled by the Scene Manager and filed with the Office of Emergency Services for unusual or especially significant incidents. The report should: 1) include data submitted by involved agencies; 2) summarize salient topics of discussion during the post-action review; and, 3) emphasize lessons learned.

The California Contingency Plan requires that an after action report be compiled by the Scene Manager and filed with the Office of Emergency Services for unusual or especially significant incidents. The report should: 1) include data submitted by involved agencies; 2) summarize salient topics of discussion during the post-action review; and, 3) emphasize lessons learned.

If the incident required implementation of a hazardous waste facility's contingency plan, the owner or operator is to submit a written report on the incident within 15 days after it has occurred to the State Department of Health Services.

In addition, Under Section 25180.7 of the Health and Safety Code (Proposition 65), designated governmental employees are required to report all illegal discharges or threatened illegal discharge of hazardous materials/wastes to the local health officer and the Board of Supervisors. This must be reported within 72 hours of the actual knowledge that the discharge or threatened discharge is likely to cause substantial injury to the public's health and safety. In turn, the local health officer who receives such information is required to notify the local news media and make such information available to the public without delay unless law enforcement personnel have determined that the disclosure would adversely affect an on-going criminal investigation.

#### F. Funding

Under SARA, the Federal Management Agency can make grants to state programs for improving emergency preparedness. These grants will total \$5 million annually for fiscal years 1987 through 1990.

### IV. ROLE OF COUNTY GOVERNMENT

#### A. General

Currently in Los Angeles County, two plans and one draft plan are utilized for emergency response to hazardous material incidents. These include the Multi-hazard Functional Plan for Emergency Procedures, the Los Angeles County Hazardous Materials Incident Contingency Plan, and the preliminary draft of the Los Angeles County Area Plan.

The Multi-hazard Functional Plan for Emergency Procedures was coordinated by the LACFD. The Plan adopted on February 17, 1987, by the Los Angeles County Board of Supervisors, addresses the jurisdiction's planned response by public, private, and volunteer agencies to emergency situations associated with natural disasters, technological incidents, and war emergencies. The operational concepts reflected in the plan focus on potential large-scale disasters. The Plan is designed to include the County as part of the State-wide emergency management system and is considered as a preparedness document intended to be read and understood before an emergency.

The plan has been organized into three parts. Part One provides overall organizational and operational concepts for responding to various types of hazards that may impact the jurisdiction. Part Two contains Annexes which describe emergency response organizations. Part Three, still under development, will contain operational data including listings of resources, key personnel, essential facility contacts and other data needed for conducting emergency operations.

Specifically developed for emergency response to hazardous materials incidents, the Los Angeles County Hazardous Materials Incident Contingency Plan (Appendix 10A) was developed by the Los Angeles County Hazardous Materials Coordinating Committee and was accepted by the Los Angeles County Board of Supervisors. It is the contingency plan for all unincorporated areas within the County. The plan identifies specific functions and responsibilities of Federal, State and Los Angeles County departments and agencies. This plan is presently being included as an element of the preliminary draft of the Area Plan.

On December 31, 1986, the LACFD submitted a preliminary draft of an Area Plan to the OES for review. The OES returned the first draft along with comments and proposed a deadline of December 29, 1987, for submittal of the first draft.

Pursuant to the requirements of Chapter 6.95 of the Health and Safety Code and County Ordinance 87-0001, the Los Angeles County Fire Department is the designated "Administrative Agency" for the unincorporated areas and 54 contract cities (Table 10-2) in the County. As previously mentioned, the County Fire Department is responsible for review of all business plans and inventory programs required from all businesses using and/or generating hazardous material/waste in those areas. Approximately 80,000 to 100,000 businesses in Los Angeles County need to be contacted regarding this matter. It has been estimated that 20% of the businesses will need to comply with disclosure requirements regarding hazardous materials.

The plan is to include basic information on the location, type, quantity and the health risks of hazardous materials handled, used, stored or disposed of in the County which could be accidentally released into the environment. This information will then be used by fire fighters, health officials, planners, public safety officers, health care providers, regulatory

agencies and other interested persons to prevent or mitigate the damage to the health and safety of persons and the environment from the release or threatened release of hazardous materials into the work place and environment.

Presently, a triad system exists in Los Angeles County which consists of the County Sheriff Department, Fire Department and Health Department. These three agencies have agreed to coordinate their respective responsibilities and functions in the event of an incident through a memorandum of understanding. They are embodied with advanced capabilities, both in equipment and specialization, for response to emergency incidents.

The triad is primarily responsible for emergency responses in the unincorporated areas of the county and in contract cities. However, the triad will also aid any city in an emergency response if requested.

The responsibilities/functions of the triad are summarized as follows:

- o Sheriff Department
  - Identification of spill material/waste through manifest records
  - Evacuation for public health and safety
  - Investigation of criminal violations
  - Scene management (as designated)
- o Fire Department
  - Identification of products through sampling
  - Containment of spill
  - Rescue
  - Scene management (as designated)
- o Health Department
  - Identification of spill material/waste
  - Cleanup or authorize funding to contractor for removal of spill material/waste
  - Advise on health matters

The Sheriff's Department is responsible for coordinating the notification of the appropriate agencies necessary to handle the incident, e.g. Fire, Health, Red Cross. The Fire Department shall notify and establish communication links with the appropriate tactical agencies, i.e., CHEMTREC, and private cleanup companies, as deemed appropriate, to acquire the tactical information necessary for containment and control of the hazard, after funding is approved by the Health Department.

Although these agencies respond immediately to an emergency incident, communication at the scene is sometimes hindered due to lack of a common radio frequency. Also, the yellow emergency

lights used by the health department have caused delays in reaching the scene of the incident.

#### B. Notification Requirements

Most incidents occurring in the unincorporated areas or contract cities of the County are initially reported to the Sheriff's Department or the County Fire Department. To ensure awareness of all involved Federal, State and local officials, notification of local authorities is made by the CHP or OES, depending on whichever of the two first has knowledge of the incident. However, depending on the magnitude of the incident, notification of local government officials can be made by the local dispatch center.

#### C. On-Scene Activities

California Vehicle Code, Section 2454, vests scene management authority with the agency having primary traffic investigation responsibility and authorizes such agencies to enter into agreements with other public agencies for the management of hazardous spills or disasters on local streets and roads other than highways. The following agencies serve as Scene Managers for local spills:

<u>Location</u>	<u>Responsibility</u>
County Roads and Alleys	CHP
Contract City's Roads and Alleys	Sheriff Department
Off Road Right of way in County and Contract Cities	Fire Department

The coordination of responsibilities/functions of local agencies responding to hazardous spills or disasters is discussed further in a later section, titled "Coordination of Government Response".

#### D. Cleanup Activities

The Health Department acts, among other things, as an advisor and authority for cleanup and decontamination actions. If a hazardous waste/material spill incident occurs on county roads and the spiller cannot or does not initiate cleanup actions, the County Department of Health Services (County DOHS) may assume the cleanup role and hire a private contractor to take the necessary corrective action.

#### E. Evacuation Procedures

The evacuation plan, as established in the Multi-Hazard Functional Plan for Los Angeles County, includes provisions for defining Federal, State and local organizations and identifying responsibilities. It establishes provisions for the evacuation of special facilities and evacuation routing criteria. In Los

Angeles County, the major transportation system, as identified in Chapter 8, should be utilized in the event that an evacuation is necessary. Transportation assistance guidelines and traffic control procedures are also provided.

#### F. Funding

Under SARA the FEMA can make grants to county and city programs to improve emergency preparedness. These grants will total \$5 million annually for fiscal years 1987 through 1990. Furthermore, under Los Angeles County Ordinance 87-0001, adopted January 6, 1987, every handler of hazardous materials is required to pay an annual fee to the County for the administration and enforcement of the provisions under Chapter 6.95 of the California Health and Safety Code.

#### V. ROLE OF LOCAL GOVERNMENT (CITIES)

Currently, all hazardous material/waste incidents occurring in non-contract cities are reported to local police and/or fire departments. A similar triad system of emergency response, as discussed in the previous section, also exist in those cities which provide their own law enforcement, fire and/or health departments. Some have adopted memorandums of understanding. Presently, the cities of Los Angeles, Pasadena, Long Beach and Vernon provide such emergency response services and, except for Los Angeles, have their own health departments. The County DOHS handles all other areas. In those cities (Table 10-4) which contract county services for health, fire, and/or law enforcement, the appropriate County department(s) assume the appropriate responsibility. It should be noted that where police or fire departments are unequipped to handle the situation, the County Sheriff or Fire Department may also be requested for assistance. Table 10-5 lists the cities for which the Los Angeles County Department of Public Works provides those emergency services as listed.

To further clarify the emergency response programs being implemented by the cities, a request was made to gather information regarding their respective capabilities, needs assessment, and funding sources. Their responses are compiled in Appendix 10B.

Local response to a hazardous spill situation in the incorporated areas (cities) of the County include policing functions, fire suppression, medical services, evacuations, initial containment and assisting the responsible party in contracting with a private service for cleanup. In general these procedures are identical to those in the unincorporated areas of the County. For incidents occurring on city roads or alleys, the city Police Department serves as the Scene Manager.

As to the requirements of the Hazardous Materials Release Response Plan and Inventory Implementation Program pursuant to Chapter 6.95 of the Health and Safety Code, cities can act as

TABLE 10-4  
CONTRACT CITIES AND SERVICES  
PROVIDED BY THE COUNTY

CITY	Fire(1)	Police(2)	Health Officer(3)
Agoura Hills	X	X	X
Alhambra			X
Arcadia			X
Artesia	X	X	X
Avalon		X	X
Azusa	X		X
Baldwin Park	X		X
Bell	X		X
Bellflower	X	X	X
Bell Gardens	X		X
Beverly Hills			X
Bradbury	X	X	X
Burbank			X
Carson	X	X	X
Cerritos	X	X	X
Claremont	X		X
Commerce	X	X	X
Compton			X
Covina			X
Cudahy	X		X
Culver City			X
Downey			X
Duarte	X	X	X
El Monte			X
El Segundo			X
Gardena			X
Glendora	X		X
Glendale			X
Hawaiian Gardens	X	X	X
Hawthorne		X	X
Hermosa Beach			X
Hidden Hills	X	X	X
Huntington Park	X		X
Industry	X	X	X
Inglewood			X
Irwindale	X		X
La Canada Flintridge	X	X	X
La Habra Heights		X	X
Lakewood	X	X	X
La Mirada	X	X	X
Lancaster	X	X	X
La Puente	X	X	X
La Verne			X
Lawndale	X	X	X
Lomita	X	X	X
Long Beach			
Los Angeles			X

TABLE 10-4 (CONT.)  
CONTRACT CITIES AND SERVICES  
PROVIDED BY THE COUNTY

CITY	Fire(1)	Police(2)	Health Officer(3)
Lynwood		X	X
Manhattan Beach			X
Maywood	X		X
Monrovia			X
Montebello			X
Monterey Park			X
Norwalk	X	X	X
Palmdale	X	X	X
Palos Verdes Estates	X		X
Paramount	X	X	X
Pasadena			
Pico Rivera	X	X	X
Pomona			X
Rancho Palos Verdes	X	X	X
Redondo Beach			X
Rolling Hills	X	X	X
Rolling Hills Estates	X	X	X
Rosemead	X	X	X
San Dimas	X	X	X
San Fernando			X
San Gabriel			X
San Marino			X
Santa Clarita	X	X	X
Santa Fe Springs		X	X
Santa Monica			X
Sierra Madre			X
Signal Hill			X
South El Monte	X	X	X
South Gate	X		X
South Pasadena			X
Temple City	X	X	X
Torrance			X
Vernon			
Walnut	X	X	X
West Covina			X
West Hollywood	X	X	X
Westlake Village	X	X	X
Whittier	X		X

Note: (1) Los Angeles County Fire Department  
(2) Los Angeles County Sheriff Department  
(3) Los Angeles County Department of Health Services

Source: Los Angeles County Department of Public Works, September 1988

TABLE 10-5  
FULL EMERGENCY SERVICES TO CITIES  
BY COUNTY DEPARTMENT OF PUBLIC WORKS

CITY	CITY ENGR.	BLDG. INSP.	IND. WASTE	SEWER MAINT.	STREET MAINT.	TRAFFIC SIGNALS	BRIDGE INSP.	GEN. SVCS. AGMT.
Agoura Hills	X	X	X	X	X	X	X	X
Alhambra								X
Arcadia						X		X
Artesia	X	X	X	X	X	X		X
Avalon	X	X						X
Azusa		X				X		X
Baldwin Park				X		X		X
Bell						X		X
Bellflower	X	X	X	X		X		X
Bell Gardens			X	X		X		X
Beverly Hills					X			X
Bradbury		X		X	X			X
Burbank								X
Carson	X	X	X	X		X		X
Cerritos		X	X			X		X
Claremont						X		X
Commerce	X	X	X	X	X	X		X
Compton						X		X
Covina						X		X
Cudahy			X	X				X
Culver City			X					X
Downey						X		X
Duarte		X	X	X				X
El Monte						X		X
El Segundo			X			X		X
Gardena			X			X		X
Glendale						X		X
Glendora				X		X		X
Hawaiian Gardens			X	X	X	X		X
Hawthorne						X		X
Hermosa Beach								X
Hidden Hills				X				X
Huntington Park						X		X
Industry		X		X	X			X
Inglewood						X		X
Irwindale		X	X	X1		X		X
La Canada Flintridge	X	X	X	X2	X	X		X
La Habra Heights				X				X
Lakewood	X	X	X	X	X	X		X
La Mirada	X	X	X	X	X	X		X
Lancaster				X				X
La Puente	X	X	X	X1	X	X		X
La Verne		X	X					X
Lawndale	X	X	X	X	X	X		X
Lomita	X	X	X	X				X
Long Beach						X		X

Note: 1 City has contract with this Department for maintenance of sewer system.  
2 A portion of the sewers are maintained by the Local Water Districts.  
3 All essential services provided, but not a Contract City.

their own "Administering Agency" within the boundary of the cities. Those cities that are the Administering Agency for their own program are left unmarked in Table 10-2.

The CHP or the OES, once aware of an incident, is also responsible for notifying all other local authorities. However, depending on the magnitude of the incident, notification of local government officials can be made by the local dispatch center.

## VI. COORDINATION OF GOVERNMENT RESPONSE

Coordination of the response capabilities among the various agencies and levels of government is vital to the smooth operation of an emergency response program. This coordination is provided through local area plans and local emergency response plans which deal with hazardous materials incidents. Table 10-6 presents a matrix of responsibilities assigned to the Federal, State and local agencies responding to an emergency incident. These responsibilities are general in nature and may be preempted by other agencies depending on the situation. The interaction of Federal, State and local agencies in relation to an emergency response program is often determined by the location, severity of the incident, and the capabilities and resources available.

A directory has been provided in Appendix 10C as a source to Federal and State agencies and the local police, fire and health services departments.

