

Annual Environmental Report and Message of the Governor

CALIFORNIA ENVIRONMENTAL PROTECTION
AGENCY

To: Members of the Legislature and the
Citizens of California

During my administration, protecting and improving California's environment has been a top priority and one of my most important goals. Over the past eight years we have seen significant improvement of the California environment along with significant population growth. The record demonstrates improvement in our air, water, and land. With this record is a corresponding reduction of health risks to Californians from environmental exposure.



We are blessed with the most beautiful and diverse land forms in the world. It has been our duty and pleasure to be stewards and protectors of California's natural resources and environment for future generations. We leave not only cleaner air, water and land than eight years ago, but also a legacy of conservation for succeeding generations to follow.

We have made this progress by moving beyond the often confrontational methods which defined environmental management over a decade ago. We have done this in the light of three guiding principles: 1) environmental improvements and economic progress must go hand-in-hand; 2) regulatory processes can be improved and simplified without compromising environmental standards; 3) cooperation and communication with all interested parties is essential to successful management of environmental programs. We can move forward on the strong foundation we have built and continue to strengthen our environmental programs and California's environment.

I wish to thank the millions of concerned citizens, state employees and all stakeholders for making the environmental goals of my administration a reality. Through a common vision and a spirit of cooperation, we have been able to resolve issues which have traditionally divided us. Returning to the past is not an option, we must continue to secure a healthy environment for future Californians.

Sincerely,



Those deserving special recognition for their efforts to coordinate the writing and editing of the report include:

- Julia Billington, Air Resources Board
- Glenn Brank, Department of Pesticide Regulation
- Jeff Danzinger, Integrated Waste Management Board
- Tam Doduc, Air Resources Board
- Veda Federighi, Department of Pesticide Regulation
- Carmen Milanes, Office of Environmental Health Hazard Assessment
- Donald Owen Jr., Air Resources Board
- Jon Pederson, Air Resources Board
- Susan Sims, Department of Toxic Substances Control
- Jim Spagnole, Cal/EPA
- Fran Vitulli, State Water Resources Control Board

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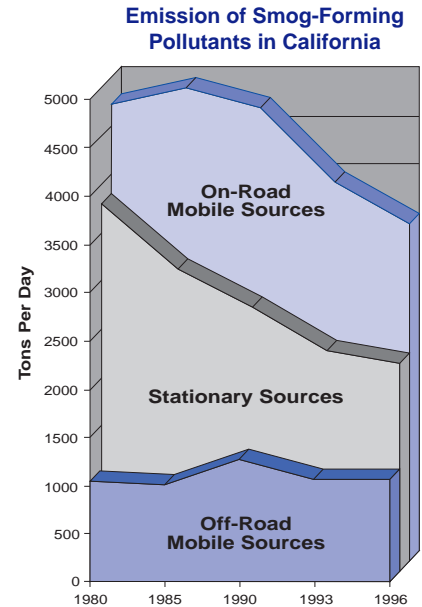
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TRENDS IN ENVIRONMENTAL QUALITY

Air Quality

Air quality in much of California continues to improve as emissions of smog-forming pollutants are significantly reduced. Strict motor vehicle tailpipe standards, cleaner fuels, controls on factories and other stationary sources, and cleaner products have led to a steady decline in levels of ozone, carbon monoxide, air toxics (such as benzene) and, in some cases, particulate matter in the air. California has achieved these decreases in spite of steady increases in the state's population, and even greater increases in the miles traveled per vehicle.

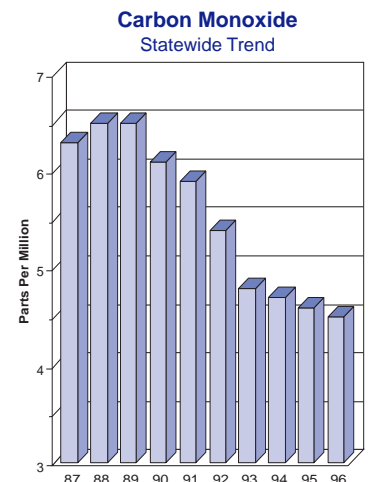


Emissions of smog-forming pollutants have declined since 1980, while population rose 17 percent and the total miles traveled increased 33 percent.

Carbon Monoxide

Carbon monoxide (CO) deprives the body of oxygen and may contribute to cardiovascular disease. CO peaks in winter and is directly emitted from motor vehicles and, to a lesser extent, from stationary combustion sources.

- Of California's 58 counties, 56 meet the health-based state and federal standards for CO. The exceptions are Los Angeles and Imperial counties. Introduction of increasingly lower-emission vehicles and equipment will continue to reduce CO emissions in the future.



CO levels across the state have declined by 25 percent over the last decade in response to control efforts, primarily cleaner vehicles and fuel.

Ozone

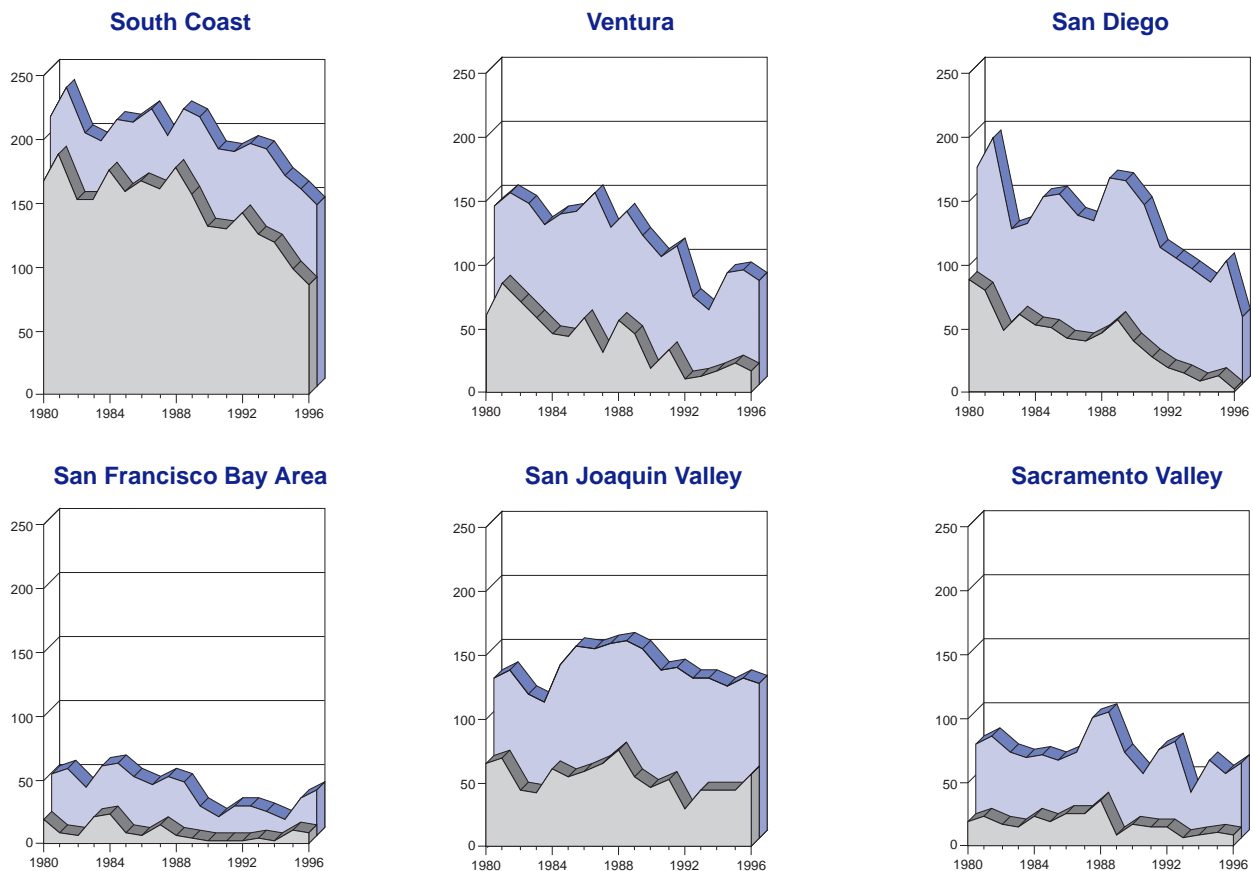
Exposure to ground-level ozone, or smog, can cause shortness of breath, chest pain, coughing and, over the long term, even permanent lung damage. Ozone is formed when reactive organic gases (ROG) and oxides of nitrogen (NO_x) react in sunlight. ROG and NO_x are emitted from many activities, including the operation of motor vehicles, application of solvents and coatings, and combustion processes.

- Despite five years of ozone levels below the federal standard and declining emissions, two unusually hot summers caused the San Francisco Bay Area to once again violate that standard in 1995 and 1996. In August 1997, U.S. EPA announced its intention to restore the area's prior "nonattainment" label.
- New air quality programs, including Cleaner Burning Gasoline, combined with favorable weather made 1997 the cleanest year on record for California. The days over the state and federal ozone standards were the lowest ever recorded in the South Coast.
- Following a decade of diminishing air pollution, U.S. EPA formally acknowledged the Monterey Bay area as attaining the federal ozone standard on March 18, 1997.
- In Santa Barbara County, pollution transport from Los Angeles delayed the county's expected compliance with the federal ozone standard in 1996. In 1997, U.S. EPA proposed to extend the attainment date to 1999 and impose tougher requirements on siting new businesses.

Smog episodes are down in the South Coast, Ventura, San Francisco Bay Area and San Diego — the San Joaquin Valley and the Sacramento Valley show less dramatic improvements.

Days Over State and Federal 1-Hour Ozone Standards, 1980-1996

(Lower graph shows federal standards, upper graph shows more protective state standards)



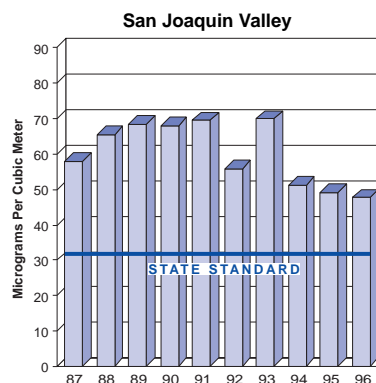
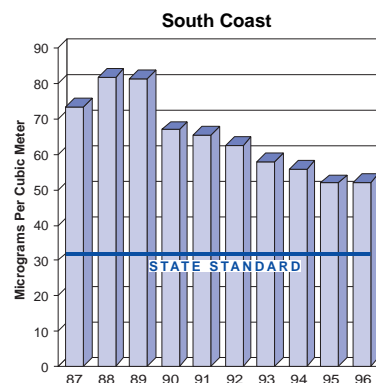
Particulate Matter

Particulate matter is a complex mix of pollutants, such as nitrates, sulfates, heavy metals, smoke, and dust. State and federal regulations have long targeted particles of ten microns in diameter or less (PM10), which are easily inhaled. New federal standards focus on the smallest of these particles (PM2.5), which can travel beyond the airway and penetrate into lung tissue. Particulate exposure may increase the rate of respiratory and cardiovascular illness, and reduce life span.

Inhalable particles can be directly emitted from sources like vehicles, fires, and dust from unpaved roads; or can be formed in the atmosphere by the reaction of chemical precursors, like NOx and ammonia. Seasons for high particle levels and the dominant pollution sources vary across the state.

- PM10 levels have been declining statewide as emissions of PM10 precursors decreased significantly. However, weather conditions in recent years have also favored low PM10 levels (years with more rainfall often have lower PM10 levels).

Particulate Matter Annual Average



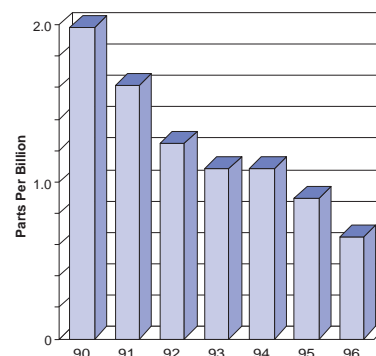
In the South Coast and San Joaquin Valley, PM10 levels have declined about 20 percent since 1987.

Air Toxics

Exposure to toxic air pollutants can cause many adverse health effects, including cancer, respiratory disease, birth defects and neurological damage.

- Between 1990 and 1996, the combined potential statewide cancer risk from 21 airborne toxic substances decreased by 55 percent. Risk reduction is largely attributable to lower emissions of benzene, 1,3-butadiene, hexavalent chromium, and carbon tetrachloride resulting from California's air toxics control programs.
- Benzene, a widespread toxic pollutant, is one of the hydrocarbons present in crude oil, gasoline, and other petroleum products. Benzene is known to cause cancer (usually leukemia) in humans.

Benzene Statewide Trend



With the introduction of cleaner vehicle fuels, and vapor control fueling nozzles, annual benzene exposure dropped a dramatic 67 percent since 1990, significantly reducing the associated cancer risk.

Water Quality

The State Water Resources Control Board and its nine Regional Water Quality Control Boards routinely assess the quality of the state's water. Their 1997 water quality assessment data are summarized below:

- 98 percent of the 320,000 acres of assessed ocean and open bays fully support beneficial uses.
- Water quality is judged to be good along 73 percent of the state's 1,091 miles of assessed coastal shoreline to fully support beneficial uses.
- Water quality of 89 percent of 515,000 acres of enclosed bays and harbors fully or partially support beneficial uses.
- Water quality of over 72 percent of the 857,000 acres of assessed California lakes and reservoirs fully or partially support beneficial uses.
- Of the over 24,543 miles of rivers and streams assessed, water quality in 51 percent fully or partially support beneficial uses. Data are insufficient to categorize 28 percent of the river and stream miles assessed.

Some water bodies with partially supporting beneficial use designation may be impaired. An "impaired" water body is one which does not support all beneficial uses.