A high level of cooperation and coordination in the response to a hazardous waste/material emergency incident can be achieved through memorandums of understanding, which are operational agreements establishing the specific roles of the various agencies in their response to hazardous waste/material incidents. The Los Angeles County triad system is an example. In a recent survey conducted by County DOHS, the number of personnel in the various agencies that can respond to a hazardous waste/material incident was determined. The result is presented in Table 10-7.

The Federal government will usually take an advisory and coordinating role, except in cases where there is an monumental threat or where the State and local agencies do not have the resources to handle the situation. The State role is mainly one of providing information, notification and assistance. The State will usually monitor cleanup actions and provide funding and cleanup services, if necessary. The local agencies usually provide the most comprehensive response to an emergency incident. The current trend is toward local government response to emergency incidents, with the State and Federal governments taking advisory roles. Depending on the location of the incident, the County, if requested, will aid cities in performing cleanup activities. Figure 10-1 depicts the general information flow and response initiation process.

TABLE 10-6  
RESPONSIBILITY MATRIX - FEDERAL, STATE AND LOCAL AGENCIES

FEDERAL AGENCIES														
Notification	Identification, Analysis, Technical Assistance	Coordination	Law Enforcement, Traffic Control	Rescue, Suppression, Containment	Cleanup & Disposal	Evacuation, Area Control	Emergency Medical	Public Health & Sanitation	Education & Public Information	Recovery	Training & Exercises	Natural Resources Protection & Damage Assessment	Conducts Criminal & Civil Investigations	
FEMA	X	X	X	X	X	X		X	X	X	X			
U.S. Coast Guard	X	X	X	X	X						X			
EPA	X	X	X		X	X					X			
Others	X							X			X			
STATE AGENCIES														
Office of Emergency Services	X	X	X						X	X	X			
California Highway Patrol	X	X	X		X				X		X		X	
State Water Resources Control Bd.		X	X		X			X	X	X	X	X	X	
Department of Fish & Game		X	X		X	X					X	X	X	
Department of Conservation (Oil & Gas)		X	X	X	X				X	X	X	X	X	
State Lands Commission		X	X		X	X					X	X	X	
Department of Transportation		X			X	X				X	X	X	X	
Department of Health Services		X			X	X	X	X			X	X	X	
Department of Food & Agriculture		X		X	X			X				X		
Department of Industrial Relations		X				X	X		X	X				
Department of Water Resources		X		X			X							
Air Resources Board		X												
Department of Forestry				X										
Department of Parks & Recreation									X	X				
Military Department			X	X	X	X		X						
LOCAL AGENCIES (COUNTIES/CITIES)														
Emergency Services Coordinator	X	X	X						X	X				
Fire Service		X	X			X		X						
Law Enforcement		X	X					X						
County Health Officer		X						X	X	X				
Agriculture Commissioner		X						X	X	X				
Air Pollution Control Officer		X						X	X	X				
Public Works		X				X		X						
Supervisors/Councilmen									X	X				
Schools								X						
Hospitals		X												

Source: State of California, "Hazardous Material Incident Contingency Plan", November, 1982.

TABLE 10-7  
HAZARDOUS MATERIALS RESPONDERS IN LOS ANGELES COUNTY

AGENCY	TRAINED HAZ MAT RESPONDERS	OTHER LINE OF DUTY RESPONDERS	OTHER RESPONDERS	TOTAL RESPONDERS	GRAND TOTAL
<u>FIRE DEPARTMENTS:</u>					
Alhambra FD		76		76	
Arcadia FD		49		49	
Avalon FD	2	29		31	
Beverly Hills FD		30		30	
Burbank FD	12	98		110	
Compton FD		99		99	
Covina/W Covina(SGVFA) FD	14	4	1	19	
Culver City FD		73		73	
Downey FD	14	61		75	
El Segundo IS	4	46	5	55	
Gardena FD		50		50	
Glendale FD	18	40		58	
Hawthorne FD	17	24	13	54	
Hermosa Beach FD		19		19	
Inglewood FD		88		88	
LA City FD	44	2156		2200	
LA County FD	43	1757		1800	
La Habra FD			(no response)		
La Verne FD	3	19		22	
Long Beach FD	14	438		452	
Lynwood FD	9	24	4	37	
Manhattan Beach FD	8	21	24	53	
Montebellow FD		56		56	
Monterey Park FD		46		46	
Pasadena FD	3	137		140	
Pomona FD	30	76		106	
Redondo Beach FD	5	55		60	
San Marino FD		24		24	
Santa Monica FD		100		100	
Santa Fe Springs FD	9	57		66	
Torrance FD	15	150		165	
Vernon Police/Fire	18	18		36	
TOTAL FIRE DEPARTMENT RESPONDERS					6239
<u>Other Hazardous Materials Incident Responders</u>					
Calif. Highway Patrol*	2			2	
Caltrans*	2	8		10	
LA City DPW*	22	6		28	
LA City PD*	12	50		62	
LA County Hazardous Waste	42			42	
LA County Sanitation*	10	40		50	
LA County Sheriff*	7			7	
Regional Water Quality*	15			15	
Santa Monica PD*	3	8		11	
Santa Monica Water*	1	2		3	
Santa Monica*	3	13		13	
SCAQMD*	10			10	
TOTAL OTHER RESPONDERS					253
<u>GRAND TOTAL</u>					<u>6499</u>

Note: \* Data from these sources are not complete

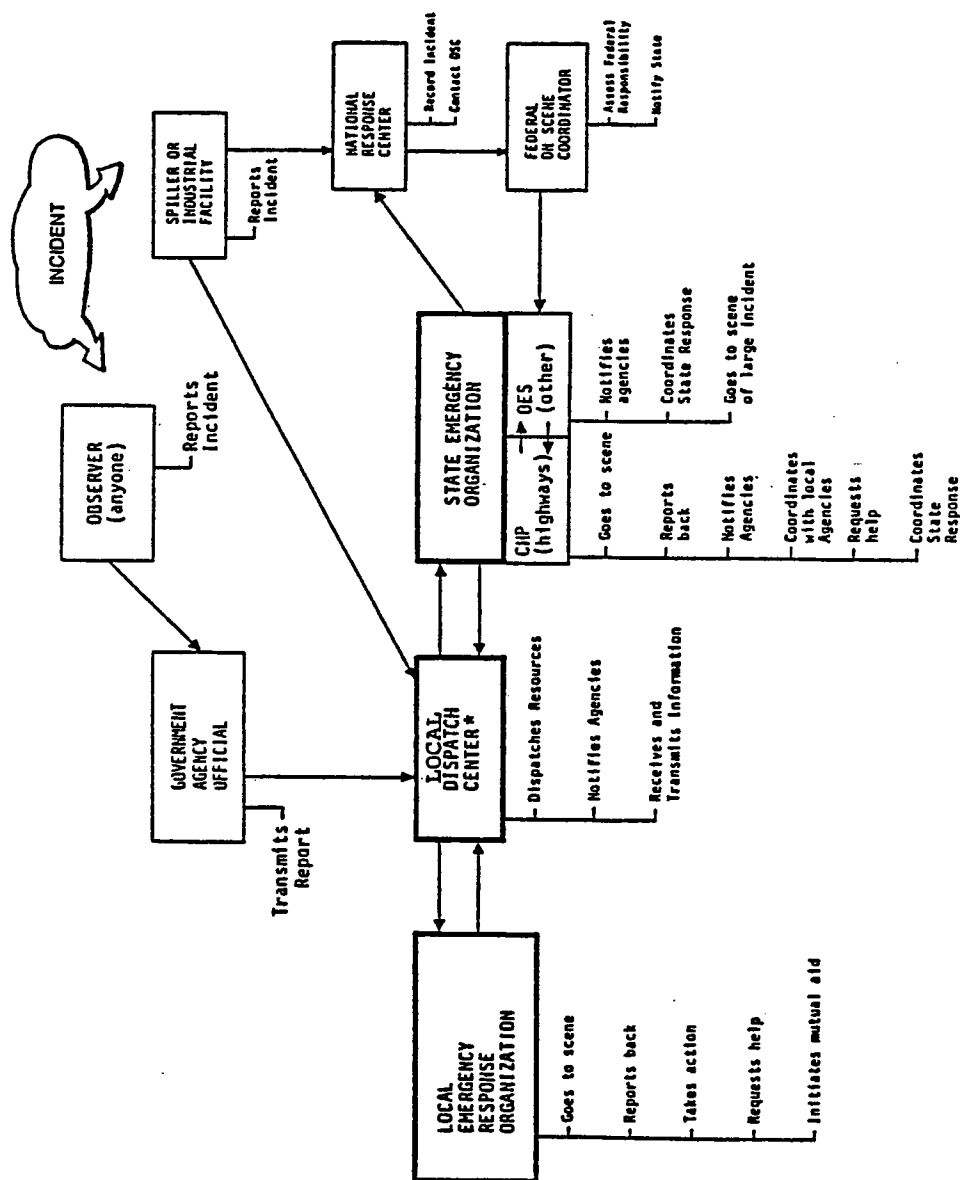
DPW-Department of Public Works

PD-Police Department

SCAQMD-Southern California Air Quality Management District

Source: County Department of Health Services, March 1986.

FIGURE 10-1  
RESPONSE INITIATION PROCESS



Note: \*if established locally, phone 911

Source: State of California, "Hazardous Materials Contingency Plan", November, 1982.

## VII. EMERGENCY RESPONSE PROGRAM AND GUIDELINES

### A. General

While the responsibilities of the government agencies are delineated in their respective emergency response plans, their relationship to one another and the response actions taken are predicated on many factors. Therefore, to provide an effective and efficient emergency response program it is necessary to consider all of its facets. The purpose of this section is to identify the components that are necessary in the development of an effective hazardous waste/material response program.

When hazardous waste/material is released into the environment, prompt and appropriate handling is necessary to avoid escalation of the problem. This swift response action requires: (1) planning to determine how an emergency response organization will function and carry out its duties; and (2) training of response personnel. The following is a discussion of the elements that may go into the development of an effective emergency response plan and training program.

### B. Planning

Preparedness is the essential component of any successful emergency response program. To maintain an acceptable level of response capability, an emergency response group must be established to take quick and decisive action in a variety of emergency situations that may arise. Contingency planning is essential in achieving such preparedness.

In order to enable smooth operation, a contingency plan should be developed in conjunction with all government agencies, operators and private enterprise involved in the management of hazardous wastes.

An effective emergency response contingency plan should address the following concerns:

1. Delineation of Agency Responsibility. The plan should clearly identify the responsibilities of the various responders and their relationship to each other.
2. Notification Requirements. Government notification of a hazardous waste/material release is mandatory under Federal and State statutes. To ensure timely response to a hazardous waste/material release, all plans should include a list of governmental agencies to be notified.
3. On-Scene Activities. The plan should address those immediate on-scene activities required to control the situation, prevent its escalation, provide for containment of the spill and otherwise protect the public health and safety. Principal considerations during this critical phase involve preliminary identification of the waste/material, determining the need for and providing evacuation, coordination among all affected agencies, fire suppression, waste/material containment, emergency

- medical service and proper liaison and communication with the public.
4. Post Emergency Incident Reporting and Performance Evaluation. All hazardous waste/material incident response plans should have requirements for post-emergency reporting and evaluation. The report should include data submitted by involved parties; have summaries of salient topics of discussion during the post-action review; and emphasize the lessons learned. These reports provide a legal history of the event and a mechanism for accounting for expenditures by public agencies. These reports can also be used and reviewed as a part of the responders on-going training program.
  5. Qualification of response personnel. One critical aspect in contingency planning is to make certain that all participants are educated on the potential emergencies and hazards present at the site. In addition, it is critical to determine whether they are prepared to respond or whether additional equipment, information, training, etc. is needed. (Section C)
  6. Media Relations. As more governmental agencies become involved in the response to hazardous waste/material incidents, a coordination of press release information becomes essential. A press spokesperson should be appointed to deal with the overall coordination of information for all involved agencies. All information should be coordinated prior to dissemination to the media and the public so as to provide a comprehensive overview of the situation.

A contingency plan should also include responses to the following situations: Fire/Explosion, Air Quality Deterioration, and Water Quality Degradation.

It should be noted that careful planning, including a partial testing of the plan is needed in order to provide for a well coordinated response.

In addition, the County DOHS has developed the "Guidelines for Hospitals and Emergency Rooms in Managing Victims of Hazardous Materials Releases". These guidelines provide a means by which a hospital or emergency room can develop a plan/program to effectively manage hazardous material victims on a regular basis as well as identifying hospital and emergency room informational and training resources.

### C. Training

Safe and effective response to a hazardous waste incident requires training in both the application of specialized techniques and inter-organizational coordination. Th LACFD, at times, may provide training assistance to large companies upon request depending on available resources.

In general, individual organizations are responsible for training specific to their missions, e.g. police departments - crowd

control, evacuation; department of health services - public health aspects of toxic materials; fire departments - control and suppression of toxic fires and spill containment.

Also, SARA states that authorized response training for hazardous substance emergencies are to be included in existing Federal emergency training programs.

As they relate to generalized emergency response techniques, the following are some training programs, reference material, industry aids and local programs in developing an emergency response plan and responding to hazardous waste/material incidents. It should be noted, however, that the references provided herein are for informational purposes only and does not imply that the materials are endorsed by the County.

#### 1. Training Programs

- o The EPA's Environmental Emergency Response Unit (EERU) has designed a comprehensive one-week training course for emergency response personnel from Federal, State and local organizations and private industry.

The course, entitled "Hazardous Materials Incident Response Operations," is offered at EERU's Edison, New Jersey facility. Its goal is to train response officials in the latest emergency response procedures, team organization and functioning, and safety. The course consists of lectures followed by problem solving sessions and outdoor exercises. Subjects include the following concepts and principles associated with emergency response activities:

- Recognizing the hazards associated with specific materials;
- Determining the risks to the public and the environment;
- Developing methods to reduce or prevent the effects of an incident; and
- Ensuring protection and safety of response personnel

The course is currently offered once each month. Further information is available from:

Training Coordinator, Emergency Response Team  
U.S. Environmental Protection Agency  
26 West St. Martin Luther King Drive  
Cincinnati, Ohio 45268  
Telephone: (513) 569-7537

The California Specialized Training Institute in San Luis Obispo also offers the EPA training course. Further information may be obtained at (805) 544-7102.

- o The University of California at Los Angeles offers a certification program in toxic and hazardous materials control and management. For more information, please contact UCLA Extension, P.O. Box 24901, Los Angeles, California 90024, or at (213) 825-7093.

Similar programs are also offered at the University of California at Irvine, (714) 856-5414, and at University of California, Davis. More information may be obtained by contacting (916) 752-6021.

- o The CHP provides training for emergency response personnel through its 3 phase/module program. Module 1 provides training in the identification and analysis of hazardous waste/material, and its suppression or containment. This module is aimed at first responders, usually fire and policing agencies. Module 2 is aimed at City Managers and supervisors and provides training in handling evacuations, cleanup activities and recovery. Module 3 is geared toward executives and provides training on how to develop contingency plans for handling hazardous waste/material incidents.