1997 California Water Quality

WATER BODY TYPE	TOTAL SIZE*	SIZE ASSESSED**	UNIT	BENEFICIAL USE SUPPORT OF ASSESSED WATER BODIES (%)**				
				FULLY SUPPORTING	FULLY SUPPORTING BUT THREATENED	PARTIALLY SUPPORTING	NOT SUPPORTING	NOT ASSESSED
BAYS AND HARBORS	515,338	515,338	Acres	28.0	2.6	60.6	5.2	5.9
COASTAL SHORELINE	1,609	1091	Miles	72.9	0.0	5.6	5.7	15.8
ESTUARIES	104,186	104,186	Acres	6.6	0.7	59.0	9.5	24.2
GROUND WATER	82,011	82,011	Sq. mi.	47.7	2.9	25.0	1.8	22.2
LAKES AND RESERVOIRS	1,672,684	857,336	Acres	25.1	7.0	39.6	14.8	13.8
OCEAN AND OPEN BAYS	319,835	319,835	Acres	98.3	0.9	0.0	0.0	0.7
RIVERS AND STREAMS	211,513	24,543	Miles	13.6	7.6	30.3	19.8	28.3
SALINE LAKES	436,242	436,242	Acres	0.0	0.0	99.2	0.0	0.8
TIDAL WETLANDS	126,294	126,294	Acres	0.0	0.0	56.2	0.1	43.7
FRESHWATER WETLANDS	149,518	149,518	Acres	10.0	0.5	34.4	0.0	55.1

* Total size estimates for coastal shoreline, rivers and streams, and lakes and reservoirs were obtained from the 1994 USEPA Reach File Version 3/Digital Line Graph data. These estimates were not updated for 1997. Lake estimates are for perennial and intermittent lakes. Total size estimates for bays and harbors, estuaries, saline lakes, and wetlands were tabulated from the SWRCB's 1998 Waterbody System database.

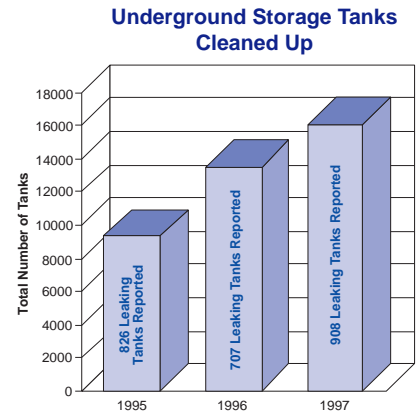
** Size assessed and beneficial use support values were tabulated from the SWRCB's 1997 Waterbody System database.

Underground Storage Tank Program

During FY 97-98 changes in the number of new leak cases and closed leak cases were influenced respectively by the December 22, 1998 upgrade/replacement deadline for single-walled tanks and SWRCB guidance on closing low-risk sites.

- The total number of operating underground storage tanks* (UST) decreased from approximately 65,000 to 62,000
- The number of reported leaking USTs increased from approximately 31,300 to 32,800
- The number of closed cases has increased from approximately 14,700 to 16,950
- The number of open cases (total leak cases minus closed leak cases) decreased from approximately 16,600 to 15,850

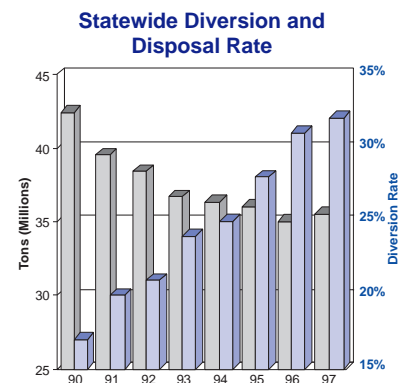
* includes tanks containing both petroleum and hazardous substances.



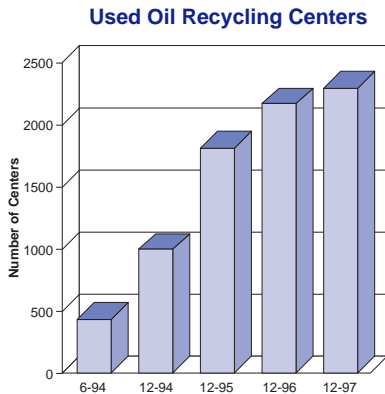
Solid Waste

Diversion/Disposal

Since the Integrated Waste Management Law took effect in 1990, the Golden State has experienced a pronounced shift from disposal to diversion. Californians are reducing, reusing and recycling materials that once were destined for the dump. From 17 percent in 1990, statewide diversion reached an estimated 32 percent by the end of 1997, keeping California on track to reach the mandated 50 percent rate by the year 2000.

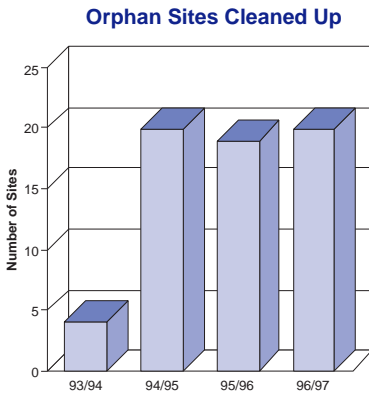


Certified Used Oil Centers



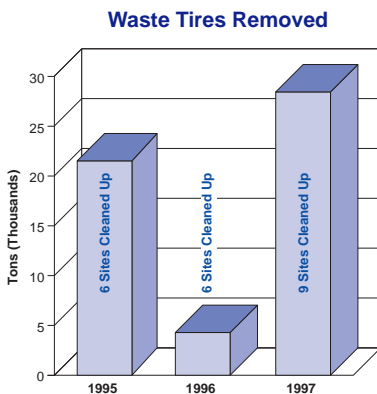
The number of used oil recycling centers in California grew to nearly 2,300 in 1997. These centers, which provide a convenient, accessible means for Californians to discard their used oil, are helping to reduce illegal dumping around the state. Mid-1997 figures show that more used oil is being processed and refined than ever before.

“Orphan” Site Cleanup



This program, begun in 1994, identifies abandoned dump sites for which responsible parties cannot be found or are unable to perform cleanup. The program has been very successful, remediating sites that posed health and safety risks, potential fire hazards, and pollution threats. By taking into account the population of cities in close proximity to these sites, the cleanup program has eliminated potential health and safety threats for the benefit of millions of California’s citizens.

Tire Remediations

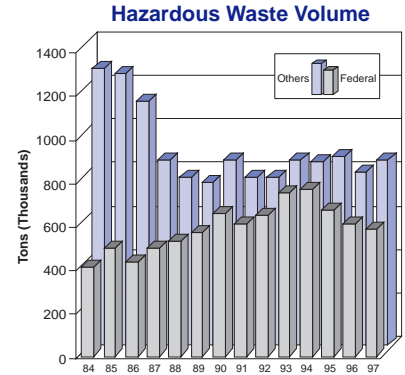


In 1997, the Integrated Waste Management Board (IWMB) cleaned up nine waste tire sites for a total of more than 28,000 tons of waste tires. The program eliminates significant fire hazards, combats pollution and contributes to a cleaner environment. The program also resulted in the clean-up of two of California’s largest waste tire sites.

Hazardous Waste Management

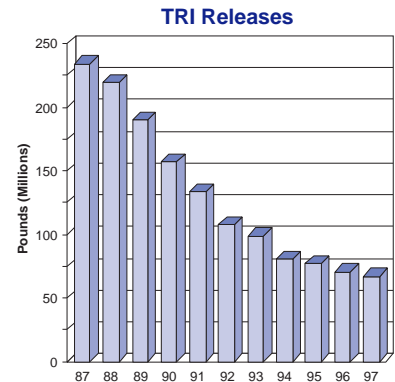
Hazardous Waste Volume

The total volume of hazardous waste generated in California has decreased over the past decade. Since 1984, the combined volume of federally and state regulated wastes is down nearly 15%.



Toxic Release Inventory

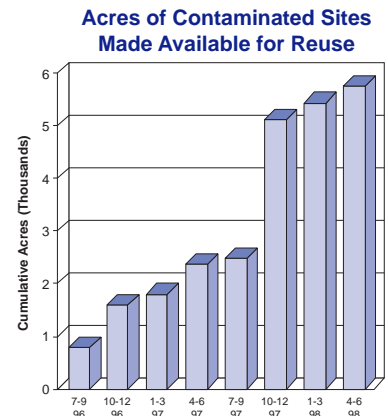
Additionally, releases of hazardous wastes to the environment which are reported under the federal Toxic Release Inventory (TRI) program have dropped dramatically in recent years. The TRI list consists of chemicals that can produce toxic effects. In 1987, more than 234 million pounds of these chemicals were released into the environment in California. By 1997, the amount of releases had dropped by more than 70 percent.



Brownfields and Other Hazardous Waste Programs Cleanup

A key focus of California's environmental program has been to clean up hazardous waste sites so they can be put back into productive reuse. In the two years from July 1996 through June 1998, over 25,000 acres of previously contaminated property was cleaned up and made available for reuse.

The Department of Toxic Substances Control is charged with the responsibility of removing dangerous, even deadly, chemicals from illegal drug laboratories after they have been shut down by state and local law enforcement. From July 1996 through June 1998, cleanups have occurred at more than 3,100 drug labs and in every county of the state.



MEETING CAL/EPA GOALS

Air Resources Board

Preventing pollution and stopping polluters

The Air Resources Board's (ARB) programs focus on preventing pollution by reducing pollutant emissions into the air we breathe. Examples include requirements to reduce pollution-forming emissions through consumer product reformulation, changes in manufacturing processes, modifications in vehicle engines, and cleaner-burning fuels. ARB's education and certification programs promote use of less-polluting technologies. ARB also has an active program for enforcing statewide standards for vehicles, fuels, and consumer products.

Making environmental protection more understandable and attainable

ARB has nationally-recognized compliance assistance and training programs. These programs include training local air district staff and industry representatives on methods to determine if air pollution sources are in compliance with air quality regulations; publishing "self-inspection" handbooks and pamphlets, which explain air pollution laws in everyday terms (almost 46,000 of these extremely popular guides were sent out in 1997); and publishing compliance advisories, which update industry on changes in air pollution regulations.

ARB also has an active business assistance program. The Ombudsman serves as an advocate for businesses that are dealing with air pollution or regulatory issues. ARB also maintains a toll-free business assistance helpline and has developed a number of publications to aid businesses in their compliance efforts. In addition, the California Air Pollution Control Officers Association/ARB Business Assistance Committee facilitates sharing of business assistance information between ARB, the local air districts, and the business community.

Improving the environment using science and technology

ARB sponsors a comprehensive program of research on air pollution in California. This research program provides the timely scientific and economic information necessary for an effective and efficient air pollution control program. ARB has also established the Innovative Clean Air Technology Program. This program co-funds the development and demonstration of technologies that reduce air pollution and often provide economic benefits. In fall 1997, ARB hosted a three-day symposium, "Exploring New Technologies for Clean Air." This symposium drew 300+ attendees, who heard from leading technology developers, manufacturers, and scientists on the status, timing, and potential for development of promising technologies and creative strategies to meet California's air quality needs. ARB's regulatory programs also spur development of new or improved technology, including longer-range battery technology for electric vehicles, fuel cells, and cleaner diesel engines.

CAL/EPA GOALS

*Preventing pollution and
stopping polluters*

*Making environmental
protection more
understandable and
attainable*

*Improving the
environment using
science and technology*

State Water Resources Control Board

Preventing pollution and stopping polluters

To prevent pollution in 1997, 20 new staff have been assigned throughout the nine Regional Water Boards and at the SWRCB. This increased presence has resulted in more inspections of surface waters discharges and 50 additional enforcement actions in 1997-98.

The San Francisco Bay Regional Board, in conjunction with local building associations, has produced and distributed to other Regional Boards an erosion and sediment control field manual and video for land development projects.

A compliance assurance office and enforcement strategy has been developed by the SWRCB, with each Regional Board reviewing current efforts and recommending suggestions for program improvements.

Making environmental protection more understandable and attainable

The SWRCB has cosponsored several ombudsman forums statewide, bringing topical issues and program information directly to the customer. In addition to ombudsman services, other customer service efforts include training sessions for applicants, providing specialized brochures, such as "Do I Need A Permit?," "Responsible Dairy Farming," "Frequently Asked Questions" (stormwater permits), and "A Citizen's Guide to the San Francisco Bay Water Quality Control Board."

The SWRCB and Regional Boards continue to expand Internet access to technical, procedural and policy information. The SWRCB and five Regional Boards operate Web sites where statewide or regional information can be accessed.

The Regional Boards staff 13 permit assistance centers around the state, providing a one-stop location for permit assistance and information.

The SWRCB assisted in a pilot program to investigate the performance of an ISO 14000 environmental management systems (an "industry standards" approach rather than a regulatory one) and their potential use to improve the efficiency of Cal/EPA's permitting programs.

Improving the environment using science and technology

The SWRCB's Bay Protection and Toxics Cleanup Program (BPTCP) tackled issues associated with polluted sediments. Considerable assistance from technical experts helped the Boards address these "first time anywhere" issues. In particular, the BPTCP provides a model for identifying problem sites that other states may wish to follow.

The SWRCB initiated a technology certification pilot program providing applicants a means of certifying a technology. Certification represents a means of streamlining the permitting process by reducing or eliminating redundant testing and varying technical criteria used by different jurisdictions.

Department of Pesticide Regulation

Many projects and initiatives undertaken by the Department of Pesticide Regulation (DPR) in 1997 reflect Cal/EPA strategic goals. These include preventing pollution, ensuring strong and consistent enforcement of laws and regulations, prioritizing resources to meet environmental needs, making sound economics a key part of environmental protection, and providing better public education and access to information.

Preventing pollution and stopping polluters

On an ongoing basis, DPR promotes pollution prevention by thoroughly evaluating pesticides before they can be sold or used in the state, enforcing the nation's strictest use practices, and helping develop new use practices that minimize the potential for pollution.

The Governor made uniform enforcement a key goal for Cal/EPA when the Agency was created in 1991. Working in cooperation with the county agricultural commissioners, DPR continues implementation of enforcement guidelines designed to ensure consistent implementation of pesticide laws and regulations among counties.

To further enhance uniformity, DPR began planning a statewide enforcement database in 1997. This system will allow DPR and county agricultural commissioners to monitor the performance of agricultural operators with farms in multiple counties. County agricultural commissioners will also have access to an operator's overall record before licenses and permits are issued or renewed. The system will also encourage consistent county penalties for pesticide violations.

Making environmental protection more understandable and attainable

In 1997, DPR continued major initiatives to protect surface and ground water from pesticide contamination. Working in cooperation with the Regional Water Quality Control Board, DPR found residues in streams after winter storms. These residues were traced to fruit and nut orchards. In response, DPR began the Dormant Spray Water Quality Program to help growers reduce pesticide runoff. On another front, DPR initiated efforts to reduce herbicide applications on grape and citrus crops and control groundwater contamination in Tulare and Fresno counties. Working in cooperation with industry and others, DPR has identified weed control, irrigation, and application techniques to help reduce the potential for contamination of groundwater and streams.