Further information on the program and a schedule of classes can be obtained by contacting:

California Highway Patrol  
Southern Division  
437 North Vermont Avenue  
Los Angeles, CA 90004  
(213) 736-2981

- o Another source to be utilized is the State Outreach Program which provides instructors for courses on hazardous waste/material management at local community colleges throughout the State. The instruction provides an overview of hazardous waste/material management at the Federal, State, and local level.
- o The Chemical Manufacturers Association's emergency assistance organization, also known as CHEMTREC, has developed an emergency response team workshop. CHEMTREC workshops are held each year and are open to State and local emergency response teams. The workshop provides training for on-scene handling of transportation related spill emergencies.
- o Shell Oil Company provides special workshops for fire departments, hazardous materials units and other emergency response special units. The program consists of a training session providing extensive simulated hands on training in the abatement of chemical and oil spills. For more information, contact:

Shell Oil Company  
P.O. Box 6249  
Carson, CA 90749  
c/o Industrial Health & Safety Officer

- o The University of Southern California Educational Resource Center offers courses in Safety and health issues related to hazardous materials management. Further information may be obtained at (213) 743-6383.
- o Oak Ridge National Laboratories offers in-depth films and video cassette tapes for health professionals. Further information may be obtained at (615) 576-3131.
- o The National Safety Council offers courses and has informational material related to the safety aspects of hazardous materials management. Further information may be obtained at (213) 385-6461.

2. Resource Manuals and Guidebooks

- o In connection with its developmental testing and training functions, the EPA publishes an extensive series of manuals to assist emergency response personnel in planning and conducting cleanup operations. These manuals are available through the National Technical Information Services, Springfield, Virginia 22161.
- o The Federal Emergency Management Agency (FEMA), through its National Emergency Training Center (NETC) and the Office of Information Resources Management (IRM) has produced a series of nationwide teleconferences on planning for hazardous materials emergencies. The goal of the teleconferences is to discuss the systematic planning approach necessary to achieve a level of readiness for successfully managing and responding to hazardous materials incident. For videotapes of the teleconferences or further information, contact FEMA:  
FEMA Region IX  
Building 105  
Presidio of San Francisco  
San Francisco, CA 94129  
(415) 556-9840/(415) 556-8794
- o The U.S. Department of Transportation (DOT) has prepared an emergency response guidebook (DOT 5800.3) to help emergency service personnel during the first 30 minutes of an incident involving a spill of a volatile, toxic, gaseous and/or flammable material. General and specific safety procedures to follow are provided in spill guides arranged according to hazardous materials.

- o The National Institute for Occupational Safety and Health (NIOSH) has developed the Hazardous Waste Occupational Safety and Health Guidelines. This manual consists of 15 volumes. These volumes provide technical guides on subjects critical to worker protection during hazardous waste cleanup operations and the basic administrative requirements for proper site control, work practices, emergency controls and safeguards, emergency medical care, health surveillance and medical screening.

### 3. Industry Aids

- o CHEMTREC, the Chemical Transportation Emergency center, provides information and/or assistance to those involved in or responding to hazardous waste/material emergencies. Established in 1971, it is a public service of the Chemical Manufacturers' Association (CMA).

CHEMTREC operates in two stages: First, on receipt of information from its members regarding the name of a chemical, it provides immediate advice on the nature of the product and steps to be taken in handling the early stages of a problem. Second, CHEMTREC promptly contacts the shipper of the material involved for more detailed information and appropriate follow-up, including on-scene assistance when feasible.

CHEMTREC can be reached at 800/424-9300. For more information regarding CHEMTREC, questions should be sent to CHEMTREC, c/o CMA, 2501 M Street, N.W., Washington, D.C. 20037. Telephone (202) 887-1255.

- o Mutual-Aid systems are formed by producers of especially hazardous products to make certain that incidents involving those chemicals are taken care of as quickly as possible. Regardless of the shipper, the member nearest a transportation incident will be notified. This member will evaluate the problem and dispatch an emergency response team if needed.

Typical of such arrangements are CHLOREP, the Chlorine Emergency Plan, and the Pesticide Safety Team Network of the National Agricultural Chemicals Association. Each has emergency response teams located throughout the country. Mutual assistance programs also exist for other products, including vinyl chloride, phosphorus, liquefied petroleum gas, hydrogen fluoride and hydrogen cyanide.

### 4. Local Programs

- o The Hazardous Materials Coordinating Committee, whose Emergency Response subcommittee developed the County Hazardous Materials Incident Contingency Plan, is open

to all agencies who deal in the law enforcement of hazardous waste/material. This committee may be utilized as a source of information and coordinator of agency responsibilities in various emergency situations since many of the agencies in attendance have personnel who are specialists in various aspects of emergency response.

## CHAPTER 11

### INACTIVE HAZARDOUS WASTE SITES AND CONTAMINATED SITES

#### I. INTRODUCTION

This Chapter discusses inactive hazardous waste sites and contaminated sites together with a discussion of the existing local programs on land use restrictions on contaminated sites.

Inactive hazardous waste sites are sites which are no longer accepting waste. These sites fall into three categories: secured; abandoned; and closed. Secured sites are those which were closed in accordance with Federal and State regulations or where wastes, in the opinion of the regulatory agency, are well contained and not likely to pose a threat to public health or the environment. Abandoned sites, also termed uncontrolled sites, are: (1) sites whose owner(s) cannot be located; (2) sites whose owner(s) do not have the funds to be financially responsible for a clean-up; or (3) locations where hazardous waste has been illegally disposed. Closed sites refers to sites that have limited information available on the owner(s) and/or contents. However, as they were operated and closed prior to the promulgation of regulations regarding containment, they may pose a threat to the environment.

As to inactive hazardous waste sites, this Chapter provides a listing of those sites/facilities for which there is information available as to the past releases of hazardous substances. The listing includes the following: (1) Clean-up Bond Expenditure sites, (2) leaking underground tank sites and (3) others including hazardous waste substances sites and those sites which may have accepted hazardous waste or waste previously considered non-hazardous under old regulations. For the purpose of this Chapter all these sites/facilities as well as inactive hazardous waste sites are considered as "contaminated" sites.

This Chapter discusses the management of contaminated sites as they pertain to Los Angeles County. Potential problems associated with these sites, authority and the ranking system for the clean-up of these sites, remedial measures, and strategy for implementing a clean-up program are also included. The Chapter further discusses regulations/guidelines regarding the proper closure of existing hazardous waste management facilities as well as underground/above ground tanks. The analysis is aimed at preventing the release of hazardous substances in the future. Those secured sites that do not pose any problem are dismissed from further consideration.

Lists of sites discussed in this Chapter are provided in Appendices 11A through 11F. As these lists are compiled pursuant

to different legislation, there are some repetition of sites between lists.

## II. POTENTIAL PROBLEMS OF ABANDONED AND CLOSED SITES

Until recently, the lack of comprehensive law regarding hazardous waste management and incomplete records of type, quantity, and location of hazardous waste treatment, storage and disposal facilities have led to difficulties in tracing boundaries of operation, finding responsible parties, and fully assessing the extent of the potential contamination from abandoned and closed sites.

The most common threat of abandoned and closed sites is the potential migration of hazardous contaminants through the land to water supplies, particularly groundwater aquifers.

Other problems known to be associated with abandoned and closed sites include: odors associated with the emission of toxic or explosive gases; problems caused by sites located in geologically unfit areas; and because of the uncertainty of the location of some sites, improper land use, such as residential development in the vicinity of a former site.

## III. ABANDONED AND CLOSED SITES IN LOS ANGELES COUNTY

All solid waste disposal sites (active and inactive) are currently being evaluated for site integrity by the California Regional Water Quality Control Boards and/or the State Department of Health Services (SDOHS). With the tightening of regulations and concern for the health and safety of citizens, public agencies are reexamining past practices in an effort to prevent or contain any potential problems. The SDOHS is in the process of reviewing approximately 600 sites in Los Angeles County which may have been used in the past for hazardous waste treatment, storage, or disposal, and for which remedial actions may be determined to be needed. These sites, listed in Appendix 11A, are scattered throughout the County - some have been closed or abandoned for 50 or more years with no apparent harmful effects; others, have not officially filed for closure.

## IV. CONTAMINATED SITES

### A. General

Information regarding contaminated sites can be obtained from various sources. These include Bond Expenditure Plan sites (Federal and State Superfund sites, Appendix 11B), leaking tank sites (Appendix 11C) and others including those sites listed under the hazardous waste and/or substances list (Appendix 11D).

The following section covers each of these published listing and provide an overview of disclosure provisions under current legislation.

## B. Federal and State Superfund Sites

The clean-up of abandoned and closed contaminated sites is authorized under the Federal Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), commonly referred to as the Federal Superfund, and the Carpenter-Presley-Tanner Hazardous Substance Account Act of 1981, commonly known as the State Superfund. Both Acts provide the authority and funding necessary for Federal and State governments to respond directly to any problems at abandoned and closed hazardous waste sites, not only in emergency situations, but also at sites where longer-term permanent remedies are required.

### 1. Federal Superfund

CERCLA provides authority for Federal clean-up of uncontrolled hazardous waste sites and response to releases of hazardous substances. The fund is financed from taxes on the manufacture or import of petroleum and certain chemicals and from Federal appropriations. The Environmental Protection Agency (EPA) is charged with the administration of this Act. On October 17, 1986, the Superfund Amendment and Reauthorization Act of 1986 (SARA) was signed into law. The Act increases Superfund revenues to \$8.5 billion, and strengthens the EPA's authority to conduct short-term and long-term enforcement actions. The Act also strengthens State's involvement in the clean-up process and the EPA's commitment to research and development, training, health assessments, and public participation.

The Federal Superfund provides for two types of responses to hazardous substance releases or threatened releases: removal and remedial. Removal actions are short term responses to address immediate and significant dangers at any hazardous waste site, but are not necessarily final solutions; remedial responses are taken to provide a permanent remedy.

The guidelines for implementing a clean-up program are contained in the National Contingency Plan (NCP). The NCP provides procedures and standards for response action at abandoned hazardous waste sites and authorizes the Federal government to undertake clean-up when the responsible party or the State cannot or will not do so.

The NCP limits long term permanent clean-up actions to sites listed on the National Priorities List (NPL). CERCLA calls for the EPA to compile a NPL of at least 400 hazardous waste sites in the nation warranting the highest priority for remedial action. Sites are selected for the NPL based upon their scores on the Hazard Ranking System (HRS). HRS scores are designed to take into account a standard set of factors related to risks from migration of substances through

groundwater, surface water, and air; potential for fire and explosion; and potential harm from direct contact. Candidates for the NPL are selected strictly on the basis of this score, with the exception that each state is allowed to designate one top priority site. These sites must be placed in the top 100 regardless of their score. The sites are listed in eleven groups, each consisting of 50 sites with the exception of the last group. The EPA considers sites within these groups to have approximately the same priority. Those NPL sites which are located in Los Angeles County as of June 1988 are presented in Table 11-1 and Figure 11-1.

Under the NCP, the EPA has restricted its remedial clean-up actions to those sites included on the NPL. Given the finite nature of the fund, the agency believes that this limitation is necessary in order to ensure that the sites presenting the greatest risks receive priority treatment. However, the cut-off point for placing priority sites on the NPL is based on an arbitrary number rather than a threshold in the level of risk. As a result, many sites that do not receive priority status may still present significant hazards. In addition, placement on the NPL does not establish priorities for the allocation of funds for remedial action. The benefits to be derived from working at a remedial action site versus the benefits of working at other sites in the nation determines the allocation of funds. A project may be delayed or terminated to allow funds to be shifted where they are most needed.

## 2. State Superfund

States are responsible under the Federal Superfund to share in the costs of the design and construction phases of remedial action. Before a remedial action can be taken, states must contribute 10 percent of the clean-up costs on sites that were privately owned at the time of disposal of hazardous wastes and at least 50 percent of the costs on sites that were publicly owned.

The State Superfund was enacted to make available adequate funds for the State to assure payment of its share of the cost of remedial action. It created a Hazardous Substance Account in the California General Fund to finance clean-up operations. The Account is maintained at a level of \$15 million, by means of a tax levied on generators for the disposal of hazardous and extremely hazardous waste. The SDOHS is charged with the administration of the State Superfund.

The State Superfund also calls for the identification and clean-up of nonpriority (non NPL) sites, thereby directing State resources to sites which are not cleaned up by the Federal Superfund. Recently enacted legislation, Chapter 1439 of the 1985 Statutes amended and added sections to the Health and Safety Code that authorized the sale of bonds to implement the Hazardous Substance Clean-up Bond Act of 1984.