In response to questions and concerns from California's Native American communities, DPR held a series of meetings with tribal representatives in 1997 to discuss the use of herbicides in Humboldt, Lake, Del Norte and Shasta counties. Some tribes use vegetation in these areas for food, crafts, and ceremonial purposes. DPR plans to monitor pesticide residues in selected areas and is coordinating efforts to provide pesticide information to Native Americans.

DPR also has made pesticide information more accessible to the general public through the Department's Web site. Consumer fact sheets, reduced-risk pest management practices, pesticide use report summaries, legislation and regulations, and extensive pesticide data are readily available. DPR also has made its "Pesticide Safety Information Series" leaflets available online at <http://www.cdpr.ca.gov>. Leaflets — available in both English and Spanish — offer advice on pesticide safety and handling practices in the workplace. DPR has also made its summaries of toxicological data reviews available in electronic format.

Improving the environment using science and technology

In 1997, DPR committed \$750,000 to develop public-private alliances to develop pest control alternatives that reduce risks to people and the environment. Projects may include a combination of applied research, demonstrations, and implementation, but all must show significant benefits to human health and the environment. DPR targeted several priorities, including reducing risks of contamination for surface and groundwater, and developing new pest management alternatives that meet the requirements of the Federal Food Quality Protection Act.

Integrated Waste Management Board

Preventing pollution and stopping polluters

Protecting California's environment through pollution cleanup programs and pollution prevention efforts is a top priority of the Integrated Waste Management Board (IWMB). In 1997 cleanup operations began at the West's largest waste tire site. A total of 21 illegal dumps or burn dumps were cleaned up or stabilized. An estimated 28 million pounds of household hazardous wastes were diverted from landfills.

Old dumps erode and pollute creeks and streams, so each year the IWMB allocates money from its Solid Waste Disposal and Codisposal Cleanup Program, commonly referred to as the AB 2136 program, to clean up these sites. In 1997, 22 sites were cleaned up or stabilized, 19 by contractors hired by the IWMB and three more by local governments. The \$3.3 million worth of projects included removing trash, covering or removing burn ash, and installing drainage systems.

Tire cleanup efforts began during 1997 at two of the largest piles—the Oxford Tire Recycling pile in Stanislaus County and the Lloyd's Baling pile in Atascadero. In addition, the IWMB began removing an estimated 1 million tires from the Nipomo Mesa site in San Luis Obispo County. The IWMB also cleaned up many smaller tire piles in Tulare, Imperial, Fresno, Kern, Napa, San Bernardino, and Kings counties, totaling more than 232,000 tires. In total, 12 cleanup projects were directly funded by the IWMB during the year. In addition, the IWMB continued its campaign to require property owners and other responsible parties to clean up their piles through its aggressive enforcement program. Working with local prosecutors, the IWMB has forced the removal of more than 3.1 million waste tires from 150 illegal dumping grounds on private and public land since 1995.

Making environmental protection more understandable and attainable

An estimated 25 million tires are piled up in sites large and small, and motorists generate about 33 million more each year. About 18 million of these "new" waste tires find productive end uses—being reused, retreaded, recycled into other products, or burned for electrical generation or to make cement. The rest are shredded and used as landfill cover or disposed of, legally or illegally.

Ultimately, the solution to the state's waste tire problem is to find productive uses for them, which is why the IWMB has been working since 1990 to find productive uses for used tires. Those efforts have helped increase the tire recycling rate from 34 percent in 1990 to 53 percent in 1997. The number of tires diverted increased from 9.2 million to almost 17 million tires during the same time period.

Used motor oil is the largest portion of all household hazardous wastes generated. During calendar year 1997, oil manufacturers reported sales of 137.5 million gallons of lubricating oils in California. The amount of used lubricating oil generated was estimated at 82.5 million gallons. Used oil recycling facilities processed about 60.8 million gallons of used lubricating oils during 1997. The estimated 1997 recycling rate for used lubricating oil was 74 percent. An estimated 22 million gallons of used lubricating oil are being illegally disposed of each year.

Certified Used Oil Collection Centers are essential to California's used oil recycling program. During 1997, 374 new centers were certified, bringing the total to nearly 2,300. In addition there are 68 registered curbside collection programs statewide. This represents a fivefold increase in oil recycling sites since the enactment of the 1991 California Oil Recycling Enhancement Act. The state offers a 16 cent recycling incentive for each gallon recycled. During fiscal year 1996-97, the IWMB paid \$1.6 million in recycling incentives to certified centers, registered curbside collection programs, and industrial generators.

The IWMB has an ongoing information and education program to promote alternatives to the illegal disposal of used oil. One of the most important developments during 1997 was the start of the California Environmental Hotline. The Hotline, 1-800-CLEAN-UP, provides used oil center information along with a wide variety of other environmental information.

The "Boating Clean And Green Campaign Project" is a cooperative effort conducted by the IWMB, California Coastal Commission, and others responsible for non-point source water pollution prevention and public education. The campaign is a statewide effort to educate boaters about recycling used oil and preventing pollution associated with boating in marine and inland waterways. It promotes establishment of marine waste disposal facilities and used oil collection centers.

Improving the environment using science and technology

Used tires are one of the biggest challenges in waste management. The IWMB has funded research to find alternatives to tire disposal at landfills.

In 1997, the IWMB provided an additional \$500,000 to continue the activities of the Los Angeles County Rubberized Asphalt Concrete Technology Center which had been established the previous year. The center's purpose is to promote the use of rubberized asphalt concrete by local government and to provide training courses, engineering assistance, and financial incentives.

In addition, the IWMB funded a research contract to provide emissions testing of coal-fired cogeneration plants where tires are used as fuel. The Air Products cogeneration plant in Stockton was the first plant to be tested under this contract. The test found the plant in compliance and it has been authorized to use tires as a fuel supplement.

Department of Toxic Substances Control

The activities and accomplishments of the Department of Toxic Substances Control (DTSC) in 1997 demonstrated substantial progress in meeting the overarching goals established by Cal/EPA. Historically, regulatory agencies have adopted a “command and control” approach to business. However, in recent years the focus of DTSC’s efforts has rested on assisting industry to achieve compliance, cleanup of contaminated sites, reforming regulations and targeting enforcement actions on unsafe facilities. In refining its hazardous waste regulatory program, DTSC has endeavored to bring a balanced, common sense approach to managing hazardous materials and work closely with local governments, business and all stakeholders.

Preventing pollution and stopping polluters

Several DTSC initiatives were underway in 1997 to reduce and prevent the pollution caused by improper handling or illegal disposal of hazardous wastes.

New approaches pioneered in California are resulting in the cleanup of a growing number of contaminated sites. This has resulted in reduced threat to public health and the environment, and allowing beneficial reuse of properties. Among these efforts are the Brownfields Initiative, the Expedited Remedial Action Program and the Voluntary Cleanup Program. DTSC has also launched an improved inspection program of hazardous waste facilities, and better response to releases of hazardous material to the environment.

Making environmental protection more understandable and attainable

In 1997, DTSC continued its commitment to a more sensible and streamlined regulatory process — one that balances the responsibility to ensure compliance with state and federal hazardous waste laws with the burdens these requirements place on the regulated community. Two major initiatives, the Regulatory Structure Update and the Site Mitigation Update projects, represented innovative efforts to streamline regulatory requirements, apply the latest scientific information, eliminate costly and unnecessary duplication among government agencies, and solidify a customer service approach to environmental regulation, compliance and the decision-making process.

Ongoing educational programs and public participation activities further strengthened DTSC’s commitment to aggressively ensuring maximum public access to information and an open process in permitting and site cleanup decisions.

Improving the environment using science and technology

DTSC recognizes that new technologies can play a significant role in pollution cleanup and prevention. Accordingly, DTSC has implemented the Hazardous Waste Environmental Technology Certification program. This program certifies and promotes innovative new technologies. DTSC had also played an active role in the promotion of the export of these technologies.

The department’s Hazardous Materials Laboratory provides advanced scientific review and analysis to a variety of interests.

Office of Environmental Health Hazard Assessment

Making environmental protection more understandable and attainable

In 1997, the Office of Environmental Health Hazard Assessment (OEHHA), in partnership with the Region 9 office of the U.S. Environmental Protection Agency, offered training courses designed to equip risk managers in state and local government with a basic understanding of the risk assessment process. The courses are intended to enhance the ability of risk managers to be more informed users of the products of risk assessments, as well as better communicators of risk information to the public.

In yet another effort to make environmental regulation more understandable, OEHHA — as the lead agency for the implementation of the Safe Drinking Water and Toxic Enforcement Act of 1986 (commonly known as Proposition 65) — provides assistance and information to affected businesses through regular mailings, Web site postings, and responses to telephone inquiries. In 1997, a “plain language” overview of the requirements of Proposition 65 was developed; this overview is distributed upon request to interested parties.

Finally, OEHHA's Registered Environmental Assessor (REA) program, which administers the voluntary registration of environmental compliance experts, provides prospective and current REAs with information on registration requirements, and assists small and medium-sized businesses seeking technical assistance in achieving and maintaining compliance with environmental regulations.

Improving the environment using science and technology

OEHHA conducts objective, scientific evaluations of the risks posed by hazardous substances. OEHHA's ongoing efforts include conducting chemical-specific risk assessments, reviewing site- and facility-specific assessments, performing public health investigations of environmentally-related illness reports, and developing guidance intended to ensure that risk assessments utilize the best scientific data, principles and methodologies. OEHHA plays a critical role in providing regulators and risk managers in Cal/EPA with the scientific assessments that provide part of the basis for regulatory actions in a wide range of areas, including establishing air quality standards, drinking water standards, contaminated site cleanups, pesticide registration, and others.

OEHHA's most notable efforts in 1997 include chemical-specific risk assessments on environmental tobacco smoke, inorganic lead, diesel exhaust, and 26 drinking water contaminants, and draft guidelines for conducting risk assessments using a “likelihood of risks,” or stochastic, method. It is anticipated that OEHHA will complete work on 19 public health goals for drinking water by the end of 1998.

AIR QUALITY PROTECTION /MANAGEMENT

The warm weather and geographic features that make California such an attractive place to visit and live also contribute to the state's air quality problems — air pollution consistently ranks high among public concerns. In California, the State Air Resources Board (ARB), Bureau of Automotive Repair (BAR), and Department of Pesticide Regulation (DPR) work together with 35 local air districts, and the U.S. Environmental Protection Agency (U.S. EPA) to improve and protect air quality.

The primary goal of California's air quality programs is to improve public health by achieving air quality standards for pollutants such as ozone, carbon monoxide, and particulate matter, as expeditiously as possible. Air quality standards are intended to protect the health of all Californians, including those who are usually most vulnerable — children, the elderly, and people with preexisting medical conditions. Air toxics legislation addresses another part of the health effects picture. Secondary air quality standards seek to reduce the welfare and aesthetic effects of air pollution, like forest damage, reduced crop yields, and impaired visibility.

- In 1997, California celebrated the 50th anniversary of its air pollution control efforts. In 1947, Governor Earl Warren signed legislation authorizing local districts to control air pollution throughout California. Over the last five decades, California's need to improve air quality has spurred a succession of technology advances, from exhaust controls for vehicles to chemical scrubbers for smokestacks to reformulated paints and consumer products. Improved technologies and other pollution-cutting strategies have dramatically improved air quality in Los Angeles and across the state, in spite of continued population growth and even greater increases in vehicle usage.

Pollution Prevention

Since pollution released into the ambient air (unlike water or soil) cannot be cleaned up, all of the ARB's programs focus on preventing pollution before it is emitted. For example, clean fuels regulations and consumer products standards require product reformulation, while mobile source emission standards result in the capture and control of pollutants within vehicles. Compliance training activities for local air district staff and industry representatives also promote pollution prevention.

Air Quality Regulation in California: Who's Responsible?

35 Local Air Districts

Control and permit industrial pollution sources (power plants, refineries, manufacturing) and widespread area sources (degreasing operations, paint applicators, dry cleaners)

Develop and adopt local air quality plans

State Agencies

Establish State Ambient Air Quality Standards

Adopt and enforce emission standards for motor vehicles, fuels, some off-road equipment, consumer products, air toxics, and pesticides

Approve local air quality plans and develop State Implementation Plans

Federal Government

Establish National Ambient Air Quality Standards

Set emission standards for interstate trucks, trains, farm/construction equipment, ships, and planes

Approve State Implementation Plans

SIP Areas and Deadlines

1999- San Diego County
San Joaquin Valley

2005- Ventura County
Sacramento Region

2007- Southeast Desert

2010- South Coast

Clean Air Plans

The federal Clean Air Act of 1990 set specific deadlines for meeting the existing national air quality standards and required states and local agencies to develop State Implementation Plans (SIPs) demonstrating how those standards would be met. The California Clean Air Act of 1988 also established planning requirements to ensure that all feasible measures are implemented to achieve the state's more health-protective standards.

Clean air plans provide a framework for California's air quality programs at the state and local level. The latest science helps build the technical foundations of these plans to characterize the pollution problem, identify sources and their contribution, understand how emissions relate to ambient pollutant levels, and define the emission reductions needed to attain air quality standards. Air quality and transportation agencies then define the specific pollution reduction strategies that they commit to adopt and implement, in a specified timeframe. Clean air plans integrate all of these elements, together with any federal measures that reduce emissions, to provide a comprehensive view of the pollution "solution."

Ozone

California's approved 1994 Ozone SIP identified many ambitious new state, local, and national measures to bring the six smoggiest areas into attainment with the federal ozone standard by applicable deadlines. This SIP is the first time California has had an approved clean air plan demonstrating attainment of the Federal ozone standard.

The 1994 Ozone SIP recognized that California's existing air pollution control program will offset expected growth and reduce emissions by an additional 20 to 35 percent, but more emission reductions must be achieved. California continues to develop, adopt, and implement new measures to fill this gap. California's programs for cleaner vehicles and fuels, plus less volatile consumer products and pesticides, are all part of the state's responsibilities under the SIP.

As a practical matter, the strategies in the 1994 Ozone SIP will also further progress towards the state's own ozone standard, and as well as standards for particulate matter.

Particulate Matter

Particulate pollution is technically challenging because a wide array of chemical species create particles, in a variety of sizes. Each area of the state has a unique particulate problem, dependent on local sources and seasonal conditions.

The federal Clean Air Act requires State Implementation Plans to address inhalable particulate matter (PM10). Locally-developed plans for areas with "serious" particulate pollution were due in 1997. California has four such areas: Coachella Valley, South Coast, San Joaquin Valley, and Owens Valley. Because Coachella Valley has already met the national air quality standard, its plan focuses on ways to maintain present air quality levels. The other three areas identified additional control strategies in their plans.

San Joaquin Valley

Particulate matter in the San Joaquin Valley comes from a variety of sources including a growing population, the oil industry, and agriculture. The ongoing California Regional PM10/PM2.5 Study, cosponsored by the ARB, the local district, and other organizations, continues to improve understanding of the conditions that cause high particulate episodes in the San Joaquin Valley. Additional research will assess the role of agricultural operations in producing and reducing particle pollution.

- In 1997, ARB approved the San Joaquin Valley's plan for attaining the federal PM10 standards by 2006. The plan relies on dust measures and ozone strategies, plus commitments for additional controls based on the results of research.

South Coast

The 1997 South Coast Air Quality Management Plan demonstrates attainment of the federal PM10 standards by 2006 and revises the local portion of the 1994 Ozone SIP. The ozone strategy and local dust suppression measures are the basis for the particulate matter attainment demonstration. The 1997 Plan incorporates over a year of research and technical enhancements on particulate matter monitoring, emissions inventory, and modeling.

- In early 1997, ARB approved and forwarded the 1997 South Coast Plan to U.S. EPA.

Owens Valley

High PM10 levels in Owens Valley are due to dust from a dry lake bed, created in the early 1900s when the City of Los Angeles diverted water from Owens Lake.

- In 1997, the Great Basin air district developed a PM10 plan containing strategies to reduce dust emissions from the dry lake bed. ARB will review and consider approval of a PM10 plan for Owens in early 1998.

Planning for the Future

Environmental management is a constant challenge. Air quality goals may change in response to health research that reveals new information. Air quality programs must reflect any changes to those goals and provide a mechanism to incorporate the most up-to-date technical information.

New Federal Ozone and Particulate Matter Standards/Regional Haze Program

In mid-1997, U.S. EPA finalized revisions to the federal air quality standards for ozone and inhalable particulate matter (PM10), and established new standards for the subset of fine particles (PM2.5). For both ozone and particulate matter, California's own standards provide additional health protection.

At the same time, U.S. EPA also proposed new regulations to reduce widespread regional haze and protect visibility in certain national parks and wilderness areas. California has 29 such areas, ranging from Redwood National Park on the north coast to Joshua Tree National Park in the southern desert. The state's existing and planned air quality programs to meet health-based standards will also reduce emissions of pollutants that impair visibility.

- Following a series of public forums, ARB developed extensive comments on the proposed standards in early 1997. These comments emphasized the importance of implementing any new standards in a sensible, flexible manner.
- In late 1997, ARB also commented that the regional haze regulation must allow California to integrate visibility efforts with the technical, planning, and control activities for fine particles to permit a cost-effective and resource-efficient implementation program.
- Throughout 1997, John D. Dunlap, III, Chairman of ARB, participated in a large national advisory group on implementation of the new federal air quality standards, as well as the regional haze program. Chairman Dunlap advocated state flexibility rather than federal prescription, increased federal funding to offset the costs of these new programs, and effective national emission standards for sources under the exclusive control of the federal government (like interstate trucks, ships, and planes).

Joshua Tree National Park



- Within the state, ARB, air districts, and industry also participate on a working group to identify issues of mutual concern and develop consensus proposals. This group submitted three joint comment letters to U.S. EPA in 1997 with recommendations on general implementation issues, requirements for interim progress, and the proposed regional haze regulation.

Southern California Ozone and Particle Study

As outlined in its Strategic Plan, ARB continues to pursue and advance the best air quality science. During summer 1997, ARB and over 100 organizations from three countries collaborated on a \$5 million study to gather extensive data on the formation and transport of both ozone and fine particles in Southern California. Air quality agencies will use this information to refine their technical tools and set the direction of pollution control programs in Southern California during the next round of air quality planning.

- Because of the large area over which air pollutants are transported, the study covered the entire southern portion of the state, from Bakersfield to the Mexican border and from the Pacific Ocean to the Arizona and Nevada borders.
- Although most pollutant transport occurs high above the earth, information on conditions “aloft” has been lacking. To fill these gaps, researchers focused on ozone formation up to two miles above the ground.
- Sophisticated new equipment was used to collect data, including a laser system that measures ozone levels as high as 10,000 feet, a network of thirty radar units to monitor winds and temperatures, 1,000 weather balloons to track air movement, six airplanes to measure pollutant levels, and thirty new ozone monitoring stations.



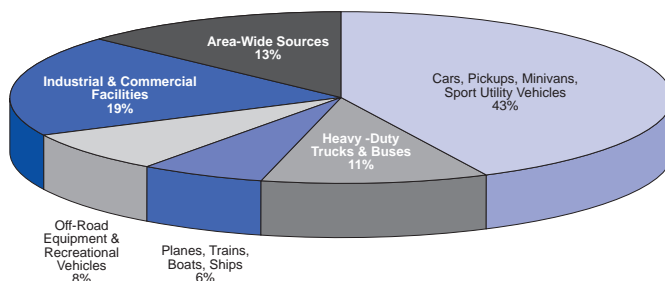
A lidar instrument measures ozone levels aboveground by sending out a laser beam during the Southern California Ozone Study.

Mobile Source Initiatives

Mobile sources account for over two-thirds of smog-forming emissions in California. Because of the importance of mobile sources, the state’s air quality program focuses heavily on reducing emissions from vehicles and mobile equipment. New controls on these sources provide over half of the emission reductions identified in the 1994 Ozone SIP. As cars and light-duty trucks become cleaner, other mobile sources (like off-road equipment, locomotives, and ships) will contribute a larger share of future emissions. Prospective programs will focus on these sources, as well as new technology to make all vehicles cleaner in the future.

Sources of Smog in California

(1995 Emission Inventory)



Motor Vehicles

California's Low-Emission Vehicle program requires progressively cleaner vehicles through 2003. The program establishes fleet-average standards for new cars, a market-based strategy that allows manufacturers to use the most cost-effective mix of control technologies and fuels to achieve the declining emission reduction target for each year. The ARB has also entered into technology development agreements with major automakers to facilitate the introduction of electric cars early next century.

- In 1997, nearly half of all the new cars and pickup trucks sold met one of ARB's Low-Emission Vehicle standards.
- In late 1997, consumers were offered their first opportunity to purchase a gasoline-powered "Ultra-Low Emission Vehicle" — the cleanest category of cars and pickup trucks, except for electric vehicles.
- In March 1997, a major auto manufacturer introduced the first vehicles to meet California's Super Ultra-Low Emission Vehicle (SULEV) standards for medium-duty vehicles. The natural gas-powered van and full-size pickup are 85 percent cleaner than comparable 1997 models.
- ARB adopted new vehicle tests to control pollution from cars and trucks during high-speed or high-acceleration driving, and while the air conditioner is being used. These new emission tests will eliminate virtually all extra emissions associated with aggressive driving and air conditioner use.
- Two major auto manufacturers offered electric cars for lease to the public in 1997 — one using conventional lead-acid batteries, the other equipped with advanced nickel-metal hydride batteries. Two additional models of electric vehicles, targeted to the fleet market, are expected in early 1998.

Electric vehicles parked at the Sacramento Metropolitan Utility District charging station.



- Fuel cells, which generate clean electricity by chemically combining hydrogen and oxygen, may power fuel-efficient vehicles of the future. In 1997, a worldwide auto manufacturer joined forces with a fuel cell developer to produce automobiles powered by fuel cells. The joint venture hopes to produce 100,000 cars for sale worldwide by 2004.

Clean Fuels

ARB's clean fuels program, including both gasoline and diesel fuels, complements the clean vehicle program. Cleaner fuels provide immediate benefits by reducing emissions of ozone-forming gases, particulate matter, and toxic pollutants from existing vehicles and equipment.

Cleaner Burning Gasoline, introduced statewide in 1996, is an air quality success story. Air monitoring in 1996 and 1997 confirmed significant reductions in ozone and cancer-causing benzene, as expected.

At the same time, concerns have been raised about the detection of a common gasoline additive in California drinking water sources. Methyl tertiary butyl ether, or MTBE, was first used in gasoline in the late 1970s to prevent engine knocking. Since 1992, refiners have added oxygenates, including MTBE, to their wintertime gasoline blends to meet federal requirements in carbon monoxide nonattainment areas. Year-round use of oxygenates began throughout the state in 1996 as part of the Cleaner Burning Gasoline requirements. Although MTBE is one of several oxygenates that refiners can use to meet the requirements, it remains the oxygenate of choice.

The California Environmental Protection Agency and other state agencies have been proactive in investigating MTBE in California's water supplies. Exhaust and unburned fuel from boat engines are the likely source of MTBE in lakes and reservoirs. The primary source of MTBE in groundwater is leaking underground gasoline storage tanks. Under the statewide underground storage tank program, all tanks installed prior to 1984 must be upgraded or replaced by the end of 1998. The ARB is working with other agencies to better understand the extent of the problem.

- In 1997, Governor Wilson signed SB521 (Mountjoy, Chapter 816) to address public concerns about the health and environmental effects of MTBE. The legislation requires a comprehensive study of MTBE and other fuel oxygenates, to be submitted to the Governor by January 1, 1999. If the study shows that the use of MTBE in California's gasoline poses a significant risk, the Governor must take appropriate action to protect human health and the environment.

Cleaner diesel fuels, introduced in 1993, also reduce vehicle emissions, cutting oxides of sulfur by over 80 percent and particulate matter by 25 percent.

Smog Check

California's Smog Check program is an integral part of the state's clean air strategy for both ozone and carbon monoxide, providing one-fourth of the total new emission reductions needed between 1996 and 2000. Biennial vehicle inspections are critical to ensure that emissions from cars and pickup trucks do not increase beyond the standards in effect at the time of manufacture as the vehicles age. The

Bureau of Automotive Repair oversees the Smog Check program, which applies statewide, but the requirements vary by area based on the severity of the air quality problem. Federal law requires the most stringent provisions in the urbanized portions of the six SIP areas.

In 1997, Governor Wilson signed four pieces of legislation revising Smog Check to address continuing public concern about recent program improvements, while maintaining the majority of the air quality benefits.

- In the first four years of operation, new vehicles have historically maintained very low emission levels. To focus resources on the most significant air quality problems, AB1492 (Baugh, Chapter 803) exempted new vehicles from Smog Check during this four-year period.
- On the other end of the spectrum, SB42 (Kopp, Chapter 801) expanded the number of older vehicles that are exempt from the program — from pre-1967 to pre-1974 model year vehicles. Beginning in 2003, all vehicles 30 years and older will be exempt.
- Smog Check changes implemented in 1995-1996 created additional requirements for vehicles that fail the test by the highest margin (“gross polluters”). AB1492 removed the requirement for annual testing of these vehicles and placed a cap on the repair costs that owners must pay to bring the vehicles into compliance.
- A fundamental Smog Check requirement is repair of vehicles that fail the test. AB57 (Escutia, Chapter 804) established a program to assist low-income vehicle owners with Smog Check repairs in excess of \$250.

National Emission Standards

Despite California’s leadership in reducing emissions from motor vehicles, there are some types of mobile sources that the state cannot regulate. The SIP charges U.S. EPA with developing effective national emission standards for sources that are legally or practically under exclusive federal control. These sources, which include interstate trucks, most farm and construction equipment, locomotives, ships, and planes, account for an increasingly larger portion of the air pollution problem as sources under California’s jurisdiction continue to reduce emissions.

ARB previously negotiated agreements with U.S. EPA and engine manufacturers to secure new national emissions standards for cleaner diesel trucks and buses, as well as diesel-powered farm and construction equipment. In 1997, U.S. EPA proposed national standards for locomotives that would satisfy California’s 1994 Ozone SIP needs in all areas, except the South Coast.

- To meet the South Coast's need for even greater emission reductions, ARB, U.S. EPA, and the two primary railroad companies in the region signed a 1997 agreement to concentrate new, cleaner locomotives in that area. About 800 locomotives will be replaced, beginning in 2005, with new models to cut hydrocarbon and particulate matter emissions by half and NOx emissions by two-thirds.
- Throughout 1997, ARB, local air districts, U.S. EPA, and other stakeholders continued a public consultative process to identify strategies to cut pollution from ships and ports, and planes and airports. ARB continues to press the federal government to fulfill its responsibilities to achieve the needed emission reductions from these sources.

Transportation and Air Quality

Advances in technology continue to cut pollution from new vehicles and cleaner fuels are reducing emissions from the existing fleet. Yet, Californians are also making more trips and driving further. The state is faced with identifying more efficient ways of using the existing transportation systems, while improving air quality and reducing congestion.

California continues to pursue strategies to promote less polluting travel habits. Ridesharing programs, including expanded carpool lanes, have placed California's urban areas ahead of the nation in carpooling rates. Public education programs, like the "Spare the Air" campaign in Northern California, to consolidate vehicle trips are important on high pollution days.

- In 1997, ARB developed new methods to quantify the cost-effectiveness of measures that reduce emissions from the transportation system. These measures have included purchases of cleaner buses, trucks and equipment; expanding carpool lanes; ridesharing programs; and telecommuting incentives. Standardized methods to calculate cost-effectiveness enable local agencies to make informed decisions on project selection when spending public funds to improve air quality and mobility.

Area Source Initiatives

The state has direct authority to reduce air pollution from two types of widespread area sources — the millions of home and personal care products that consumers use each year, as well as agricultural and commercial pesticides. Both of these types of sources emit volatile organic compounds (VOCs) which react to form smog.

Joint state and local smoke management programs are designed to reduce the effects of another area source, agricultural and forest management burning, on air quality. Burning activities produce particulate matter, which can impact nearby residents and contribute to widespread regional haze.

Consumer Products Program

Since the late 1980's, ARB has developed standards to limit the VOC content in 28 categories of consumer products. These regulations also allow alternative approaches that can achieve the same emission target at a lower cost.

- In 1997, ARB unanimously approved standards for an additional 18 product categories. The standards will be phased in between 2001 and 2005 to cut VOC emissions from the regulated categories in half, as required by the 1994 Ozone SIP.