TABLE 11-1  
NATIONAL PRIORITIES LIST  
SITES LOCATED IN LOS ANGELES COUNTY

NPL, Final Rulemaking

<u>Group*</u>	<u>Site Name</u>	<u>Location</u>
2	Operating Industries	Monterey Park
7	San Fernando Valley, Area 1 (Groundwater Basin)	Los Angeles
7	San Fernando Valley, Area 2 (Groundwater Basin)	Los Angeles/ Glendale
7	San Fernando Valley, Area 3 (Groundwater Basin)	Glendale
7	San Gabriel Valley, Area 1 (Groundwater Basin)	El Monte
7	San Gabriel Valley, Area 2 (Groundwater Basin)	Baldwin Park
11	San Fernando Valley, Area 4 (Groundwater Basin)	Los Angeles
12	Waste Disposal, Inc.	Santa Fe Springs
16	San Gabriel Valley, Area 3 (Groundwater Basin)	Alhambra
16	San Gabriel Valley, Area 4 (Groundwater Basin)	La Puente

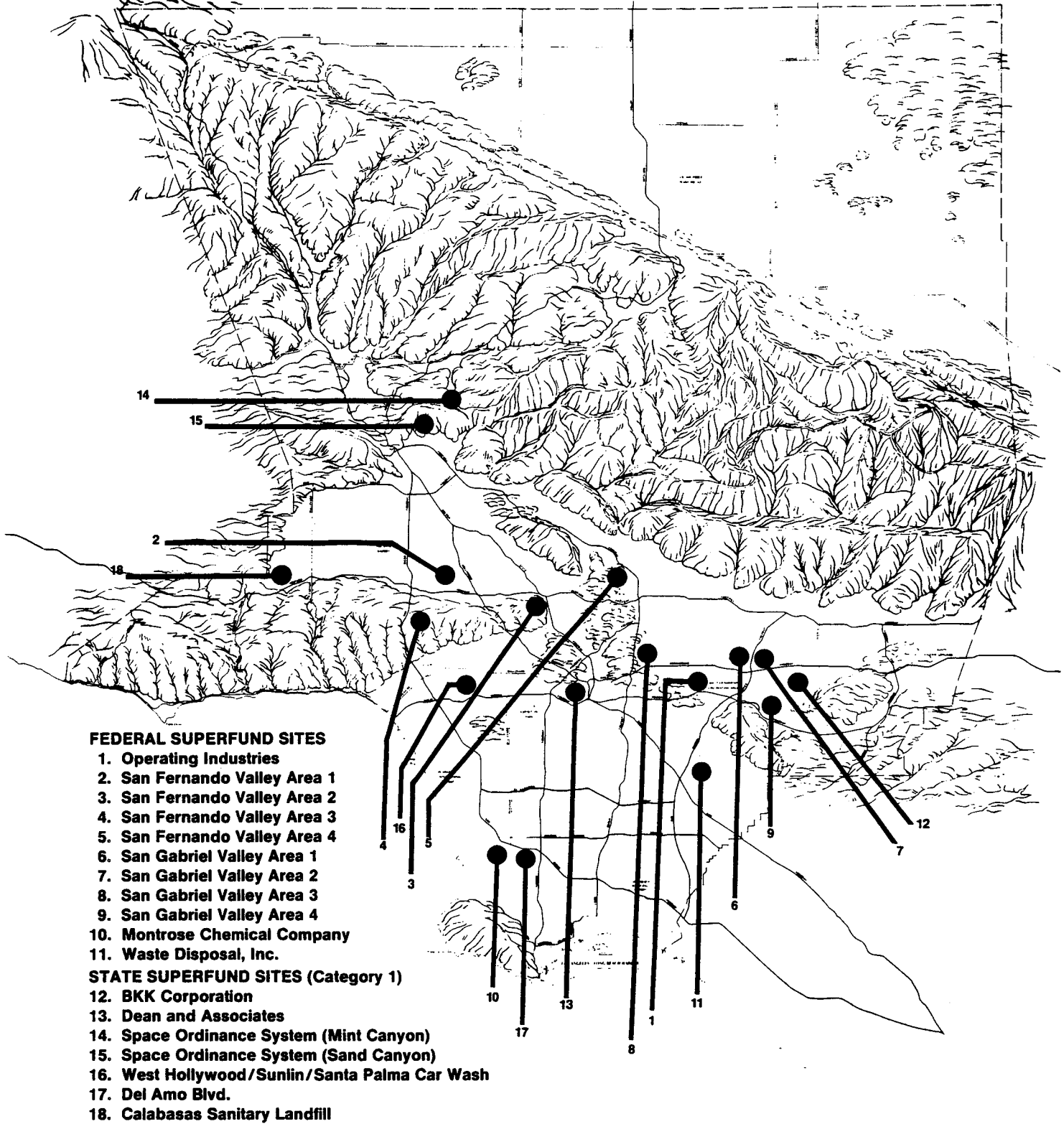
NPL, Proposed Sites

<u>Group</u>	<u>Site Name</u>	<u>Location</u>
12	Montrose Chemical Corp.	Torrance

Source: Extracted from the EPA National Priorities List, June 1988.

- \* Group designation is determined on the basis of a sites score using the Hazardous Ranking System (HRS). The HRS is a numerically based system designed to evaluate the relative risks posed by a site to human health or the environment. The lower the group number, the higher the priority.

**FIGURE 11-1  
FEDERAL AND STATE SUPERFUND SITES IN LOS ANGELES COUNTY**



Source: Los Angeles Department of Public Works. November 1987

Those sites that were listed in the Clean-up Bond Act Expenditure Plan are in Appendix 11B. The legislation also eliminated the former State Priority Ranking List (a State-wide listing of all hazardous waste sites ranked by the SDOHS) and replaced it with a new listing consisting of three categories of sites called the Listing of California Hazardous Waste Sites. This list is published on a quarterly basis.

Categorized sites from the September 1987 listing are presented in Table 11-2. Category 1 sites are also included in Figure 11-1. A brief description on each category is given below:

a. CATEGORY 1: RESPONSIBLE PARTIES - LEAD SITES

Sites for which the responsible parties (RPs) have entered into enforceable clean-up agreements. The SDOHS provides only oversight and guidance.

PROJECTED CATEGORY 1

SDOHS is negotiating enforceable agreements with RPs; previous contact with RPs suggests probable compliance.

b. CATEGORY 2: BOND-LEAD SITES - UNCHARACTERIZED

Sites, for which no RPs can be found, are being characterized (studied to determine the type and extent of contamination and alternatives for clean-up) or RPs have failed to comply with clean-up orders.

Once a Category 2 site is characterized by SDOHS, a clean-up order is issued. The site is transferred to either:

- (i) Category 1 if RPs respond and take the lead for clean-up, or
- (ii) Category 3 if State funds must be used for site clean-up

PROJECT CATEGORY 2

SDOHS issuing clean-up orders; RPs identified but previous contact with RPs suggests probable non-compliance.

c. CATEGORY 3: BOND-LEAD SITES - CHARACTERIZED

Sites are fully characterized where no RPs have been identified, or RPs are non-compliant with clean-up order. Requires clean-up using state funds.

**TABLE 11-2**  
**LISTING OF STATE SUPERFUND SITES IN LOS ANGELES COUNTY**

**CATEGORY 1: Sites Undergoing Clean-Up by Responsible Parties**

BKK Corporation/West Covina Sanitary Landfill  
Dean & Associates  
Space Ordinance System  
Sand Canyon  
West Hollywood/Sunlin  
Santa Palma Car Wash

**PROJECTED CATEGORY 1:**

Abex Coporation	Gatx
Arco Metals	Golden Eagle Refinery
Atlantic Richfield (ARCO) Refinery	Golden West Refining Company
Basin By Products	Greer Hydraulic Company
Bortz Oil	Harshaw/Filtrol
Bray Oil Company/Burman-Castrol, Inc.	Hughes Helicopter, Inc.
Cal Compact Landfill	Hugo Neu Proler
Caltrans I-105	Koppers Chemical
Chevron Land Development	Lyle Van Patten Paints
Colorado Place	MacMillan Ring-Free Oil Company
Commerce REA	Santa Fe Railroad
Dow Chemical Western Division	Sinclair Paints
Edginton Oil	Southern California Gas
Ekco Metal	Company/PNA Sites
Elco	Southern Pacific Transportation
Electro Sheen	Go/Hope Plastic
Eskimo Radiator Facet Energy	Stauffer Chemical
Fletcher Oil	TCL Corporation
Franciscan Ceramics, Inc.	Venice Manufacturer Gas Plant
Gardena Sumps	VOI Shan
Gardena Valley Landfill #1-2	Walker Properties Site
Gardena Valley Landfill #6	

**CATEGORY 2:**

None

**PROJECTED CATEGORY 2:**

Lubrication Company of America  
Neville Chemical  
Southland Oil  
(Motorguard Lubricants, Inc.)

**CATEGORY 3:**

None

**OTHER CATEGORIES:**

**RCRA SITES**

Bethlehem Steel  
Central AB  
Chaplin Petroleum  
Chevron Refinery - El Segundo  
Cline - Buckner  
Leeder Chemical Company  
Manville Corporation  
(formerly John-Manville)  
Mobil Oil  
Newhall Refinery  
Paramount Petroleum  
Powerline Oil  
Shell Oil Refinery  
Southern California Chemical  
Company, Inc.  
T.P. Industrial  
Texaco, Inc.  
Thatcher Glass Manufacturing  
Uno Cal  
Wester Fuel Oil

**BACKLOG SITES:**

Endura Metals/General Electric  
Pacific Tube  
Royal Boulevard, Class III

**FEDERAL FACILITIES:**

Defense Supply - Procurement - Norwalk  
Defense Supply - Procurement - Pomona  
Defense Supply - Procurement - San Pedro  
Long Beach Naval Ship Yard  
Los Angeles Air Force Station

Source: Los Angeles County Department of Public Works, November 1987

d. OTHER CATEGORIES

The SDOHS maintains other lists of hazardous waste sites which do not fall into one of the three mentioned categories mandated by the State Superfund. However, State funds are planned for use in remediation of the sites. The following is a brief description of the list.

(i) Resources Conservation and Recovery Act (RCRA)

RCRA sites are sites in the RCRA Program which have been found to be contaminated and are being remediated by the RPs. However, if the RPs are not complying, it is referred from the RCRA Program to the SDOHS' Site Mitigation Unit for State oversight and clean-up.

(ii) Federal Facility Sites

These are hazardous waste sites which are located on military installations under federal property. The SDOHS provides oversight and guidance to the military in the abatement of these sites and seeks recovery of all oversight costs from the Department of Defense.

(iii) Backlog Sites

Sites on this list represent known hazardous waste sites that are targeted for clean-up activity when staff resources and funding permit it.

The criteria for the selection and priority ranking of sites for remedial action takes into account the pertinent facts relating to the public health and the environment, which include, but are not limited to, potential hazards to public health and environment, the risk of fire or explosion, toxic hazards, the estimated costs of remedial action, and the public health benefits resulting from the remedial action.

In addition, the SDOHS maintains a separate list of uncategorized hazardous waste sites which have been formally evaluated and priority ranked by the SDOHS using the EPA Hazard Ranking System (HRS), potential to and fire explosion and direct contact scores. Administrative clean-up orders are to be issued to responsible parties for sites on this list based on priority ranking. Sites on this list are to be transferred to categories 1, 2, or 3 of the listing of hazardous waste sites in California based on the responses to such orders.

Since NPL sites are included on the Federal as well as the State lists, negotiations, agreements, and enforcement

However, using the above data for estimating purposes may be misleading as these quantities do not account for all possible sources and do not include an estimation for those sites that are scheduled for clean-up. Also, record keeping and implementation history is too short to be reliable.

At this time, all the information that have been provided to DPW have been included in Table 11-3 based on the methodology stipulated by the SDOHS, wherever possible.

The information on the sites listed in the Hazardous Substance Cleanup Bond Expenditure Plan were provided by the SDOHS in the Site Reporting Forms. This data is summarized in Appendix 11F. It is estimated that 75,937 tons of contaminated soil will be generated annually from clean-up of these sites during a ten year planning period.

In addition, the DPW, being the main enforcement agency for underground tanks regulations, have some data which has been used to project quantity of contaminated soil for underground tanks. Column three for Leaking Underground Tanks (Table 11-3) is projected based on the following: Since the implementation of the Hazardous Materials Underground Storage Permit program by the DPW, approximately 37,000 underground tanks have been identified in the County. Of these, approximately 15,000 tanks have been removed. With the remaining, it is estimated that 75 percent (16,500) of the tanks will be replaced in the next ten years. Eighteen percent of these tanks are estimated to have significant soil contamination and will require remedial action (300 tanks per year). Records indicate that the clean-up activity averages 300 cubic yards of contaminated soil per tank at 1.5 tons per cubic yard. As such, the projected contaminated soil quantity that will be generated from the clean-up of these tanks is 135,000 tons per year.

It should be noted that the information in Table 11-3 is not complete and that the amounts may substantially increase as more clean-ups are scheduled. An estimate of projected quantities of clean-up waste can be more realistically determined by gathering data on the site listings discussed in previous sections of the Chapter. These are:

1. Old disposal sites including abandoned sites, pre-RCRA hazardous waste landfills, closed and inactive sites (Appendix 11A);
2. Clean-up bond expenditure sites under Superfund (Federal and State) (Tables 11-1 and 11-2, and Appendix 11B);
3. Leaking tank sites including above and underground (Appendix 11C);
4. Others, including the hazardous waste and/or substance sites compiled pursuant to Chapter 1048 of the 1986 State Statutes (Appendix 11D).

However, accurate estimates are difficult to as certain. One factor is the difficulty in determining full contamination extent until detail on-site investigation can be conducted. Another

factor of significant is the trend to clean-up contaminated sites with in-situ and other on-site technologies. These practices tend to reduce the volume of contaminated soils to be transported off-site. Projected waste quantities are additionally impacted by many other factors. The major ones include:

- o type of waste;
- o management strategy to be used - on-site or off-site;
- o type of management; and
- o local and regional regulations that impacts the method.

Also, as it is shown in Appendices 11A-D, there are over several hundred contaminated sites in the County for which their historical data is incomplete. Information such as the site boundary, extent of the contamination, type, quantity and years of operation are not available to provide an accurate assessment.

At this time, it is impractical for the purpose of this Plan to come up with realistic quantities. In order to gather the information, a substantial amount of manpower, financial resources and time will be required for which this County nor local cities have the financial resources. The State law has given this responsibility to the SDOHS. This Plan will include this information when and if the data is provided by the SDOHS.

## VII. FUNDING AND LIABILITY OF THE OWNER/OPERATOR FOR THE CLEAN-UP OF CONTAMINATED SITES

### A. Funding

Clean-up of a priority site may be financed several ways.

1. If found, the responsible party(s) can finance the operation and clean it up either voluntarily or under mandate by legal action.
2. The Federal or State Superfund may be used to finance the clean-up if no responsible party(s) can be found or if the responsible party(s) will not respond in a timely manner.
3. Those NPL sites that are not specifically addressed in the State listing are issued orders or agreements as a prerequisite to be financed under bond expenditure funds or HSA funds.
4. In situations where a site is on both the NPL and the State list, and no responsible party(s) can be found to remedy the site, the EPA and the SDOHS have established an agreement to determine who will take lead responsibility. This agreement is based upon availability of resources, technological equipment and the priority ranking of a site. Generally, if a site is listed high on the NPL, it is the State's policy to contribute its 10 percent share of the costs and let the Federal government take lead responsibility, thus enabling the State to use its funds and resources at other remedial sites.

In addition, the California Hazardous Substances Clean-up Bond Act of 1984 allows the sale of \$100 million in bonds to fund the clean-up of sites in the State. The Act allows the State to develop site characterizations and covers clean-up costs if a responsible party(s) cannot be found.

#### B. Liability

When the Federal or State Superfund is used to finance clean-up of a site, the government can take legal action(s) to recover its costs of operation from those party(s) identified as responsible. Under CERCLA, responsible party(s) that may be financially liable include:

- o The owner or operator of a facility;
- o Any person who at the time of the disposal of any hazardous waste owned or operated any facility at which such hazardous wastes were disposed of;
- o Any person who arranged for disposal or treatment, or arranged with a transporter for disposal and treatment, of hazardous waste owned or possessed by such person, by any other party or entity, at any facility owned or operated by another party or entity and containing such hazardous wastes; or
- o Any person who accepts or accepted any hazardous waste for transport to disposal or treatment facilities or sites selected by such person, from which there is a release, or a threatened release.

This broad definition of responsible party(s) leaves little room for any party connected with a given site to escape responsibility for its clean-up. Federal law holds the responsible party(s) liable for the current effects of the wastes, regardless of when the disposal occurred. The outcome of the Stringfellow site litigation seems to have set State law in line with Federal law.

Due to the broad definition of "responsible parties", the issue of joint and several liability becomes extremely important.