Rice Straw Burning

Rice farming is a major industry in the Sacramento Valley. Rice straw left after harvest was traditionally burned in the field until health concerns and public complaints prompted increased scrutiny of this practice. The Rice Straw Burning Reduction Act of 1991 requires the "phasedown" of rice straw burning in the Sacramento Valley, while encouraging development of alternatives to burning. This program began in 1992 and has significantly reduced the yearly amounts of rice straw burned.

- In 1997, ARB and the California Department of Food and Agriculture prepared a required joint report, which emphasized that the success of the burning phasedown depends on developing economically viable alternatives for disposal. Both the joint report and an advisory committee recommended financial incentives to support rapid development of alternatives to burning, including new uses for rice straw.

The Air Resources Board is working to develop viable alternatives for rice straw disposal.



- ARB held two public forums in mid-1997 to identify alternatives to rice straw burning in the Sacramento Valley. Over 150 participants, including farmers, public health professionals, entrepreneurs, finance and investment professionals, legislative staff, and government representatives agreed on the need for funding to demonstrate the feasibility of alternative methods.
- In response to these forums, SB318 (Thompson, Chapter 745) created the Rice Straw Demonstration Project Fund, which will provide \$2.5 million in cost-sharing grants for projects that provide economically attractive uses for rice straw.

Rice Straw Tax Credit Program

The California Department of Food and Agriculture has implemented the provisions of SB38 of 1996 (Lockyer, Ch. 954) which created the Rice Straw Tax Credit Program. This program provides a tax credit of \$15 per ton of rice straw grown in California and purchased for utilization other than open-field burning. The aggregate amount of the tax credit available to all taxpayers is limited to \$400,000 per year. This represents approximately 9,000 acres out of a 500,000 acre industry.

The tax credit is available for straw purchased between January 1, 1997 and December 1, 2008. Any unused portion of the tax credit may be carried forward for ten years.

The department must also report to the Legislature each year on the status of the program and evaluate utilization technologies and how the program can maximize long term uses of rice straw.

The program was established, recognizing the fact that the mandated phasedown of rice straw burning was not resulting in the anticipated collateral development of straw utilization technologies. The only available straw management technique to date has been soil incorporation, which results in increased expense and potential disease and field management problems.

Market Incentives

Environmental agencies are working to bring about a cleaner environment through new and more efficient ways of doing business in California. To encourage innovative and cost-effective pollution reduction strategies, the state is implementing market-based programs under the 1994 Ozone SIP for both mobile sources and consumer products.

- In May 1997, ARB adopted a statewide regulation establishing criteria and general requirements that local district programs must meet when developing and implementing programs to allow the interchangeable use credits from stationary, mobile, and area sources as an alternative to compliance with some local requirements.
- In 1997, both the South Coast and Sacramento had active programs in place for trading emission reduction credits. Trading programs are under development in the Bay Area and the San Joaquin Valley.
- Incentive programs to encourage the purchase of clean vehicles or repower old equipment with cleaner engines are bringing air quality benefits throughout the state. In 1997, a grocery chain in Sacramento launched California's first commercial fleet of trucks fueled by liquefied natural gas (LNG). Use of these ten vehicles instead of their diesel counterparts is equivalent to removing 800 to 1000 new cars from the road. Programs in other areas have repowered diesel trash trucks with LNG engines, outfitted dive boats with lower-emitting engines, and purchased electric and natural gas transit buses.

Air Toxics Program

California has led the nation in controlling air toxics from both mobile and stationary sources. ARB identifies substances as toxic air contaminants following an extensive scientific review, and then adopts control measures to address the sources posing the greatest statewide health risks. State vehicle and fuel standards further reduce emissions of toxic pollutants.

- In April 1997, ARB listed inorganic lead as a toxic air contaminant without an identifiable safe threshold exposure level. The primary health risk from inorganic lead is its adverse effect on the nervous systems of children. In the “risk management” phase, ARB is now assessing the need, feasibility, and cost of reducing inorganic lead emissions.
- In September 1997, ARB and the Office of Environmental Health Hazard Assessment released a joint report on the health effects of exposure to environmental tobacco smoke. The report, along with all comments, was forwarded to the Department of Health Services Tobacco Control Program, the state’s lead agency for addressing health effects related to tobacco use.
- ARB designed an extensive environmental training program for dry cleaners who use perchloroethylene, following adoption of a statewide control measure to reduce emissions. The training course improves compliance with the air toxics measure, as well as other regulations affecting water, waste, and worker safety. To date, ARB has certified over 60 instructors from 37 organizations to conduct the training courses. About 4,300 dry cleaners have successfully completed the course.

Mexican Border Issues

Air pollution does not recognize boundaries, whether they are county lines or international borders. Cooperation between U.S. EPA, the ARB, the Mexican government and local air pollution control districts is improving information on emission sources and pollutant transport across the California-Mexico border. Other objectives are to facilitate technology transfer to Mexico’s environmental protection agency, and guide future planning efforts on both sides of the border.

- In 1997, ARB completed installation of the last of twelve air monitoring stations in Mexican border towns. Six stations are now located in Tijuana and six in Mexicali. These sites measure the levels of ozone, carbon monoxide, particulate matter and lead. Two sites measuring ambient toxics levels are also located in Tijuana and Mexicali. Two additional air monitoring stations have also been established in Calexico in California’s Imperial County to provide more data on transport.

WATER QUALITY PROTECTION

Bay Delta

When the Bay/Delta Principles of Agreement were signed in December 1994 by representatives of state and federal governments, agricultural, environmental and urban water interests, a unique mechanism was created to provide additional water for the Bay/Delta Estuary while improving water supply reliability for California's farms and city dwellers.

Earlier that summer a collaboration of state and federal agencies formed CALFED to address long-standing problems in the estuary. In September 1996, CALFED, with assistance from relevant stakeholders, completed Phase I of its process to develop alternative solutions to water supply and ecological restoration issues for the Bay/Delta watershed. These alternatives will undergo a programmatic review and selection of a proposed solution by the end of 1998.

On a parallel track, the State Water Resources Control Board (SWRCB) adopted in May 1995, its Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta. This plan was largely the product of a planning process seeking consensus among many of California's major water interests on Delta standards to both improve aquatic habitat and water supply reliability.

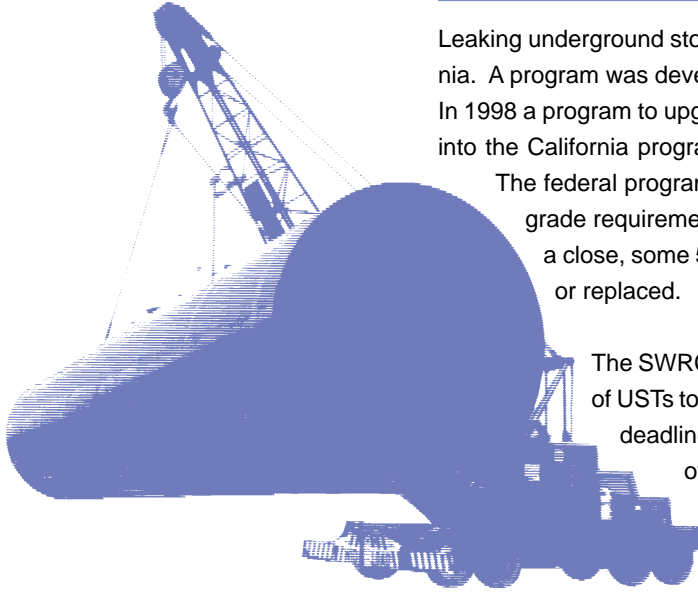
In signing the Principles of Agreement, it was agreed that environmental projects to protect and maintain the habitats of the region would be instituted while long-term solutions are developed. The Wilson Administration has actively worked to facilitate these efforts and in 1995, several projects were begun, including a real-time fish monitoring program, fish ladders and screens, riparian habitat restoration and a pesticide control program. Additional programs were proposed for 1997.

The SWRCB is developing an Environmental Impact Report (EIR) for its Bay-Delta water right review process. The focus of the review is to determine if water users beyond the Central Valley Project and State Water Project should help meet Bay-Delta requirements to protect fish and wildlife and water quality. Workshops were held in 1995 and 1996 to review the scope of this effort. In November, 1997, a draft EIR was being prepared for circulation prior to a water rights hearing scheduled for July, 1998. It evaluates alternative methods of increasing the number of water users that help meet the Bay-Delta requirements.

The Bay-Delta system is at the center of an ongoing state and federal effort to resolve competing interests.



Underground Storage Tank Program



Leaking underground storage tanks (UST) pose a threat to groundwater in California. A program was developed in 1984 to address this matter by regulating USTs. In 1998 a program to upgrade, replace or remove high risk USTs was incorporated into the California program after the effective date of federal UST requirements.

The federal program calls for all high risk tanks to be in compliance with upgrade requirements or removed by December 22, 1998. As 1997 drew to a close, some 50 percent of the state's 60,000 tanks had been upgraded or replaced.

The SWRCB is actively working with industry and residential owners of USTs to assist them in meeting this deadline. Those who miss the deadline may find their insurance carrier canceling coverage, and owners out of compliance with current tank laws may jeopardize any claim to the state's UST cleanup fund for financial assistance in cleaning up petroleum leaks.

In addition, 1997 legislation prohibits delivery of gasoline after January 1, 1999, to any underground tank in California which has not met the upgrade or removal requirements by the December deadline.

Adding to the urgency of the December deadline is the presence of the gasoline additive MTBE which is highly soluble and does not biodegrade as rapidly as the other constituents of gasoline.

Salinas Valley Seawater Intrusion

The Salinas Valley in Monterey County is one of the most productive agricultural areas in the world, producing revenues of over \$2 billion annually. Groundwater is the primary source of supply in the Salinas Valley for both agricultural and municipal water needs.

Seawater intrusion and nitrate contamination threaten the water quality of the Salinas Valley groundwater basin. The SWRCB has been working closely with the Monterey County Water Resources Agency to correct these water quality problems. The county is implementing a phased approach and the SWRCB is tracking progress. (See "Water Reclamation" on page 64.)

Storm Water

Storm water permitting plays a vital role in controlling nonpoint source pollution in California. Dischargers are required to eliminate most non-storm water discharges, to develop a storm water pollution prevention plan to identify and implement control measures to minimize pollutants in storm water runoff and monitor their discharges.

Through the SWRCB Storm Water Program, an Industrial Activities Storm Water General Permit was reissued and adopted in 1997. In 1998 it is anticipated that a Construction Activities Storm Water General Permit will be reissued and a new Storm Water Permit for the California Department of Transportation will be adopted.

Nonpoint Source Pollution

The SWRCB is implementing a management plan to address major nonpoint source pollution problems (those coming from diffuse sources). In 1995 the work of ten statewide Technical Advisory Committees was integrated into an initiatives strategy adopted by the SWRCB. Today, the SWRCB and RWQCBs are working with an array of public and private partners to voluntarily implement many of the nonpoint source control recommendations.

Outstanding success stories include restoration of stream channels and riparian areas on private grazing lands and control of nutrient and pesticide runoff from orchards through development of alternative land management practices that naturally limit on-site use of pesticides and restore soil fertility.

Water Quality Enforcement

Since the SWRCB's adoption of the statewide water quality enforcement policy in 1996, the SWRCB and the RWQCBs have initiated several activities designed to enhance compliance capabilities. In fiscal year 1997-98, 20 new staff have been assigned in each of the nine regions and at the SWRCB to increase enforcement and compliance actions. This increased presence has resulted in more inspections of surface water discharges and a projected 50 additional enforcement actions in 1997-98.

However, it is important to recognize that the goal of compliance and enforcement efforts is to protect water quality, not count the number of enforcement actions. Goals for 1997-98 include increased efforts at protecting rivers from dairy runoff, reducing beach closures from sewage overflows, and continued work with local enforcement task forces.

Work is in progress to develop a statewide compliance and enforcement strategy. Each regional board is reviewing its current efforts and will recommend suggestions for program improvements. This effort will result in a prioritization of enforcement activities and a strategy to meet those needs.

Protecting Streams from Pesticides

Farmers in the San Joaquin River watershed treat their orchards with pesticides during winter months. Working in cooperation with the Central Valley RWQCB, the Department of Pesticide Regulation (DPR) found spray residues in streams after winter storms. While the residue levels presented no threat to people, they sometimes created a potential hazard for small aquatic animals and plants.

In response, DPR began the Dormant Spray Water Quality Program, which emphasizes cooperative efforts between growers and regulators, rather than mandatory government restrictions. For example, DPR studies have shown that planting cover crops, such as clover, significantly reduces runoff residues from orchards. Other control measures are under study. DPR will also continue monitoring water quality in the San Joaquin watershed and maintains the option to impose mandatory controls, if necessary.

Preventing Groundwater Contamination

As part of its groundwater protection program, DPR initiated efforts to reduce herbicide applications on grape and citrus acreage in Fresno and Tulare counties. Under a grant from U.S. EPA's "Pollution Prevention Incentives for States," DPR examined the potential for groundwater contamination from surface runoff and by leaching from vineyards and orchards. Preliminary results showed that efficient irrigation, careful herbicide applications, and use of alternative weed control strategies are more effective than switching from one herbicide to another. The studies were conducted in cooperation with growers, pesticide makers, citrus organizations, and the University of California Cooperative Extension.

Dairy Waste Pollution

Pollution control scientists and engineers agree that over time, dairy waste degrades water quality. In surface water it can be seen in increased pollutants such as coliform and suspended solids. Groundwater becomes polluted from the nitrates and salts coming from dairy waste applied to the soil. The RWQCBs are working closely with dairy operators to achieve voluntary implementation of "best management practices" based on region specific conditions and operating practices, or issue waste discharge permits which spell out exactly how dairy waste is to be managed.

Should flagrant or continuing violations of water pollution laws by dairy farmers continue, a Dairy Enforcement Task Force was created by Cal/EPA and U. S. EPA in 1997 to take appropriate enforcement action. The agencies are assisted by county district attorneys.

A San Joaquin valley rancher's solution to dairy waste uses recycled water to carry off the waste. It is then separated and returned to a onsite treatment facility.



Agricultural Drainage

The California Department of Food and Agriculture is cooperating with the Department of Water Resources and the University of California to augment the San Joaquin Valley Drainage Program as mandated under Proposition 204. The program, which will include strong stakeholder involvement, will fund demonstration projects to address a variety of drainage issues such as soil salinity management, selenium management, water use efficiency measures, and on-farm management systems. This program will provide substantial improvements to the long-term sustainability of agricultural lands and to water quality in San Joaquin Valley and Delta rivers and streams.

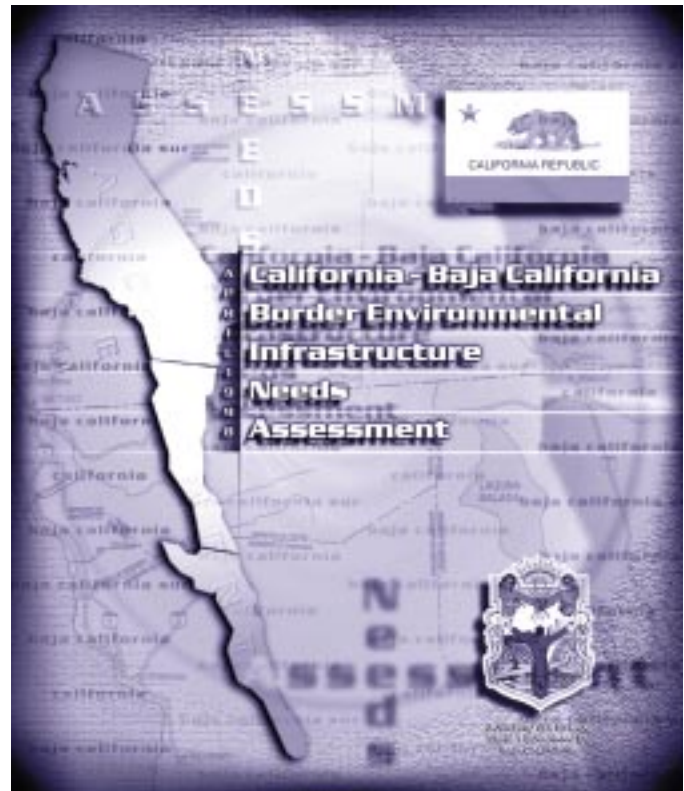
Border Pollution

South San Diego County beaches have been closed periodically for years due to inadequate wastewater infrastructure in Tijuana. A new International Wastewater Treatment Plant became operational in the fall of 1997. This project, plus completion of an ocean outfall and other projects in 1998, will resolve the dry weather cross-border public health problem. The SWRCB will continue to work with federal, state and local agencies in the U.S. and Mexico to identify and implement additional wastewater infrastructure projects needed to protect the border environment.

The SWRCB, and the Colorado River Basin Regional Water Quality Control Board, working with federal, state and local agencies in Mexicali, reached agreement on a series of technical solutions to long-standing New River pollution problems. These solutions obtained binational approval in December 1997 from the Border Environment Cooperation Commission. Construction is anticipated to begin by mid-1998, once financing details are resolved.

Work began on a California/Baja California Environmental Infrastructure Needs Assessment. The SWRCB, working with agencies in Baja California, anticipate completion of the report by mid-1998. The report will highlight California and Baja California infrastructure needs for the Border Environment Cooperation Commission and the North American Development Bank.

The SWRCB, Colorado River Basin Regional Board and the San Diego Regional Water Quality Control Board are working with the City of San Diego, City of Calexico and California State University, Sacramento to respond to a number of requests for technical assistance from Baja California wastewater agencies.



Water Reclamation

Water reclamation continues to play an important role for water supplies to meet state needs. The SWRCB has been the administrator of state low interest loan programs for the design and construction of local water reclamation facilities. Policies and procedures were also adopted by the SWRCB in 1997 to implement Proposition 204.

Since the inception of state loans for water reclamation in 1984, the SWRCB has approved \$178 million in loans. In 1998 one of the projects receiving funds, the Salinas Valley Reclamation Project, will begin delivering up to 19,000 acre-feet per year of reclaimed water to irrigate crops including artichokes and lettuce. A joint venture of the Monterey Regional Water Pollution Control Agency and the Monterey County Water Resources Agency, this project will produce a significant reduction in the contamination of groundwater by seawater seeping inland underground due to well pumping. The project will be an important step in maintaining agricultural production in this economically important region.

1997 Strategic Plan Update

The 1997 Strategic Plan Update of the SWRCB provides an up-to-date look at the State and Regional Boards' mission, vision, values and goals. It builds on the initial 1995 Strategic Plan and includes new information on Board-wide strategies and performance measures for water quality and water rights activities. These goals and strategies attempt to anticipate Board-wide strategic needs to fiscal year 2001/02.

The SWRCB's five goals are:

- To preserve, enhance, and restore water resources while balancing economic and environmental impacts.
- To promote cooperative relationships and improve support for the regulated community and public.
- To encourage balanced and efficient use of water through water transfers, recycling and conservation.
- To improve internal efficiency and effectiveness.
- To establish a more stable and flexible mix of funding sources.

ECOSYSTEM MANAGEMENT

Watershed Protection and Restoration Council

On July 31, 1997, Governor Wilson issued an Executive Order establishing a Cabinet-level Watershed Protection and Restoration Council (WPRC). The main objective of the Council is to develop a program which includes an anadromous salmonid conservation element, leading to the promulgation of a 4 (d) rule by the National Marine Fisheries Service (NMFS) under the Federal Endangered Species Act (ESA). This approach allows NMFS to exercise its functions in a way to assist and support a state-based conservation effort rather than establish a whole new federal overlay of processes and requirements brought about by the ESA listings.

In November 1997, the WPRC's draft report, developed by the Council's inter-agency state working group, was circulated for comment. The report included a description of existing activities dedicated to preventing watershed problems, efforts underway to restore watersheds and listing of data and reports relevant to coho salmon and steelhead trout. Upcoming efforts will focus on networking with stakeholders at the local level, developing a unified federal-state approach to watershed protection [4 (d) rule under ESA], identification of additional protection and restoration measures needed, and developing an adaptive monitoring and management approach to ensure that all actions taken are effective.



Governor Pete Wilson announces CalFed's award of a series of grants to support ecosystem restoration. The money was made available through the passage of Proposition 204, a \$995 million bond measure to assist both the state's water protection efforts as well as its water infrastructure.



One of the grants was to The Nature Conservancy for habitat acquisition along the Cosumnes River in south Sacramento County. The Whaley parcel pictured above is valuable as a rearing ground for endangered salmon and splittail in the winter and as a foraging ground for sandhill cranes as well as habitat for ducks, geese and other waterfowl. (Photos courtesy of Michael Eaton, The Nature Conservancy)

Comprehensive Habitat Conservation



In 1997 the Department of Pesticide Regulation (DPR) assumed a stronger policy role under the Federal Endangered Species Act. The U.S. EPA delegated authority to the Department a “non-federal representative.” In this capacity, DPR will assist federal agencies assessing potential pesticide impacts on more than 160 species of endangered plants and animals found in California. DPR developed its own endangered species program in 1989 to represent local and state concerns about endangered species habitats and pesticide use.

These palm-size flash cards, part of DPR’s endangered species program, are distributed to farmers, pesticide applicators, and others as a handy field reference to species habitats, activity patterns, tracks, and other distinguishing characteristics.

Watershed Management



A key goal of the State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCBs) is to provide water resource protection, enhancement, and restoration while balancing economic and environmental impacts. To achieve this goal, the SWRCB adopted the Watershed Management Initiative (WMI), an integrated planning approach, as a component of its strategic plan.

The current focus of the WMI is on the development of watershed management strategies at each of the RWQCBs. These strategies will emphasize regulatory coordination and flexibility to focus on the most important problems. In 1997, each of the RWQCBs began developing strategies for achieving water quality goals in each of their watersheds. These strategies, once completed, will identify and prioritize the planned activities of the RWQCBs over the next five years and serve as the basis for more effectively and efficiently allocating scarce state resources available for water quality.

The first allocation of funds based on the WMI priorities was completed in July 1997 when local agencies received federal grants for nonpoint source and water quality planning projects. The grant selection process was made collaboratively by representatives of the RWQCBs, the SWRCB, and the U.S. Environmental Protection Agency. In 1998, these watershed priorities will be applied to a broader array of funding decisions.

Inland Surface Waters, Enclosed Bays and Estuaries Standards

In 1997 the SWRCB held public hearings to seek comments regarding a proposed state policy for water quality control titled "Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California." The purpose of the proposed policy is to establish statewide implementation provisions for priority toxic pollutant standards, and statewide toxicity control provisions. This proposal is the first of a two-phase process to adopt a new Inland Surface Water Plan and Enclosed Bays and Estuaries Plan. The proposed policy will affect entities who discharge to the state's non-ocean surface waters, and are subject to regulation under the state's Porter-Cologne Water Quality Control Act and Federal Clean Water Act.

Coastal Protection

In March 1997 the SWRCB adopted amendments to the California Ocean Plan (COP), including provisions specifying a new list of test protocols that are used to determine if discharges to the ocean are toxic. The 1997 amendments represent resolution of two of the 24 highest priority issues raised by the public and the regulated community during the COP's last Triennial Review. The Administration's 1997-1998 budget augmentation doubled the resources available for review of the COP, including a commitment to conduct a new Triennial Review in 1998.



Central California coastline near Granite Canyon Marine Laboratory (Photo by John Hunt - DWQ, SWRCB)

REDUCED-RISK PEST MANAGEMENT

Public-Private Alliances Funded

The Department of Pesticide Regulation (DPR) received \$750,000 from the Legislature for a public-private effort to develop pest control alternatives that reduce risks to people and the environment. The Pest Management Alliance Program will encourage industry to develop and implement pest management solutions with DPR's assistance. The goal is to encourage pest management that is both economically and environmentally effective.

The Alliance Program's first stage brought DPR together with members of agriculture to identify specific areas of critical need for reduced-risk pest management. Private groups then submitted detailed proposals to DPR. Projects ultimately selected for partnerships are eligible for up to \$100,000 per year from DPR, with matching funds from industry.

While projects may include a combination of applied research, implementation and demonstration, all must show significant benefits to human health and the environment. DPR has identified several areas of special concern. These include reducing risks of contamination to surface and ground water, and developing alternative pest strategies to replace methods that may be lost under the Federal Food Quality Protection Act of 1996.

Innovative Pest Fighters Honored

DPR honored 10 diverse groups in 1997 as "IPM Innovators" for their creative work on the front lines of the war against pests. IPM or integrated pest management emphasizes effective pest control techniques that minimize disruption to the environment. The 1997 winners were: the Almond Board of California in Modesto, representing more than 6,000 almond growers and 95 brokers; the Avocado Pest Management Task Force of Lake Elsinore, created by the California Avocado Commission and Calavo Growers of California to explore IPM options; Beckstoffer Vineyards of St. Helena, among the largest vineyard owners in Northern California with approximately 2,000 acres in Napa Valley and Mendocino County; the Bio-Integral Resource Center of Berkeley, a nonprofit organization that conducts applied research and education in "least-toxic" integrated pest management; the California Table Grape Commission of Fresno, which dedicates significant resources to developing IPM; the Central Coast Wine Grape Grower Natural Vineyard Team, for encouraging reduced risk pest management practices in its region; Farming, Agriculture, and Resource Management for Sustainability (FARMS) in Winters, for introducing high school students and teachers to the principles of sustainable agriculture and IPM practices; Friant Water Users Authority of Lindsay, representing 25 water and irrigation districts with more than 12,000 growers; Riverside-Corona Resource Conservation District of Riverside, which manages and assists landowners with soil, water, wildlife, and related resources on 200,000 acres; and the University of California Cooperative Extension in Merced County, an acknowledged leader in reduced risk pest management research.



\$600,000 for Environmentally Friendly Pest Management

DPR awarded nearly \$600,000 in grants in 1997 based on recommendations from the Pest Management Advisory Committee (PMAC). Among the recipients were: a project to mass-produce “good bugs” to fight vineyard pests in the San Joaquin Valley, a Fresno County program to teach Southeast Asian strawberry growers environmentally friendly pest management techniques, and an urban education campaign to encourage integrated pest management in the East Bay Area.

DPR chose 25 recipients from among 81 proposals in 1997. Some \$509,318 went to agricultural projects and \$84,865 to nonagricultural projects throughout the state. Individual awards ranged from \$10,000 to \$30,000. The one-year grants are renewable, based on performance. Seventeen grant recipients received funding for a second year of work.

Cofounded by DPR and the California Department of Food and Agriculture, the PMAC encourages the development, testing and dissemination of new pest management practices. It focuses on alternatives to pesticide uses that are critical to integrated pest management.

The PMAC includes representatives of all aspects of pest management: farmers, government regulators, pesticide specialists, environmental groups, and university researchers.

Enforcement Database Under Development

DPR received a \$500,000 appropriation from the Legislature to create a statewide database for enforcement. The system will allow DPR to compile comprehensive data on a variety of actions ranging from warning letters to criminal complaints against pilots, agricultural pest control advisers, dealers and applicators who operate anywhere in California. Currently, such enforcement records are maintained by individual counties, and data may not be readily available to other jurisdictions.

The new system will make it easier for DPR and county agricultural commissioners to review an operator’s overall performance record before issuing, renewing, or canceling a license or permit. The system will also encourage consistent penalties for pesticide violations, in keeping with Cal/EPA’s goal to promote uniform enforcement of environmental laws.

DPR Budget Stabilized

Farmers, environmentalists, and chemical manufacturers reached a consensus in 1997 to support legislation that stabilized funding for the Department of Pesticide Regulation. SB1161 was carried by Senator Jim Costa, passed by the Legislature in September, signed by the Governor in October, and took effect on January 1, 1998. The law ensures adequate support for DPR's regulatory activities for the next five years.

The law created a new formula for assessments on pesticide sales, also known as "mill fees," that account for about one-half of DPR's \$48 million annual budget. Under "sunset" provisions in previous legislation, DPR's mill fees dropped from 2.2 cents to 0.9 cents per dollar of pesticide sales, effective July 1, 1997. While the Department had accumulated a substantial reserve under the prior mill rate, the reduction in fees could not sustain DPR programs indefinitely and created uncertainties for long-term planning.

The new mill assessment law gives the Department greater flexibility to adjust fee collections based on budgetary needs. It allows DPR to utilize excess funds and maintain a prudent reserve, while assuring funding for DPR programs that protect public health and the environment.