Joint and several liability is when one party is required to pay full damages resulting from the combined actions of himself and other parties. Under common law, when more than one party is the cause of harm, it is generally the plaintiff's burden to prove the specific harm caused by each party and to apportion damages accordingly. However, when the harm caused by several parties is indivisible, meaning that it is not theoretically possible to apportion damages to the different parties, then the burden of proving apportionment shifts to the multiple parties and the plaintiff can hold one party responsible for the total damages. CERCLA is silent on this issue. However, the Federal Government has indicated an intent to pursue enforcement activities seeking joint and several liability where appropriate.

At the State level, the State Superfund allows for the apportionment of clean-up costs. Any party who is found liable

for any costs, who can establish by a preponderance of evidence that only a portion of the costs or expenditures are attributed to his actions, is required to pay only for that portion. If the evidence is insufficient to establish any party's portion of the cost from among several, the court will then apportion the costs, to the extent possible, according to equitable principles among the defendants.

Responsible party(s) are liable for:

- o All costs of removal or remedial action incurred by the Federal Government or a State consistent with the NCP;
- o Any other necessary costs of response incurred by any other person consistent with the NCP;
- o Damages for injury to, destruction of, or loss of natural resources, including the reasonable costs of assessing such injury, destruction, or loss resulting from a release of hazardous waste; and
- o At the State level, administrative costs incurred by the SDOHS in an amount equal to ten percent of the reasonable cost actually incurred, or five hundred dollars, whichever is greater.

In addition, responsible party(s), who fail without sufficient cause to properly provide removal or remedial action, can be held liable by the Federal Government or SDOHS for punitive damages in an amount at least equal to, but not more than three times, the amount of any costs incurred by the Federal or State fund.

#### VIII. REMEDIAL ACTIONS FOR CLEAN-UP OF CONTAMINATED SITES

Various methods exist for the clean-up of contaminated sites. Remedial action alternatives include: in-situ physical containment; on-site treatment and off-site treatment.

##### A. In-situ Physical Containment

In-situ containment of hazardous waste is a method of isolating surface and subsurface areas that have been contaminated from the surrounding environment. In-situ containment employs one or more of the following methods.

##### 1. Surface Runoff Control

Surface runoff control measures are implemented to divert water from entering the hazardous waste site, prevent drainage from entering the site, and to receive drainage from the site. The following control techniques may be considered:

- Drainage diversion channels - Surface runoff diversion involves constructing earth berms and excavating channels to direct runoff to natural drainageways downslope of the contaminated site. Channels may be constructed upslope to divert the runoff from the site and to divert drainage

- away from the site.
- Surface stabilization - Stabilization of the surface soil will not prevent runoff, but it will control runoff velocities, thereby reducing erosion of the cover material.
  - Subsurface drains - A series of subsurface perforated pipes can be placed in a layer immediately above a contaminated disposal site but below the final cover. The drain system will intercept precipitation that has penetrated the cover material. Pipes can then be connected to a common header that conveys the flow to a collection pond.

## 2. Impermeable Barriers

Impermeable barriers can be constructed at the site to prevent the lateral migration of waste from a disposal site and prohibit the movement of groundwater into the site. Impermeable barriers may be constructed of any material that will block the lateral migration of water. Barriers should extend to an impermeable layer at a depth below the waste trench to prevent vertical migration of wastes or groundwater.

## 3. Surface Sealing

Surface sealing involves the construction of an umbrella cap or seal on the contaminated site to prevent water infiltration and minimize leachate generation. Clays, fly ash, soil-cement-lime-stabilized soil membrane liners, bituminous concrete and asphalt/tar materials may be used for the construction of caps and seals.

## B. On-Site Treatment

### 1. Soil Flushing

The soil flushing process consists of a series of shallow well points that are used to collect seepage subsequent to flooding the contaminated area. This process is most effective when the contaminant(s) is readily soluble in water.

### 2. Chemical Detoxification

The chemical detoxification process consists of flooding or injecting the contaminated area with a substance that will detoxify the contaminant.

### 3. Microbial Inoculations/Land Farming

The microbial inoculation process consists of seeding the soil in the contaminated area with a microbial population capable of metabolizing the contaminant.

#### 4. Aeration

The aeration process consists of spreading the contaminated soil on an impervious surface to passively volatilize the contamination to the atmosphere.

#### 5. Leachate Control System

Leachate control systems are applicable to control of surface seeps and seepage of leachate to groundwater. Leachate collection systems consist of a series of drains which intercept the leachate and channel it to a sump, wetwell, treatment system, or appropriate surface discharge point.

#### 6. Air Emission Control System

The gas from waste disposal sites can be controlled with the use of pipe or trench vents, gas barriers to prevent lateral migration, or a system of extraction wells and collection pipes to collect gases for treatment prior to discharge to the atmosphere.

#### 7. Incineration

Incineration is a process for reducing the volume on toxicity of organic waste by exposing them to high temperatures. The wastes are heated with oxygen present.

### C. Off-Site Treatment

This process involves the removal of all the hazardous waste to an off-site facility, either for secure containment or for treatment.

The action(s) to be taken may consist of one or more of the preceding alternatives and will depend upon the characteristics of the site, soil, geology and hydrology, type of waste, toxicity, degree of decomposition, and the threat to the public health and environment.

## IX. STRATEGY FOR CLEAN-UP OF CONTAMINATED SITES

### A. General

The following procedure, taken from the NCP, applies to the clean-up of Federal Superfund sites; however, the clean-up of contaminated sites generally follows the same planning procedure.

Once a site has been discovered as a potential site, the following procedures can generally be employed to investigate the hazards at a site:

- o Preliminary assessment: Collect and review of all information available for a given site to evaluate the

source and nature of the hazardous substance present and determine if the responsible party(s) can be identified; and

- o Site inspection: Conduct on-site investigations to determine the extent of the problem and to gather the data needed to set priorities. Emphasis is on contamination pathways that affect human health. A typical site inspection involves sampling, surveying, monitoring, reconnaissance, and other field activities. It may also include hydrogeological and geological assessments.

Following this investigation, an evaluation can then be made to determine if the site qualifies for a removal action or if it should be placed on the NPL. If the site is placed on the NPL, the next step is to determine a plan of action. The objective of planning is to find a permanent remedy that is technologically feasible and reliable, can effectively reduce the danger, and adequately protect public health, welfare and the environment.

The planning process generally consists of the following elements:

- Initial Planning
- Remedial Investigation
- Feasibility Study
- Community Relations Plan
- Selection of a Remedy
- Remedial Design/Construction

#### B. Initial Planning

This task involves determining the scope of prospective remedial activities. Some or all of the following types of action may be taken at a site, based on the complexity, urgency, and extent of the hazards.

- o Initial remedial measures: Taken when such measures are determined to be feasible and necessary to limit exposure or threat of exposure to a significant health and environmental hazard and if such measures are cost effective;
- o Source-control actions: Taken when substantial concentrations of hazardous substances remain at or near the area where they were originally located and inadequate barriers exist to retard migration of substances into the environment; and
- o Off-site action: Taken when source control measures will not effectively reduce migration of hazardous substances from the site.

Another important element of the Initial Planning activities is the State's decision on the role it wants to take in the remedial action at Federal Superfund sites. Clean-up plans can occur through three mechanisms: direct Federal contracts in which the EPA takes the lead, cooperative agreements under which the State

takes the lead in directing clean-up, and private clean-up through voluntary or court ordered action.

#### C. Remedial Investigation

This phase of the planning process consists of collecting and analyzing the data necessary to justify remedial action and support development of alternatives in the feasibility study. The scope of the investigation varies depending on which of the three types of remedial action (initial remedial, source-control, and off-site) are involved. Typically, remedial investigations involve a sequence of activities such as:

- o Preliminary activities - visiting the site, defining the boundary conditions, and preparing a site map;
- o Studies of the waste, hydrogeologic conditions, soils, sediments, groundwater, surface water, and air quality; and
- o Preliminary identification of appropriate remedial technology.

#### D. Feasibility Study

This study, which is often conducted with the Remedial Investigation, involves the following steps:

- o Development of alternatives, including establishing objectives, identifying possible technologies, and designing specific methods for clean-up at the site. Non clean-up options such as relocating people or supplying alternative sources of water are also considered;
- o Initial screening of alternatives on the basis of costs, effects on health and the environment, and technical feasibility;
- o Analysis of the potential alternatives in detail;
- o Recommendation of the alternative offering the most favorable results at the least cost;
- o Development of a preliminary conceptual design of the recommended alternative; and
- o Review of the alternatives by citizens of the affected community.

#### E. Community Relations Plan

The success of any Superfund remedial action depends in large measure on support from the local and affected citizens. Consequently, a community relations program is an integral part of every remedial action.

Subpart F of the NCP requires response personnel to "be sensitive to the local community concerns (in accordance with applicable guidance)". Accordingly, when the EPA (or State under cooperative agreement with the EPA) decides to fund a Superfund response action lasting longer than a few days, it must develop a community relations plan that details:

- o How citizen concern will be identified and assessed;
- o How accurate information on problems associated with the release of hazardous substances will be distributed and explained to the community;
- o How citizens will have an opportunity to comment on and provide input to ongoing and proposed site work; and
- o How the technical alternatives and the proposed technical solution will be explained to the community.

The EPA has published a handbook on community relations in Superfund. The handbook offers specific guidance for EPA and State staff on how to design and implement an effective community relations program. The handbook presents guidelines for developing community relations programs for removal actions and remedial actions along with a discussion on the advantages and disadvantages of various activities that may be included in a community relations program. This handbook may be obtained from the EPA, Office of Emergency and Remedial Response, 401 M Street, S.W., Washington, D.C. 20460.

At the State level, there are currently no community relations programs or policies established between the State agencies and the public during the initial survey phase. However, once a site has been identified, the SDOHS then develops and makes available to the public a schedule of activities for remedial action. In making decisions regarding the methods used for removal or remedial actions the SDOHS holds public hearings and incorporates or responds to the advice of persons affected by the actions.

#### F. Selection of a Remedy

In selecting the remedial alternative, the balance between the need to protect public health, welfare, and the environment at a specific site and the availability of Fund monies to respond to other sites is considered.

#### G. Recommended Programs

The success of any clean-up program depends on the support of the local communities. The following are recommended programs and measures that can be used to promote the clean-up of hazardous waste sites.

1. Establish community relation meetings with local officials, civic leader and the residents to provide a forum for discussing the public's concern regarding the identification of hazardous waste sites and their clean-up.
2. Establish a communication system, to keep the public informed about site activities.
3. Encourage further clarification between the Federal and State Superfund programs and the roles both play in the clean-up of a remedial site.

4. Consider and promote the use of on-site treatment technology for clean-up activities.
5. Encourage setting up a time limit on negotiations, remedial investigations, feasibility studies and design and implementation, in order that clean-up measures may be expedited.
6. Consider improvements and seek solutions to problems associated with joint and several liability.

## X. SITE CLOSURE

### A. General

The previous section outlines the remedial actions and financial responsibilities of improperly closed sites. This section outlines proper closure actions as required by current regulations. Closure regulations for treatment, storage, and disposal facilities (TSDF) have been promulgated to prevent possible future escape of hazardous waste to the environment. The purpose of the closure regulations are to minimize the need for post closure maintenance and control and to minimize or eliminate post closure escape of waste, leachate, contaminated rainfall or waste decomposition products to the ground, surface waters, and the atmosphere.

As defined in Title 40 Part 265 of the Code of Federal Regulations, closure is the period after which waste is no longer accepted and during which owner and/or operator complete treatment, storage, or disposal operations, apply final cover to or cap the landfill, and dispose of or decontaminated equipment. Post closure is the period after closure during which owners or operators of disposal facilities must conduct certain monitoring and maintenance activities.

### B. Closure Plan

The owner/operator of a TSDF must have a written closure plan kept at the facility. The plan must identify the steps necessary to completely close the facility at any point during its intended life and at the end of its intended life. A description of the information to be included in a closure plan is presented in Appendix 6B.

An applicant who applies for a new hazardous waste facility permit must submit a closure plan with the permit application. Operators of existing facilities who have not submitted a closure plan must submit that report to the SDOHS at least 180 days before closure begins. Closure begins when the last shipment of hazardous waste is received. The operator then has 90 days to complete all treatment, storage, and disposal activities or to remove waste from the site. All closure activities must be completed within 6 months. The owner/operator and a registered professional engineer must certify that the facility has been

closed in accordance with the approved plan and that all equipment and structures have been disposed of or decontaminated.

Within 90 days after closure is completed, the operator must provide the SDOHS and local land use authorities with a professional survey plot indicating the location and dimensions of the landfill cells or other disposal areas, and a record of the type, location, and quantity of hazardous wastes disposed of within each cell or area of the facility. The owner must also amend the deed or title records to note that the land was used for hazardous waste disposal and that its future use is restricted.

#### C. Post Closure Plan

In addition, all disposal facility operators must have a written post closure plan identifying the activities to be carried out for the next 30 years after closure. The requirements of post closure care are discussed in Appendix 6B.

The owner or operator of a new facility must submit his post closure plan to the SDOHS with the permit application. At existing facilities the plan must be submitted at least 180 days before the date of closure.

#### D. Financial Responsibility

All TSDFs except those operated by the Federal or State government are required to demonstrate financial responsibility by assuring that funds are available to pay for closure and post closure care. The owner or operator must have on file at the facility a written estimate of closure costs (to be adjusted annually for inflation) demonstrating how the facility plans to cover its closure costs. The same also applies to disposal facilities for post closure monitoring and maintenance.

#### E. Closure Plan For Underground Tanks

The authority for regulation of underground tanks is provided by Title 22, California Administrative Code, Chapter 6.7, and Title 11, Division 4, Los Angeles County Code. Recently under the SARA requirements, the EPA has proposed other applicable regulations (40 CFR parts 280 and 281) which are to be finalized in 1988.

Aspects of the closure process include the following:

1. Obtaining a permit
2. Inerting the tank
3. Soil sampling
4. On-site inspection
5. Tank disposal/removal or filling the tank with an inert substance
6. Submit a closure report to the local enforcement agency.

In addition, for sites where unauthorized releases are known or where an extremely hazardous material is involved, before any

excavation takes place the following closure steps must be complied with:

1. A determination of the extent of contamination.
2. A submittal of a site safety plan.
3. A submittal of a mitigation proposal.

## CHAPTER 12

### "SMALL QUANTITY" HAZARDOUS WASTE GENERATORS

#### I. INTRODUCTION

Under the recent amendments (1984) to the Federal Resource Conservation and Recovery Act (RCRA), a "small quantity" hazardous waste generator is defined as a business or organization that produces less than 220 pounds (100 kilograms) of hazardous waste per calendar month. Prior to these amendments, small quantity generators were defined by the EPA as those producing less than 2,200 pounds (1,000 kilograms) per month.

In this Chapter, the definition of "small quantity" hazardous waste generator is broadened to include the former definition. (This is for planning purposes only as the State regulations apply to all hazardous waste regardless of the quantity generated.)

With this in mind, "small quantity" hazardous waste generators generally fall under two categories:

- o Small quantity industrial and commercial waste generator and
- o Household generators of hazardous waste (includes products such as oil based paints, pesticides, pool acid and automobile lubricants).

The first group of generators, "industrial and commercial waste generators" are businesses which generate "small quantities" of hazardous waste as defined by RCRA. However, this Chapter also includes in this group the industrial and commercial generators who generate less than 2,200 pounds (1,000 kilograms) of waste per month (previously defined as a "small quantity" generator under RCRA) but who are regulated by the State of California in the same manner as larger generators. These generators are included in this section because the financial and technical problems they encounter in managing their waste are similar to those encountered by the currently defined "small quantity" generators. These generators differ greatly from larger firms due to the small amount of waste generated and the usual limitations experienced by small firms. Therefore, it is necessary when developing a plan for the management of hazardous waste to address this group separately and determine what programs are needed to solve their specific needs.

This Chapter discusses the regulations, management problems, and possible solutions offered to "small quantity" generators. However, due to the importance of the matter, the management of

household hazardous waste is discussed in Chapter 13 to provide a clear distinction between small businesses and households.

## II. REGULATION OF SMALL QUANTITY HAZARDOUS WASTE GENERATORS

### A. Federal Regulations

At the Federal level, small quantity hazardous waste generators are regulated by the Resource Conservation and Recovery Act (RCRA) in a manner that differs from larger generators. The recent amendments to RCRA altered the definition of small quantity generators from one who produces 2,200 pounds (1,000 kilograms) or less per month to one who produces 220 pounds (100 kilograms) or less per month. However, State law is more restrictive than Federal law, and regulates all hazardous waste generators regardless of the amount generated. As the more stringent State requirements supersede the Federal requirements, the Federal regulations will not be presented in this section. Interested parties may obtain specific information by contacting:

EPA's RCRA Hotline, (800) 424-9346  
EPA's Small Business Hotline, (800) 368-5888  
EPA Region IX, Industrial Assistance, (415) 974-7472

### B. State Regulations

At the State level, all generators of industrial and commercial hazardous waste are regulated under Title 22, Division 4, Chapter 30 of the California Administrative Code. The Code requires that:

1. All hazardous waste be accompanied by a Uniform Hazardous Waste Manifest when in transport unless generators meet the exemption requirements under Section 3 of the Household Hazardous Waste Generators as discussed in Chapter 13.
2. All hazardous waste be treated, stored, or disposed of in an approved hazardous waste facility.

## III. MANAGEMENT OF HAZARDOUS WASTE PRODUCED BY SMALL QUANTITY INDUSTRIAL AND COMMERCIAL GENERATORS

### A. General

The greatest problem with regulating businesses producing small quantities of hazardous waste has been identifying them and overseeing their waste management practices. Although generators of small quantities of hazardous waste have long been regulated in California, very few studies regarding their practices have been documented so that further analysis could be conducted. The only two studies that may be of significance in regard to small quantity generators are the North Hollywood Pilot Project and an EPA study; however, neither of these studies may be representative of Los Angeles County as a whole.

The North Hollywood Pilot Project was initiated in 1984 by the Southern California Association of Governments with assistance from the City of Los Angeles [21]. It was aimed at identifying and examining the waste management practices of small quantity generators in the North Hollywood area. The EPA study was conducted by Abt Associates between January 1983, and December 1984, for similar purposes, but on a nationwide scale [18]. A detailed summary of both studies is presented in Appendix 12A.

Figures 12-1, 12-2 and Table 12-1 present a summary of the results obtained from the two studies. The population of small quantity hazardous waste generators in North Hollywood was found to deviate from the national profile in the following aspects: (1) 85 percent of the small quantity waste generators in the nation were found to be non-manufacturing industries, versus 48 percent for the North Hollywood area; and (2) 85 percent of the waste generated by small quantity waste generators nationally consisted of lead-acid batteries, whereas in the North Hollywood area, 75 percent of the waste generated was from petroleum products and non-chlorinated solvents. However, it is difficult to correlate the results any further from the two studies since the data base for the North Hollywood study was broken down into more distinct categories while broad generic categories were used in the National Study.

While both studies provide insight on small quantity generators and their management practices, more data is needed before any firm conclusions can be drawn for Los Angeles County. For immediate planning purposes, the Los Angeles County Department of Public Works in November 1987 estimated the quantity and type of hazardous waste being generated by these businesses in the County based on the methodology recommended by the SDOHS. The results are presented in Appendix 12B.

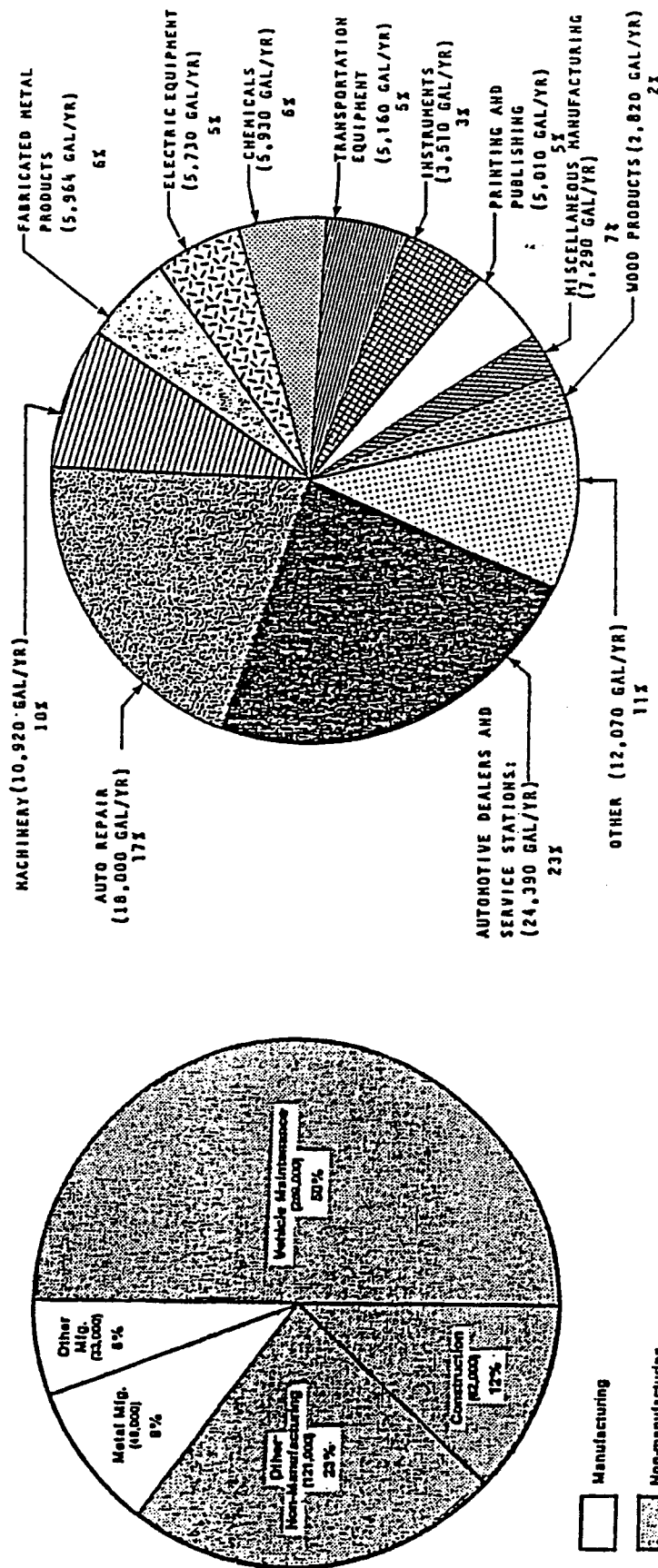
#### B. Problems Associated with the Improper Management of Small Quantities of Industrial and Commercial Hazardous Waste

Although some small quantity generators manage their waste according to regulations, most small businesses have limited resources, time, technical expertise, or personnel to manage their hazardous waste legally or effectively. These businesses are generally not familiar with hazardous waste regulations and regulatory compliance may be seen as a low priority aspect of their overall business operation. Their limited awareness about hazardous waste management practices, compounded by the limited number of convenient and inexpensive collection services has often led to the improper disposal of hazardous waste.

The North Hollywood Pilot Project showed that possibly as much as 20 percent of the hazardous waste generated by small quantity generators in the study area is managed improperly.

The potential problems associated with the improper management of hazardous waste includes the following:

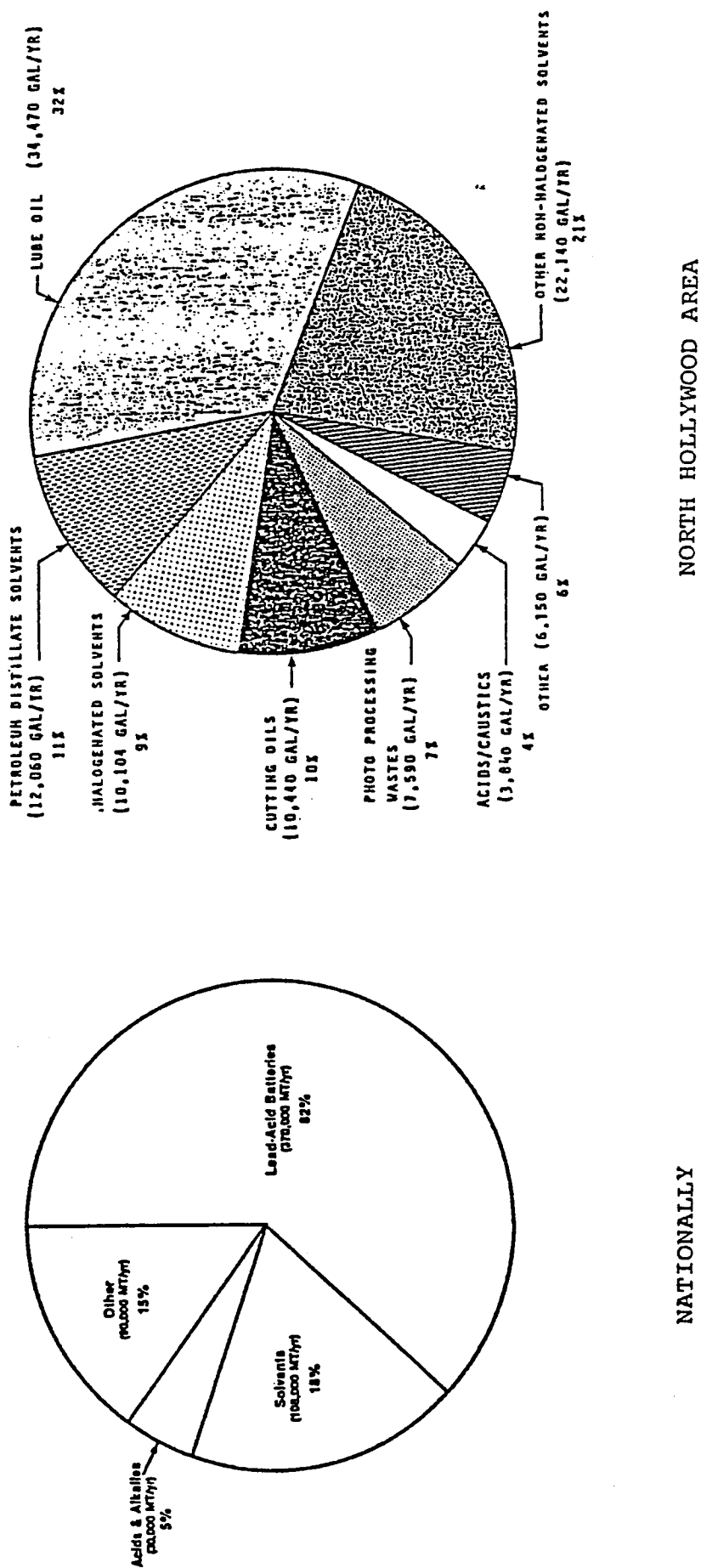
FIGURE 12-1  
DISTRIBUTION OF SMALL QUANTITY HAZARDOUS WASTE GENERATORS BY INDUSTRY GROUP



**Note:** Survey on North Hollywood Area done only on permanent establishments, as such, does not include construction wastes.

**Source:** "National Small Quantity Hazardous Waste Generator Survey", U.S. Environmental Protection Agency, February 1985; and "North Hollywood Pilot Project, Hazardous Waste Management for Small Quantity Generators", Southern California Association of Governments, March 1985.

FIGURE 12-2  
DISTRIBUTION OF SMALL QUANTITY HAZARDOUS WASTE GENERATORS BY WASTE STREAM



Note: Federal regulations do not recognize lube oil wastes as hazardous, as such, lube oil is not included in National Survey.

Source: "National Small Quantity Hazardous Waste Generator Survey", U.S. Environmental Protection Agency, February 1985; and "North Hollywood Pilot Project, Hazardous Waste Management for Small Quantity Generators", Southern California Association of Governments, March 1985.

TABLE 12-1  
SMALL QUANTITY HAZARDOUS WASTE GENERATORS - WASTE MANAGEMENT  
PRACTICES  
(PERCENTAGE OF WASTE)

	<u>NATIONALLY</u>	<u>NORTH HOLLYWOOD</u>
Off-site	82	95
On-site	16	5
Both	2	
%	<u>100</u>	<u>100</u>
<u>Off-site</u>		
Recycling	63	71
Solid Waste Facility	17	2
Subtitle C Facility	5	14
Unknown	15	10
Other	-	3
%	<u>100</u>	<u>100</u>
<u>On-site</u>		
Public Sewer	50	39
Recycling	29	-
Treatment	21	53*
Other	-	6
%	<u>100</u>	<u>98</u>

Note: \*Treatment prior to sewer disposal. (Quantities rounded off)

Source: "North Hollywood Pilot Project, Hazardous Waste Management for Small Quantity Generators", Southern California Association of Governments, March 15, 1985; and "National Small Quantity Hazardous Waste Generator Survey", U.S. Environmental Protection Agency, February 1985.

- o The disposal of commercial and industrial wastes into septic tanks or the sewer system poses a threat to groundwater and drinking water supplies. In addition, sewage treatment facilities are not designed to handle such wastes and the systems can be biologically "upset" by the introduction of significant quantities of hazardous wastes. This could result in the malfunction of the system causing the discharge of both hazardous and conventional wastes into the neighboring environments resulting in pollution of underground water supplies and potential dangers to public health and wildlife; and
- o The disposal of hazardous wastes to landfills not designed for such disposal can lead to the potential problems of contamination of lakes, rivers, streams and potable drinking water supplies, as well as endangering public health and the environment through possible runoff or leachate problems at the landfill.

#### C. Problems faced by Small Quantity Generators

Small quantity generators face a unique set of problems which are not generally experienced to the same degree by the larger commercial and industrial generators. Some of the factors are:

- o Inadequate distribution of information (changes in environmental law and regulations) industry/manufacturing associations, Chamber of Commerces and regulatory agencies.
- o Lack of technical know how.
- o Lack of adequate management facilities.
- o Cost involving use of off-site facilities.
- o Cost involving developement of new management techniques.