SOLID WASTE MANAGEMENT AND RECYCLING PROGRAM

Waste Stream Diversion

The Big Picture

Since passage of the Integrated Waste Management Act in 1989 which established the goal of 50 percent statewide diversion by the year 2000, the Integrated Waste Management Board's (IWMB) primary focus has been to assist California's jurisdictions preparing blueprints for implementing diversion programs, and assisting with implementing selected programs. Jurisdiction diversion plans must show achievement of waste diversion of 25 percent by 1995 and 50 percent by 2000. With IWMB approval of 520 of 531 diversion plans thus far, many jurisdictions have successfully demonstrated that they are on schedule to meet diversion plan requirements.

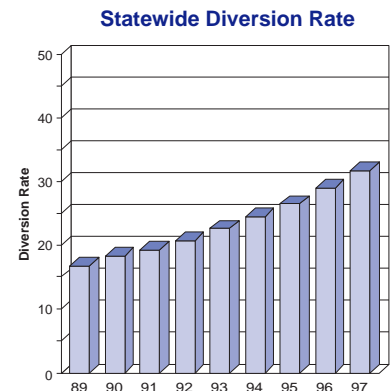
A critical element of the statewide planning effort has been the dramatic increase in new and expanded diversion programs put into motion by cities and counties throughout California. Between 1990 and 1995, programs increased by 155%, from 1,642 to 4,236 programs. This has caused a change in the statewide waste diversion rate of 17 percent in 1989, to more than 32 percent by the end of 1997.

Moving beyond planning to full implementation will define California's push to 50 percent by 2000. Diverting an additional 20 percent presents a much tougher challenge for cities and counties, which will need to build upon existing programs with methods and technologies that are not only innovative, but cost-effective as well.

However, California will be able to rely on a tremendous asset – a new waste management infrastructure forged out of the planning effort in the first half of the decade. An historic shift in technologies, facilities, and public attitudes away from dumping and toward diversion has California positioned to meet 50 percent diversion. An essential element of the new infrastructure is the cooperative alliances established over the last few years among the IWMB, local government and private enterprise.

Review of Countywide Integrated Waste Management Plans

These plans, prepared by California jurisdictions with the assistance of the IWMB, demonstrate how cities and counties will meet mandated diversion goals. A key element of the IWMB review is to help jurisdictions determine the right mix of strategies and programs. Plans have been submitted by nearly every one of the state's 530 cities and counties. More than 95 percent of these local plans have been approved by the IWMB.



Project Recycle

Project Recycle is designed to establish California state government as a role model for the private sector in the area of waste diversion. Governor Wilson's Executive Order W-7-91, and legislation, required state facilities to provide for the collection of recyclable materials. Project Recycle coordinates waste reduction programs for all state facilities, providing for the collection of recyclable materials, putting waste prevention techniques into action, implementing recycling contracts for the collection and sale of recyclables, and training staff. In 1997 Project Recycle started recycling contracts for the collection of scrap copper, metal, ink jet cartridges, laser toner cartridges, and clothing items. In the last two years alone, 1,171 state facilities reported collecting 61,000 tons of material for recycling.

Protecting California's People and Resources

All IWMB activities, especially promoting these waste diversion, are key to the IWMB mission of protecting the public health and safety, and the environment. The IWMB achieves this through a variety of responsibilities, from authority over final approval of waste facility permits, through guidance it provides to local government authorities, to cleanup of abandoned waste sites.

Solid Waste Disposal and Codosposal Site Cleanup Program

Through this program the IWMB provides for cleanup of sites where there is a threat to public health and safety and/or the environment, and where responsible parties either cannot be identified or are unable to pay for timely remediation.

The program has four funding mechanisms: loans; matching grants to local governments for work at solid waste disposal sites; grants to Local Enforcement Agencies for cleanup of illegal disposal sites; and Board-sponsored cleanups using IWMB contractors. The IWMB has approved more than 70 sites for funding. Fifty-five sites have been completed, and cleanup of another 12 sites is in progress.

Most sites are remediated using a combination of IWMB staffing and contracts with some matching contributions from local governments. Funds provided by the IWMB are not used for study or investigation activities, but rather go directly to cleanup efforts.

Supporting Local Enforcement Agencies

Local Enforcement Agencies (LEAs) are responsible for enforcement of solid waste statutes and regulations. To be certified by the IWMB as an LEA, a local agency must demonstrate adequate staffing, fiscal resources, technical expertise, and training.

The IWMB's trains and assists LEAs, with the goal of improving protection of the environment and public health. This assistance includes development of technical studies, analysis of new waste management practices, and investigation of undocumented disposal sites.

The "LEA Advisory," an informative guidance document, is used by the IWMB to communicate advice and technical expertise to LEAs. In the past two years the IWMB has published more than 40 advisories, many in response to requests from LEAs for technical assistance.

Recycling Market Development Zone Program

A national model for recycling market development, the Recycling Market Development Zone (RMDZ) program, provides assistance to new and expanding recycling businesses in California. Operating much like an enterprise zone, the program is helping to expand the state's recycling-based manufacturing capacity through technical and financial assistance to companies located in the zones. There are 40 zones in the state.

RMDZ Loan Program

The IWMB is supporting recycling-based manufacturing in California by making low interest loans to businesses in the zones. The low rate, recently at 5.6 percent, can be pooled with other financing options to significantly lower cost. As of January 1998, the program had funded 60 business loans worth \$25.6 million. The program serves a majority of the state's population and has resulted in hundreds of new jobs and diversion of millions of tons of waste. Total investment to the zones through 1997 was \$37 million.

Waste Prevention

Waste prevention is at the top of California's integrated waste management hierarchy. The IWMB's waste prevention efforts in 1997 focused on promoting resource efficiency – the competitive business practice of doing more with less – and operating innovative programs which recognize and foster these efforts.

WRAP

The IWMB Waste Reduction Awards Program (WRAP) annually recognizes outstanding voluntary achievements by California businesses reducing waste through prevention, reuse and recycling, procuring recycled content products, and promoting environmental awareness. In 1997, WRAP recognition was bestowed on 278 businesses, including several individual awards that covered chain operations such as Target Stores and The Vons Companies.

The WRAP program marked its 5th year in 1997, and took pride in conferring special Five Year awards on 20 businesses that have participated and won in each year of the program. WRAP also timed the announcement of winners to coincide with the 5th annual Pollution Prevention (P2) Week in September. Aimed at raising awareness of both the business and residential sectors, P2 Week promotes cost competitive, low impact industrial processes and lifestyle choices.

Five Year WRAP Winners

Autry Museum of Western Heritage

Beaulieu Vineyards

BioWorld Products

Emcon

Fender Musical Instruments Corp

Fireman's Fund Insurance Co

Flair Cleaners

Herman Miller Inc

Hewlett-Packard

Marin Conservation Corps

McGaw Inc

New United Motor Manufacturing Inc

Pacific Storage Co

Portola Packaging Inc

Spectrum/West

St. John's Regional Medical Center

Warner Bros

Waterman Industries Inc

WorldWide Inc

Yosemite Concession Services

CALMAX

The IWMB established the California Materials Exchange (CALMAX) program in 1991 to help businesses find alternative uses for nonhazardous discards. Through the use of CALMAX, businesses, industry, and other organizations can find markets for unwanted materials while reducing disposal costs and providing free or inexpensive materials to others. In 1997 the IWMB established a CALMAX material Internet listing for customers (<http://www.ciwmb.ca.gov/mrt/calmax/calmax.htm>).

In 1997 the CALMAX Web site averaged thousands of "hits" per month. Growing use of this technology is expected to reduce program costs by decreasing reliance on printed catalogs. To further reduce program costs, IWMB staff now performs many day-to-day activities program "in-house," enabling the program to provide better customer service. Additionally, the CALMAX catalog is now printed quarterly instead of bimonthly, thereby saving an estimated \$85,000 for the 97/98 fiscal year.



To recognize outstanding use of this service, the IWMB awarded the 1997 "CALMAX Match of the Year" to Executive Suites of Chico. Executive Suite's owner, Dave West, a CALMAX user since 1993, estimates he has recovered more than 750 tons of electronic equipment through dozens of CALMAX exchanges each year.

Since its inception, CALMAX has tracked more than 550,000 tons of material for exchange. It is estimated that the program provides annual savings to California business of approximately \$5 million (avoidance of disposal and reduction of purchase cost).

Buy Recycled Program

The Buy Recycled Program continues to influence procurement of recycled-content products, both in state government and the private sector. State agencies purchased \$25 million in recycled products during FY 96-97. The "Private Buy Recycled Strategy," adopted by the IWMB in 1995, has moved from concept to action. Programs for retreaded tires and re-refined oil are in various stages of development in 24 local governments, 15 businesses and associations, and a variety of universities and federal agencies. The IWMB launched three "model green" building projects to demonstrate savings and environmental benefits of environment friendly office buildings. One project saved an average of \$2,000 per month and achieved a 38 percent recycling rate. Businesses are encouraged to join the Recycled Paper Coalition, a national alliance of paper users who pledge to buy recycled. IWMB activities have drawn in 30 new alliance members in 1997.

Compost Market Development Programs

In 1997 IWMB contractors completed three-year demonstrations of the use of compost in agriculture. These demonstrations were conducted in some of California's richest agricultural areas: Fresno County, Stanislaus County, Tulare County, the Monterey Bay region, and the Santa Clara Valley.

In these projects compost and mulch made from urban yard trimmings were applied to a variety of crops. Results from these projects were encouraging. The demonstrations showed that use of compost could benefit commercial crops and nursery stock. Because of benefits realized, many commercial growers continue to use compost and mulch. A fact sheet summarizing these results is available on the IWMB Web site located at <http://www.ciwmb.ca.gov>.

The IWMB, the City of San Diego, the City of Los Angeles, and the County of Santa Barbara are financing compost and mulch demonstrations in a four-county area of southern California. This two-year project will evaluate the effects of compost and mulch on avocado and citrus crop yields. In addition, the avocado orchard demonstration will include a study evaluating the effects of compost on disease suppression.

Used Tire Strategies

Protecting Public Health and Safety

In 1989, AB1843 established the California Tire Recycling Management Act to oversee the management of waste tires and to establish programs to implement the Act. One of these programs is the waste tire abatement program, which allows the IWMB to take enforcement actions against responsible parties of sites that have failed to remediate waste tires. As a result this approximately 3.1 million tires have been cleaned up by the responsible parties. Through 1997, the IWMB has expended \$3.86 million to remove 6,989,000 tires from 22 illegal waste tire sites. As of December 1997 there were approximately 11.5 million waste tires identified for remediation under the program.

Waste Tire Disposal

The IWMB supports the reuse and recycling of waste tires. Two methods of reuse include the incineration of tires in the manufacturing of cement and use in waste-to-energy plants.

The Rubberized Asphalt Concrete Technology Center (RACTC) is a cooperative effort by the IWMB and the County of Los Angeles to promote the use of crumb rubber in asphalt concrete. The center provides technical and financial assistance to local governments considering use of rubberized asphalt concrete. The RACTC can be contacted at (888) 777-4775 or through its Web site at <http://www.rubberizedasphalt.org/>

Oxford Tire Pile

In 1997, the IWMB initiated the Oxford tire site remediation project, estimated to be approximately 10 million tires. Through the Oxford project, the IWMB is fulfilling both of its primary objectives in dealing with waste tires: promoting beneficial uses, and protecting the public health and environment.

Used Oil and Household Hazardous Waste Program

Used Oil and Household Hazardous Waste Grants

Each year the IWMB offers grants to local governments, nonprofit organizations and private entities to support used oil and household hazardous waste collection. In 1996-97, local governments received approximately \$11 million in block grants. The block grant program serves 98 percent of the state's population. In addition, between \$9 and \$12 million are awarded annually through competitive grants to businesses, nonprofit organizations and public agencies. Since 1993, nearly \$86 million has been awarded to establish or expand used oil management programs.

Certification-Registration

The IWMB works with local governments and businesses to establish and maintain a statewide network of used oil collection sites. Major auto service companies, auto parts retailers, local governments, and other businesses participate. By the end of 1997 there were 2,298 certified used oil collection centers, 584 registered industrial generators and 68 registered curbside collection programs in the state. In 1997 there were 137.5 million gallons of lubricating oil sold for use in California. Calculating that about 60 percent of lubricating oil is recoverable after use because of operating losses, there were about 82 million gallons of used lubricating oil generated in the state. In recent years used oil recycling by Californians who change their own oil has doubled. In 1997 it is estimated that six million gallons of waste oil was recycled by auto hobbyists.

In 1997, this information became more readily available to the public with the creation of the California Environmental Hotline. Callers can now learn the location of their closest recycling center by calling 1-800-CLEANUP. This service is made available at no cost to California taxpayers through a unique public-private partnership that includes corporate sponsors. Oil recycling center information is also available on the IWMB's Web site (<http://www.ciwmb.ca.gov>).

HAZARDOUS MATERIAL MANAGEMENT

Hazardous Waste

Although California's growing population and strong economic base place ever-increasing demands on our natural resources, environmental protection from the potential dangers of hazardous waste continues to improve as a result of sound regulatory programs and a growing commitment by business, industry and citizens to protect our environment. While the number of regulated businesses and the number of hazardous waste shipments in California have increased over the past decade, the generation of hazardous waste has declined.

With a focus on improving compliance, promoting innovation, cutting red tape and increasing community participation, California is seeing measurable improvements in environmental quality. Those who operate outside the law or purposefully ignore hazardous waste requirements when found are promptly prosecuted by civil or criminal action. California has environmental crimes task forces throughout the state to more effectively address this problem. By implementing a variety of new initiatives designed to maximize the effectiveness and efficiency of the state's regulatory program — including the Unified Program, the Regulatory Structure Update, and innovative environmental technologies — California remains in a national leader's role in the field of hazardous waste management.

Corrective Action at Hazardous Waste Facilities

Although the vast majority of businesses which handle hazardous wastes do so with efficiency and regard for environmental safety, there are occasions when hazardous waste releases occur and the Department of Toxic Substances Control (DTSC) takes appropriate action.

In these situations, the corrective action is DTSC's operating environmental restoration program:

- 426 treatment, storage and disposal (TSD) facilities, subject to state and federal corrective action requirements.
- 293 facilities undergoing corrective action in California. DTSC directly oversees most of these facilities; however, 67 facilities are being cleaned up by Regional Water Quality Control Board utilizing DTSC standards and requirements.
- More than 1,100 onsite and more than 100 offsite treatment facilities are subject to corrective action if a release occurs.