#### D. Barriers Associated with the Implementation of Small Quantity Generators Management Program

As discussed above, small quantity generators face a unique set of problems. As such, special assistance may be required from outside sources in setting up small quantity generators program. However, these programs are usually difficult to implement because, very often, there is no clear perception of benefits, and there are usually prohibitive developmental and start-up costs.

There are inherent obstacles on the part of government in setting management program for hazardous waste produced by small quantity generators as it is only of late that recognition is given to the fact that these generators may require assistance. As such, private industry, manufacture and industry groups should work closely with the Federal, state and local jurisdictions in

addressing this issue.

To break through these barriers, the following incentives may be considered:

- o County and industry/Commercial Associations to take the lead in developing and providing public education materials relevant to the needs of the individual generator.
- o Encourage Federal, State and those cities that have the resources and funding to provide technical assistance and/or set-up special collection programs specific to small quantity generators. Grants/funding through legislation may be used to initiate such programs.
- o Encourage joint efforts of government agencies and the private sector, with industry and manufacturing associations to develop more extensive programs as those described above.
- o Provide investment incentives in the form of tax breaks for equipment or training of personnel.

#### IV. SMALL QUANTITY HAZARDOUS WASTE GENERATORS MANAGEMENT PROGRAM

##### A. County/City Program

Since a majority of small quantity generator waste is shipped off-site for management, there is a need for safe and effective management programs for these sources.

In an effort to provide for the proper management and reduction of hazardous waste generated by businesses, representatives from the City of Santa Monica, Los Angeles County Department of Health Services and Department of Public Works formed the Waste Reduction Group in February 1988. The Group was designed to provide various businesses with information on hazardous waste regulations and techniques for waste minimizations. Specific industries targeted include automotive repair, printing/photographic processing, paint formulating, machine tooling, and dry cleaning.

The Group analyzed each industry's waste stream and current operating practices in order to produce fact sheets addressing specific waste reduction potentials for various business groups, and develop a booklet that addresses the general issues of waste reduction. These educational materials will be distributed to the various businesses. Depending on the success and interest of these efforts, pamphlets specific to other industries would be developed.

For more information regarding this program, please contact:

City of Santa Monica  
1685 Main Street  
Santa Monica, CA 90401-3285  
Jennifer Stone  
(213) 458-8224

or

Los Angeles County Department of Public Works  
P.O. Box 1460  
Alhambra, CA 91802-1460  
(818) 458-3561

#### B. Other Management Programs

Others management programs or potential programs available to small quantity generators include:

##### 1. Recycling through waste exchanges.

The California Waste Exchange (CWE), one of the better known exchanges, publishes a newsletter catalog to facilitate the exchange of industrial material/waste. The listings in this catalog are divided into two categories, "Items Available" and "Items Wanted". The item listings include generic name, composition of material and quantity, frequency of availability and packaging. Interested parties contact the CWE who in turn contacts the listor. More information may be obtained from Chapter 7, Waste Reduction/Recycling. Copies of the California Waste Exchange Newsletter may be obtained by contacting:

State Department of Health Services  
Alternative Technology and Policy Development Section  
714 P Street  
Sacramento, CA 95814  
(916) 324-1807

2. Contracting with consultant firms which specialize in the management of small quantity generator wastes. These firms will package, label, manifest, transport and dispose of small quantities of wastes. The fee these firms charge is often less than the small quantity generator might pay to a general hauling firm due to the economies of scale the specialized consultant enjoys.

An example of such a firm is Safety Specialist, Inc. The company can be reached at (408) 988-1111. However, it should be noted that any companies and/or private industries listed in the Plan are for informational purposes only Los Angeles County does not endorse them in any way.

3. Implementation of waste minimization programs similar to those recommended in Chapter 7 of this Plan.

4. Implementation of programs similar to those proposed by the North Hollywood Pilot Project - regulatory agencies and industry associations. The Project proposed two technical assistance approaches to managing hazardous waste from small quantity generators - informational and management services.
  - o Informational Services: This approach is would provide educational materials and services to small quantity generators to encourage and promote regulatory compliance. Educational approaches would include the production and distribution of newsletters and pamphlets, and the sponsoring of seminars and workshops; and
  - o Management Services: The North Hollywood Pilot Project examined a two phase approach for managing small quantity hazardous waste generators:
    - Phase I - This consists of an informational program and the implementation of a system to allow the transport of collected wastes to an ultimate recovery/disposal facility; and
    - Phase II - This continues the informational program element of the scenario, and includes a central accumulation/transfer facility. Accumulated wastes are to be transported to an ultimate recovery/disposal facility.

Additionally, the following programs/materials are available to small quantity generators for the purpose of assisting them in the establishment and maintenance of hazardous waste management programs.

1. GRACDA has established a program to provide technical assistance to small quantity hazardous waste generators who need to dispose of solvents, acids, sludges, filters, paints, oils and pesticides. For further information, please contact:

GRACDA Clearinghouse  
P.O. Box 7219  
Silver Spring, MD 20910

2. The California Safety Council has made available the Hazardous Waste Management Guide for small quantity generators. A copy of the most recent publication may be obtained by contacting:

California Safety Council  
16401 Magnolia Street  
Westminster, CA 92683  
(714) 848-7221

3. The Association of Bay Area Governments (ABAG) has published "The Disposal of Hazardous Waste by Small

Quantity Generators, Magnitude of the Problem". A copy of this report may be obtained by contacting:

ABAG  
P.O. Box 2050  
Oakland, CA 94604  
(415) 464-7900

## CHAPTER 13

### HOUSEHOLD HAZARDOUS WASTE

#### I. INTRODUCTION

Recently, much attention has been focused on household hazardous waste. Yet most people are unaware of what household products are hazardous and how to properly dispose of them once they are of no further use.

Every day chemicals and hazardous wastes are washed down drains or placed into household trash. Since they come from many small, diverse sources, they are difficult to control. Although the volume of household hazardous waste produced is significantly lower than the amounts produced by the industrial sector, the potential hazards associated with the improper disposal of consumer products containing hazardous chemicals exist. These commonly used products include paints, solvents, pesticides, insecticides, drain cleaners, household cleaners and many others.

Except for a few regulations from which they are specifically exempt, hazardous waste generated in the home must be disposed of in the same manner as industrially generated wastes. This requirement creates great difficulties for many residents due to the fact that there are very few alternatives for the disposal of these wastes. Thus, it is important to address the problems faced by residents in disposing of their hazardous waste in an environmentally safe manner. As such, viable management alternatives must be sought.

This Chapter provides an overview of regulations, problems generally associated with improper management of household waste and a survey of existing and proposed programs to address this important issue.

#### II. REGULATION OF HOUSEHOLD HAZARDOUS WASTE GENERATORS

At the Federal level, household wastes are not defined as hazardous and therefore, are not subject to the Federal hazardous waste regulations.

At the State level, household hazardous waste generators must comply with the State hazardous waste regulations except for the following regulations from which they are exempt.

1. Title 22, Section 66300(g) of the California Administrative Code (CAC), exempts from the regulations of Title 22, Chapter 30 "Minimum Standards for Management of Hazardous and Extremely Hazardous Wastes", emptied household hazardous material and pesticide containers of

one gallon or less in capacity, which are drained until there is no continuous flow of liquid.

2. Title 22, Section 66470(e) of the CAC exempts household hazardous waste from the regulations of Title 22, Article 6 "Requirements for Generators of Hazardous Waste."
3. Division 20, Section 25163(c) of the State Health and Safety Code exempts from hauler registration, persons hauling hazardous waste, if the total volume of waste does not exceed five gallons or the total weight does not exceed fifty pounds and the conditions of 25163(c) are met, including the person hauling the waste is the generator of that waste, and that person produces not more than 220 pounds (100 kilograms) per month. Also exempt are persons that do not produce in the course of any business more than 2.2 pounds of extremely hazardous wastes and that these wastes are not mixed within a container.

### III. MANAGEMENT OF HOUSEHOLD HAZARDOUS WASTE

#### A. General

It has been said that households are the largest single class of hazardous waste generators [19]. Household items, such as furniture polish, car wax, cleaners, paint thinners, solvents, oils, pesticides, fertilizers, and other products contain hazardous constituents. Table 13-1 provides an estimate of Los Angeles County household hazardous waste generation rate by category, waste type, and primary and secondary treatment.

#### B. Problems Associated with the Improper Management of Household Hazardous Waste

Not only can the improper use of these household products be harmful, but they can also become a problem after they have been discarded. Most often these products (in either full, partially full, or empty containers) are put in the household garbage can and are picked up and taken to the local sanitary landfill. Although these wastes may not individually present a great threat, they can become of great concern when discarded and combined together with waste from many households and concentrated in one location.

The potential problems particularly associated with the improper management of household hazardous waste include the following:

- o Exposure of refuse workers to health hazards as a result of unknowingly picking up trash containing toxic chemicals;
- o Accumulation of waste in garages and storage sheds due to the unavailability of appropriate disposal options poses a threat to residents and emergency responders; and

TABLE 13-1  
LOS ANGELES COUNTY HOUSEHOLD HAZARDOUS WASTE GENERATION RATE  
AND GENERAL TREATMENT METHOD FOR EACH WASTE TYPE

Los Angeles County Solid Waste Generation Rate (1) Tons/Day (TPD); Tons/Year (TPY)				47,200; 17,228,000		
Household Hazardous Waste as Percentage of Solid Waste (2) (%)				0.13(2) to 0.15(3)		
Los Angeles County Estimated Household Hazardous Waste Generation Rate (TPD); (TPY)				61-71; 22,265 - 25,915		
Waste Generation By Category (4)	% of Total	Estimated Waste Quantity		Waste Type as Defined by the State Department of Health Services	Primary Treatment Method	Secondary Treatment Method
		(TPD)	(TPY)			
Oil and Similar Lubricating Products	46%	28-32	10,220 - 11,680	Waste Oil	Incineration	Other Recycling
Paint and Building	29%	18-20	6,570 - 7,300	Paint Waste Containing Heavy Metals	Incineration	Other Recycling
Gasoline and Solvents	20%	12-14	4,380 - 5,110	Spent Solvents	Solvent Recovery	Incineration
Other Waste	5%	3-5	1,095 - 1,825	Other Waste	---	---
TOTAL		61-71	22,265 - 25,915			

- Note:
1. Los Angeles County Solid Waste Siting Project, Los Angeles County Department of Public Works, May 1987.
  2. Mission Canyon Survey Data, 1979, Technical Reference Manual Section F, Attachment I, State Department of Health Services Guidelines for Preparation of Hazardous Waste Management Plans, June 1987.
  3. Puente Hills Survey Data, 1981, Technical Reference Manual Section F, Attachment I, State Department of Health Services Guidelines for Preparation of Hazardous Waste Management Plans, June 1987.
  4. Technical Reference Manual Section F, Attachment I, State Department of Health Services Guidelines for Preparation of Hazardous Waste Management Plans, June 1987.
  5. Technical Reference Manual Section E, Table E-1, State Department of Health Services Guidelines for Preparation of Hazardous Waste Management Plans, June 1987.

Source: Los Angeles County Department of Public Works, December 1987.

- o The disposal of household hazardous waste to the sewer system or to sanitary landfills poses the same problems as those caused by the improper disposal of industrial and commercial waste, i.e., damage to sewage treatment systems, or groundwater contamination.

The safe management of household hazardous waste is complicated by two factors:

- o Residents are often unaware of what is and is not hazardous; and
- o There is a lack of a practical and economic management system for household hazardous waste.

#### C. Barriers Associated with the Implementation of Household Hazardous Waste Management Programs

Successful household hazardous waste management programs require an effective public education/awareness element, convenient collection locations, efficient and safe packaging, and the transportation of wastes to licensed hazardous waste management facilities. Each of these components are expensive to implement. It is also difficult to restrict the program to only serve a specific jurisdictional boundary; as such, the cost of the program cannot be reasonably estimated. Also, the agency sponsoring the program can be liable for bodily injury or property damage during the implementation of the program, as well as any adverse environmental impact caused by accidental spills, and/or for the perpetual liability at the management site.

Securing suitable locations for collection centers and conducting this type of program may present another dilemma. First, the location has to be readily accessible to residents. Secondly, the concern of citizens as to the potential spills/accidents within their community should they be chosen to host the collection site must be addressed. Finally, the need for human resources and substantial financial needs must be identified.

Although many agencies show initial interest in implementing a household hazardous waste program, the difficulties encountered, such as liability and cost, often delay or even halt efforts to establish such a program. To many, the cost of the program does not justify the benefits, even though everyone agrees that a program is needed.

In order to motivate agencies to follow through with these programs, incentives or means of facilitating the permitting process need to be provided. There is a definite need to establish a means of funding for these programs and to streamline the regulatory process. Other incentives may be provided through legislation to minimize or eliminate "cradle to grave" liability. Although liability is a more difficult issue to resolve, it may be possible to reduce it by contractual agreements with vendors and cosponsoring agencies. Until such time when liability can be eliminated completely, it must be accepted as part of the

responsibility when implementing a household hazardous waste management program.

Even with these obstacles, successful programs have been established in the past and agencies are continually investigating means to effectively serve the citizens' needs to dispose of their hazardous waste.

#### D. Implementation of County/City Household Hazardous Waste Management Programs

Some local governments have successfully initiated collection programs out of concern for public health and the environment. A collection program will not only provide a safe alternative for disposing of household hazardous waste, it will also serve to increase community awareness of the potential dangers associated with improper use and disposal of household products containing hazardous chemicals.

When planning a collection program, the following concerns should be addressed.

- o Cost of the Program: The overall cost for these programs depends on the amount of waste collected, the number of location stations and the number of collection days; and
- o Liability: The sponsor of a program will become the generator of the waste once it is accepted and, as such, liability will be imposed. Examples of the liabilities that may be encountered include: injury to workers involved in the collection program, injury to the public who participates, damages that may occur at the collection site, accidents that may occur while transporting the waste to the waste disposal site and future release of hazardous substances from the waste management facility (Superfund).

In order to address the above concerns and provide a means for proper management of household hazardous waste, the California State legislators recently enacted a series of laws. A summary is presented below.

1. Chapter 574 of the State Statutes of 1986 (AB 1809, Tanner)
  - o Effective January 1, 1987, all updates of the County Solid Waste Management Plan must identify a program for the safe management of household hazardous waste.
  - o State Department of Education must prepare and distribute to school districts a list and description of educational materials which are available on hazardous substances.
  - o The California Waste Management Board (CWMB), in consultant with an Advisory Committee formed pursuant

to this law, must develop and implement a public information program, to guide local governments and designate a coordinator to advise and assist local governments.

The said Committee was formed in March 1987 and is currently assisting the CWMB in preparation of the public information program. One of the tasks assigned has been the development of guidelines for generic types of household hazardous waste. A summary of the guidelines is provided in Table 13-2.

The Committee has also developed a model operation plan to aid local entities in implementing their own household hazardous waste management programs. The plan included guidelines for the safe handling, transportation, storage, and disposal of the wastes collected. Another component of the plan is the procedure for obtaining a variance for when the permitting requirements for non-permanent collection sites. This is currently under review by the State Department of Health Services.

Current information under development by the Committee can be requested by contacting the following:

California Waste Management Board  
1020 9th Steet Suite 300  
Sacramento, CA 95814  
(916) 322-3330

- o This law authorizes cities and counties to increase their solid waste management collection fee to offset the cost to establish, publicize and maintain a household hazardous waste management program.
2. Chapter 1193 of the State Statutes of 1985 (AB 1744, Wright)

This law exempts any public agency operating a voluntary hazardous waste collection program from liability for costs paid out of the State Superfund as long as the wastes are properly handled and transported to an authorized hazardous waste facility and as long as the collection program is not conducted at that facility. This exemption is also extended to any contractor operating such a program for a public agency.

3. Chapter 1417 of the State Statutes of 1987 (AB 1304, Wright)

This law exempts from disposal fees hazardous waste generated or disposed of by State and local agencies operating a household collection program.

**TABLE 13-2  
GUIDELINES FOR DETERMINING GENERIC TYPES  
OF HOUSEHOLD HAZARDOUS WASTE**

A household hazardous waste is a consumer product that meets the definition of hazardous waste presented in Section 25117 of the Health and Safety Code or satisfies any of the criteria of Title 22, CAC, Section 66693 (ignitable, toxic, corrosive, reactive); or a waste that contains any identified hazardous substance or pollutant that may have an adverse effect on the beneficial uses of the waters of this State; or a waste that contains an identified hazardous substance that is carcinogenic, mutagenic or teratogenic in humans or animals; or a waste that is identified as hazardous when released into the air.

These general guidelines are intended to be used as criteria in determining which household products containing hazardous substances should be disposed of as hazardous waste.

The Committee recommends that materials as determined by the Department of Health Services (DOHS), State Water Resources Control Board (SWRCB) or Air Resources Board (ARB) that are:

- Listed as hazardous in State Codes or
- Toxic/ignitable/corrosive/reactive or
- Carcinogenic/mutagenic/teratogenic

Note: Committee does not designate latex-based paint as a household hazardous waste.

Generic Project Categories

Two lists of product categories that should be considered for collection at a household hazardous waste (HHW) collection program or special handling were developed by the Committee. The first list contains items which the majority of the Committee felt should be included in a collection program. The second list contains items which may be excluded from a collection program but will require special handling.

The Committee gave special consideration to waste liquid latex paint and unanimously agreed with the following statement: DOHS does not regulate liquid latex paint as hazardous waste at the present time. Should DOHS regulate liquid latex paint in the future, it should be added to the list. It should also be noted that a Regional Water Quality Control Board (RWQCB) may prohibit disposal of liquid or solidified latex paint at specific solid waste landfills.

Generic Project Categories to be Disposed of at Class I Landfills Included in a Collection Program

- |   |                               |
|---|-------------------------------|
| - Solvent-based paint and allied projects | - Hobby, art supplies, glazes |
| - Solvents                                | - Auto products               |
| - Adhesives                               | * Lubricating oil             |
| - Sealants                                | * Gasoline                    |
| - Pesticides                              | * Transmission fluid          |
| * Insecticides                            | * Kerosene                    |
| * Nematicides                             | * Brake fuel                  |
| * Fungicides                              | * Antifreeze                  |
| * Herbicides                              | * Engine degreaser            |
| * Molluscicides                           | * Auto body filler            |
| * Rodenticides                            | * Radiator flush system       |
| - Photoprocessing chemicals               | * Diesel fuel                 |
| - Floor and furniture cleaners            |                               |
| - Waste oil                               | - Polishes                    |
| - Mercury                                 | - Batteries (all types)       |
| - Pool chemicals (acid)                   | - Wood preservatives          |

Generic Project Categories that may be Excluded from a Collection Program:

- Radioactive waste
- Compressed gas cylinders (propane)
- Ammunition/Explosives
- Infectious waste

Source: California Waste Management Board, Household Hazardous Waste Advisory Committee, July 1988.

4. Chapter 1319 of the 1987 State Statutes (AB 2448, Eastin)

- o This Statute provides for grants to be issued by the CWMB for local programs to help prevent the disposal of hazardous wastes at solid waste disposal sites, including, but not limited to, programs to manage household waste.
- o Allows each county, city or county with the concurrence of the governing body of the affected city, to adopt a schedule of fee to be collected from each solid waste landfill operator, operating within the said county or affected city, for use in preparation, operation, maintenance, and administration of a program to insure that hazardous waste is not improperly disposed of in a solid waste landfill.

Currently, several cities within Los Angeles County and a few adjacent counties are implementing household hazardous waste management programs. A summary of these programs is shown in Appendix 13A. Appendix 13B provides an overview of the County programs as well as those currently under preparation.

Further information on designing and implementing a household hazardous waste collection program is contained in "Household Hazardous Waste - Solving the Disposal Dilemma". The publication may be obtained for a fee by contacting:

Golden Empire Health Planning Center  
2100 21st Street  
Sacramento, CA 95818  
(916) 731-5050

Until the advent of collection programs for the wide range of household hazardous waste, consumers seeking methods for managing their hazardous waste or alternatives to their toxic household products can refer to the brochure entitled "Toxic Chemicals in My Home? Absolutely!" prepared and published jointly by the County Department of Health Services and the Los Angeles County Solid Waste Management Committee, Figure 13-1. The brochure provides information on handling household hazardous waste and provides telephone numbers to call regarding locations for the disposal of such wastes including the State's used oil recycling program:

Used Oil Hotline  
(800) 553-CWMB

Free copies of the brochure are available from:

Los Angeles County Department of Health Services  
Health Education Section  
313 North Figueroa Street  
Los Angeles, CA 90012  
(213) 974-7765

FIGURE 13-1  
"TOXIC CHEMICALS IN MY HOME? ABSOLUTELY!" BROCHURE

## How to Handle Accidental Spills

- Read the product label.
- Keep the area well-ventilated.
- Keep children and pets away.
- Wear protective gloves and clothing.
- Contain and cover the spill with absorbent material (kitty litter, clay, or sand), or cover with a plastic sheet (such as a trash bag).
- Sweep and scoop the absorbent material into an empty plastic container with a lid or place in doubled plastic bags and secure.
- After the material has been cleaned up, wash the surface well with soap and water.
- If uncertain as to the nature or disposal of hazardous substances, contact the Hazardous Waste Control Program for more information.

## In Case of Accidental Exposure

Your first concern should be your own safety. Take appropriate first aid measures and seek medical attention if necessary. To make sure, contact the LACMA Poison Center for advice (213-484-5151). If there is a medical emergency, telephone 911.

Give the following information:

- your name, address, and phone number
- name of the toxic substance (if known)
- extent and location of exposure.

# Toxic Chemicals in My Home? Absolutely!



Prepared and funded by  
COUNTY OF LOS ANGELES  
DEPARTMENT OF HEALTH SERVICES  
PUBLIC HEALTH PROGRAMS  
HAZARDOUS WASTE CONTROL PROGRAM  
and  
COUNTY OF LOS ANGELES  
SOLID WASTE MANAGEMENT COMMITTEE

May 1986



## You Probably Have Toxic Products in Your Home

Many products we use around our homes every day—household cleaners, flea powders, garden pesticides, paints, varnishes, motor oil and antifreeze—are toxic and can be hazardous to our health and the environment. Not only can these products be harmful when we use them, but they become toxic wastes when we want to dispose of them.

## We Are Working on a Solution

Finding methods to properly dispose of household waste is not easy. Commercial hazardous waste facilities handle disposal of hazardous waste for a fee. However, this service is expensive and the only facilities are located outside Los Angeles County. While there are no clear-cut answers, we can provide some information and alternatives to help you.

Some communities are developing plans to collect and dispose of your hazardous waste safely and legally. Call your City Hall, the Hazardous Waste Control Program or the Solid Waste Program of your Health Department.

## DO...

- Purchase only what you need.
- Use up products completely.
- Recycle whatever you can. Used automotive fluids can be taken to a gas station that recycles used oils and other fluids. Call the California Waste Management Board—Recycling Hotline at 1-800-952-5545 for the one nearest you.
- Donate paints to an organization which can use them. Call the organization to arrange pick-up.
- Small amounts of pesticides will be accepted by the County of Los Angeles Agricultural Commissioner/Weights & Measures Department at some district offices. Phone for details.

## DON'T...

- Don't put toxics in the trash. They can injure sanitation workers and contaminate the landfill and surrounding areas.
- Don't pour toxics down a drain. It will disrupt the sewer system or the biologic process on which a septic system relies.
- Don't dump toxics onto the ground. This causes contamination of soil and groundwater.
- Don't pour wastes or rinse containers in the street. Wastes that work their way into storm drains are not treated and go directly into our ocean, bays, lakes, and groundwater.



FIGURE 13-1 (CONT.)  
"TOXIC CHEMICALS IN MY HOME? ABSOLUTELY!" BROCHURE

## A Safe And Healthy Los Angeles County Starts With You

PRODUCT	HAZARD	ALTERNATIVE
<b>PESTICIDES, HERBICIDES, AND FUNGICIDES</b>		
Flea Powders, Garden Insecticides, Ant and Roach Killers, and Weedicides	POISON, SOME FLAMMABLE	For information on organic gardening techniques or the control of garden pests with the minimal use of chemicals, call the Integrated Pest Management (IPM) Specialist, County Agricultural Commissioner, Pesticide Division.
<b>AUTOMOTIVE PRODUCTS</b>		
Waste Oil	FLAMMABLE	Recycle.
Braids and Transmission Fluids	FLAMMABLE	Recycle with Waste Oil.
Car Batteries	CORROSIVE	Recycle.
<b>HOUSEHOLD CLEANERS</b>		
Drain Openers	CORROSIVE	Pour boiling water down your drain a couple times a week as a preventive. Unclog drains with a metal snake or plunger.
Oven Cleaners	CORROSIVE	Keep your oven clean as you use it. Ovens can be cleaned with baking soda.
Toilet Bowl Cleaners	CORROSIVE	A general household cleaner or baking soda can be used. Clean toilets often.
Ammonia and Ammonia-based Cleaners	CORROSIVE	Vinegar with salt and water is a good general surface cleaner. Dissolved baking soda does well in the bathroom and for cleaning coffee pots, chrome, copper and tile.
Glass Cleaners	IRRITANT	Use warm water and vinegar in an 8-to-1 solution.
Chlorine Bleach	CORROSIVE	None.
Rug and Upholstery Cleaners	FLAMMABLE and/or CORROSIVE	Non-aerosol rug shampoos should be used. Always wear gloves and keep area well-ventilated.
Air Fresheners	IRRITANT, FLAMMABLE	Open windows and air out home often.
<b>PAINT PRODUCTS</b>		
Oil-Base Paints, Enamels, Solvents, and Thinners	FLAMMABLE	Use water-base paints (which also do not require thinners).
<b>MISCELLANEOUS PRODUCTS</b>		
Pool Acids	CORROSIVE	None.
Photographic Chemicals	CORROSIVE, POISON	None.
Art Supplies	POISON	Use nontoxic, water-based products.

**KEY TO HAZARDS**  
**Poison**—Acutely toxic poisons can cause severe illness or death if ingested. Many can be absorbed directly through the skin or respiratory tract.  
**Flammable**—Many flammable products contain petroleum distillate or other solvents which are skin, eye, and respiratory irritants. Can be fatal if ingested. Many are volatile, emit toxic vapors and should only be used with adequate ventilation. These products should never be stored near an ignition source or with catalytic products.  
**Corrosive**—These products are caustic and can cause severe burns on contact. Vapors can burn eyes and mucous membranes, and they are very poisonous if ingested.  
**Irritant**—Irritants are mildly corrosive or volatile substances which can irritate skin, eyes and mucous membranes.

### Tips On Toxics

#### PURCHASING

- Read the warnings on products before you buy, and compare labels of similar products.
- Select the "least" hazardous products for your use. For example, water-base paint is less toxic than oil-base paint.
- Buy only what you need. Keep in mind how to eliminate any excess when you purchase a product.
- One household cleaner can serve many uses. You don't need a different product for every kind of cleaning problem. See "Alternatives."
- Choose products with child-proof packages.

#### USE

- Always follow directions carefully. Twice as much does not mean twice as good.
- Never mix different products. For example, bleach products should never be mixed with acid cleaners, ammonia cleaners, drain openers, or shower cleaners. An immediate release of deadly toxic gases (such as chlorine) could result.
- Many toxic products emit dangerous vapors that can burn your skin, or irritate eyes, nose, and throat. Wear gloves and use the product in well-ventilated areas.
- Keep the number of the Poison Center handy in case of emergencies: (213) 484-5151.

#### PRECAUTIONS

- Keep incompatible products in separate storage boxes. Flammables, corrosives, and poisons should all be separated. Check the labels.
- Use care when handling leaky containers. Always use gloves and goggles; keep children and pets away.
- Pack small boxes in a leak-free sturdy box in an upright position to avoid spillage.
- Keep out of reach of children.
- NEVER SMOKE WHILE HANDLING HAZARDOUS MATERIALS!
- REMEMBER TO CALL IF YOU HAVE QUESTIONS ON USAGE OR STORAGE.



For More Information...

<b>HEALTH HAZARDS</b>	
Poison Center	(213) 484-5151
Hazardous Waste Control Program	(213) 744-3223
<b>DISPOSAL: INFORMATION</b>	
County of Los Angeles	
Hazardous Waste Control Program	(213) 744-3223
Solid Waste Program	(213) 744-3261
Agricultural Commissioner/Weights and Measures Dept.	
<b>PESTICIDE DIVISION</b>	(818) 875-5465
<b>RECYCLING OF AUTOMOTIVE FLUIDS</b>	
California Waste Management Board	
Recycling Hotline	1-800-952-5545
<b>REGULATIONS</b>	
County of Los Angeles	
Hazardous Waste Control Program	(213) 744-3223
State of California	
Department of Health Services	
Toxic Substances Division	
Southern California Section	(213) 620-2380
<b>MEDICAL EMERGENCIES</b>	911

We gratefully acknowledge the County and City of San Diego and the Environmental Health Coalition for permission to adapt their publication, "The World is Full Of Toxic Waste. Your Home Shouldn't Be." Special thanks to the Los Angeles County Hazardous Materials Coordinating Committee and the League of Women Voters.

or  
Los Angeles County Department of Public Works.  
Waste Management Division  
900 South Fremont Avenue  
Alhambra, CA 91803-1331  
(818) 458-3561

In addition, the Enterprise for Education, Inc., has also published an informative pamphlet entitled "Hazardous Waste From Homes" illustrating the problems associated with the improper management of household hazardous waste. More information may be obtained from the following:

Enterprise for Education, Inc.  
1320A Santa Monica Mall  
Santa Monica, CA 90401.

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