California's corrective action program exceeds the U.S. EPA's national corrective action program, with 10 percent of California's TSD facilities completing corrective action compared to the national average of five percent. DTSC has also initiated a regulatory reform effort aimed at improving the corrective action process.

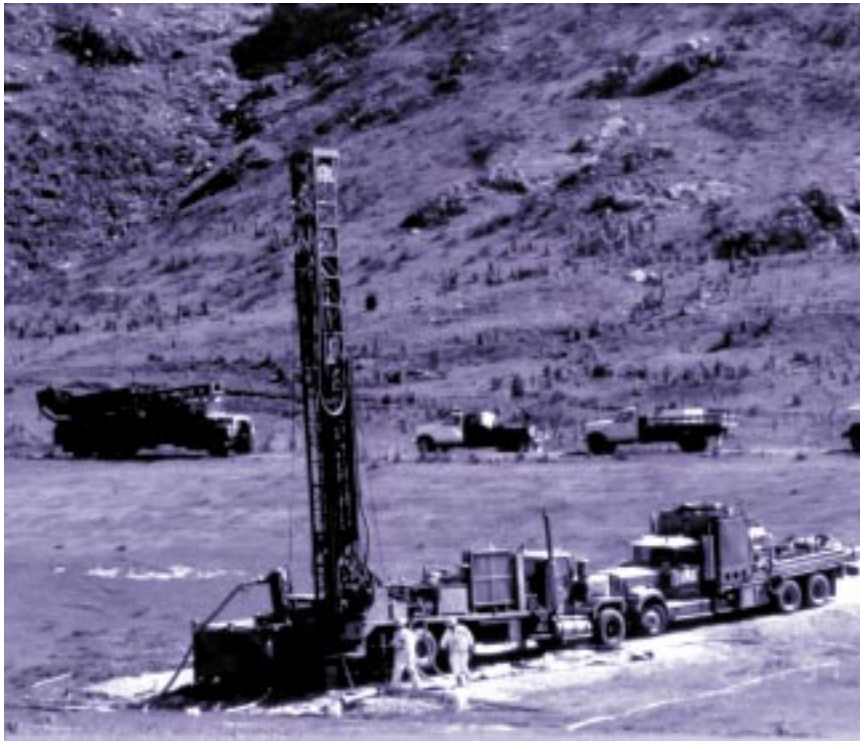
Clandestine Drug Labs

In addition to the obvious problems illegal drugs cause in terms of crime and health risks to the user, methamphetamine production creates serious environmental problems. Volatile chemicals can lead to explosions and deadly fumes, and leave a toxic stew that threatens human health and the environment.

Cleaning up drug lab waste is the second largest job for hazardous material response teams in the state, outranked only by fuel spills. Legislation in 1994 gave DTSC the responsibility for removing hazardous chemicals discovered at illegal drug labs. The number of removal operations has quickly expanded in response to the rapid growth of the illegal drug industry in California. In 1997, over \$7 million in state funds were expended on drug lab cleanups. Chemicals and other hazardous substances that pose an immediate threat to public health and the environment were removed from nearly 2,000 illegal labs statewide. To do this, DTSC staff are on call 24 hours a day to respond when state or local law enforcement officials "bust" a lab. Most removals are completed in a few hours at an average cost of \$3,000, but procedures have been established with the U. S. EPA to handle major lab cleanups.

Drug lab wastes, such as those found by law enforcement in this seizure, represent a significant environmental threat to California.





As part of the ongoing cleanup investigation activities at the Stringfellow Hazardous Waste Site, drilling rigs have been installing dozens of extraction and monitoring wells.

Stringfellow Hazardous Waste Site

Situated in an unassuming canyon in Riverside County near the city of Glen Avon, the Stringfellow Superfund site is one of the state's most significant environmental threats from hazardous waste. From 1956 until 1972, over 34 million gallons of industrial wastes and chemicals were disposed at the facility, resulting in significant soil and groundwater contamination in the area.

In 1996, California assumed operation of the Stringfellow Superfund site from the U. S. EPA as required under the Federal Superfund law. Since that time, the state has vastly improved the safety and operation of the site, reduced costs, and built community support for the cleanup project. Using state-of-the-art technology, DTSC developed seismic reflection surveys of the geology underlying the former disposal facility. With these surveys the state has constructed a series of groundwater extraction wells that will vastly improve the capability to intercept clean water and remove dangerous contaminated water from the site. This aggressive program will help prevent any future uncontrolled hazardous waste releases and support the long-term remediation of Stringfellow.

Prospective Purchaser Agreement

In 1997, the state's first public-private partnership was forged using the new Prospective Purchaser Agreement, a policy that provides liability relief to prospective purchasers of contaminated properties who meet certain eligibility criteria.

The agreement, negotiated between DTSC and Federal Realty Investment Trust, allowed for a streamlined investigation, review and negotiation process to expedite redevelopment activities. For example, this process was used to broker the cleanup of the Town and Country Shopping Center in San Jose. The site was contaminated in the 1960's through improper use of pesticides and other hazardous chemicals.

In return for the state's covenant not to sue — a key feature of the Prospective Purchaser Agreement — the developer is remediating the contaminated soils at the site, constructing 500 to 600 new apartments on part of the property, and renovating the existing high vacancy rate retail area into a new shopping center that will result in new jobs and generate an estimated \$6 million in increased sales revenues.

California Speedway

California's leadership in the "Brownfields" movement is enabling the state, communities and other stakeholders in economic development to work together in a timely manner to assess, clean up and sustainably reuse abandoned or underused properties where environmental contamination exists.

The California Speedway project is regarded by some as the birth of the Brownfields movement in California. The Kaiser Steel Mill site was the subject of the first legis-



lation in the U.S. to provide liability relief to prospective purchasers. DTSC committed the resources and staff to expedite review of Kaiser's plans. Within five months the site was characterized and work plans approved, leading to the removal

Once a dilapidated steel mill, this redeveloped Brownfield site in Fontana, California, is now home to a world-class speedway.

of hundreds of tons of hazardous waste in preparation for the site's reuse. Kaiser Ventures, the joint venture company between Kaiser and Penske, was the recent recipient of Governor Wilson's Environmental and Economic Leadership Award for their outstanding work on the California Speedway project.

On June 22, 1997, when the speedway opened, spectators at the NASCAR California 500 couldn't help but notice the freshly painted tower which rises above the infield. This former water tower, now sporting black and white checkered flags with the California Speedway logo, is all that now remains of the Kaiser Mill by-products area. While the tower's new role is to serve as an advertising billboard for the speedway, it also stands as a landmark to the public/private partnership between DTSC, the property owners and other private entities, which came together to transform a former industrial Brownfields into a world class sporting venue, creating 1,200 new jobs, \$125 million in economic activity, and providing environmental protection for this site.

Voluntary Cleanup Program

The Voluntary Cleanup Program (VCP) created in 1993 provides a mechanism for motivated property owners to enter into agreements with DTSC for a streamlined oversight and approval process to remove hazardous wastes. Through 1997, approximately 320 projects have entered the program, roughly 200 have been completed and 125 are in progress. In 1997, a complex series of VCP projects was conducted in the Bay Area. Caltrans entered into a Voluntary Cleanup Agreement to allow reconstruction of the Cypress Freeway through West Oakland and Emeryville. Within the seven high-priority transportation construction projects that are part of the project, 34 contaminated sites were identified for investigation and remediation under DTSC oversight. In addition to actual freeway construction, the project involved cleanup activities for frontage roads, parking facilities and business relocations. Although the Cypress freeway opened in June 1997, environmental work continues in the community.

Military Base Cleanup/Reuse Success Stories

As dozens of military bases throughout California close, there is considerable effort being focused on conducting thorough cleanups that meet high environmental standards and encourage economic redevelopment. DTSC has responsibility to coordinate state agency efforts at approximately 150 operational and closing military bases, and other defense sites.



Budget cuts by the Department of Defense in 1997 prompted the state to restructure and streamline its oversight of environmental cleanup efforts by redistributing the work at military bases between DTSC and the Water Resources Control Board. This will result in significant cost savings and further reduce duplicative regulatory oversight by multiple agencies. Despite the challenges of these funding constraints, the state completed 23 military base cleanup plans in 1997 and certified one military base, Port Hueneme.

"... there is considerable effort being focused on conducting thorough cleanups that meet high environmental standards and encourage economic development."

"Of the 90,000 acres of closing bases in California, one-third are now being reused or are ready for reuse ..."

Of the 90,000 acres of closing bases in California, one-third are now being reused or are ready for reuse, and work is underway on the remainder. During the past year, approximately 400 acres of former military base property were transferred to private parties, 5,000 acres of land leased and over 12,000 acres of land trans-

ferred to federal agencies. One of the largest leases has been at McClellan Air Force Base where over 2,200 acres of land have been leased to the county of Sacramento. This land will eventually be transferred to private businesses who will maintain the property for aircraft maintenance and repair.

The California Military Environmental Coordinating Committee (CMECC) was established by Governor Wilson in 1991. CMECC brings together key officials from state regulatory agencies, U.S. EPA and military service representatives to foster resolution of a diverse and complex list of regulatory and policy issues that have impacted base cleanup and reuse. During 1997, CMECC was restructured to more clearly focus on three areas; Environmental Resources, Cleanup, and Compliance.

Registered Environmental Assessor Program

The Registered Environmental Assessor (REA) Program in the Office of Environmental Health Hazard Assessment (OEHHA) issues registrations to professional assessors with the expertise to assist businesses with environmental regulatory compliance.

Originally, the REA Program was used to register environmental compliance experts on a voluntary basis. With the enactment of AB1876 (Chapter 820, Statutes of 1995), the Private Site Management Program was established, and two levels of registration were created within the REA Program: Class I and Class II. Currently registered REAs are designated Class I environmental assessors. Class II environmental assessors, also known as "Private Site Managers," are environmental professionals with specific expertise and experience in the management and oversight of the investigation, assessment, remediation and certification of hazardous waste and hazardous substance release sites.

During 1997, draft regulatory language delineating the criteria for registration, the procedures for rescission and renewal of registrations, the responsibilities of Class II environmental assessors, and the provisions governing the auditing of registrants' work performance were developed by OEHHA. This was done with input from representatives of industry, environmental consulting, environmental groups and local government agencies. Public workshops to discuss the new program were held in northern and southern California.

Completing Work on Standardized Permits

"In 1997 the state finalized permit decisions on the 60 facilities...in the standardized permit tier. Completion of this effort ensures that all the facilities... have met the necessary hazardous waste and environmental protection requirements..."

Legislation enacted in 1992 (Wright-Polanco-Lempert Hazardous Waste Treatment Reform Act) established five different types, or "tiers," of hazardous waste permits to better reflect the diverse waste facilities and permit requirements appropriate to the hazards posed by those treatment activities. In 1997 the state finalized permit decisions on the 60 facilities statewide regulated in the standardized permit tier, which typically applies to companies that treat and store hazardous wastes which have been generated at other locations. Completion of this effort ensures that all facilities are permitted to operate under the conditions of a standardized tier and have met the necessary hazardous waste and environmental protection requirements, including adequate financial assurance for cleanup and closure activities.

The Five Hazardous Waste Permit "Tiers"

Full Permit	Facilities handling federally regulated (RCRA) hazardous wastes
Standardized Permit	Facilities that handle wastes not regulated by the federal government, but considered a hazardous waste by California
Permit-by-Rule	Onsite treatment for waste streams and processes, including acids, metals, silver and wastes posing multiple hazards
Conditional Authorization	Onsite treatment for waste streams such as rinse waters, oil/water separation and single hazard wastes
Conditional Exemption	Authorizes small quantity and other low risk treatment activities

Environmental Crimes Strike Forces

Since 1995, Cal/EPA has been providing support for local strike forces that are dedicated to the detection and prosecution of environmental violations. Statewide, there are now more than 30 strike forces covering 54 counties and handling between 500 and 1,000 cases a year. These strike forces are comprised of state, local and federal agencies with enforcement or compliance authority, representatives from local environmental agencies, and investigators and technical experts from Cal/EPA's boards and departments. Employing this coordinated approach has proved a particularly effective tool because of the multimedia nature of environmental enforcement to examine air, water, waste and other environmental concerns simultaneously. DTSC has taken the lead in providing technical staff resources to support all of these task forces statewide.

ENVIRONMENTAL HEALTH RISK ASSESSMENT

Proposition 65 Implementation

Proposition 65, formally known as the Safe Drinking Water and Toxic Enforcement Act of 1986, is intended to protect California's drinking water sources from chemicals listed by the state as known to cause cancer, or birth defects or other reproductive harm. In addition, it imposes a legal obligation on businesses to provide warnings prior to exposing individuals to these chemicals.

With the creation of Cal/EPA in 1991, Governor Wilson designated the Office of Environmental Health Hazard Assessment (OEHHA) as the lead agency for the implementation of Proposition 65. In this capacity, OEHHA strives to carry out its responsibility to effectively disseminate information about Proposition 65 to the public, the regulated community and other interested parties. OEHHA also investigates and evaluates available evidence that may provide the basis for adding chemicals to the list of carcinogens and developmental or reproductive toxicants. OEHHA seeks public input to ensure that listing decisions are based upon a thorough evaluation of all relevant information and up-to-date scientific evidence.

In 1997, OEHHA has:

- Listed a total of 32 chemicals: 16 carcinogens and 16 developmental/reproductive toxicants;
- Adopted and implemented a procedure to prioritize chemicals to be considered by the Carcinogen Identification Committee or the Developmental and Reproductive Toxicant Identification Committee of OEHHA's Science Advisory Board. The procedure allows OEHHA and the committees to focus their attention first on chemicals most likely to pose the greatest potential health threat;
- Continued its retrospective review of documents issued by "authoritative bodies" (such as the U.S. Environmental Protection Agency, the National Toxicology Program, and others) and actions by regulatory agencies (such as the U.S. Food and Drug Administration). This review is designed to identify chemicals that may meet the criteria for administrative listing under Proposition 65;
- Adopted a regulation which established that a 60-day notice alleging a violation of Proposition 65 must be given, and the manner by which such notice must be served. Under the regulation (Title 22, California Code of Regulations, Section 12903), a private party is precluded from proceeding with an enforcement action unless the regulatory requirements have been satisfied.

Risk Assessment Advisory Committee and the Governor's Executive Order W-137-96

It has been a long-standing goal of my administration to maintain California's high environmental standards by applying the best available science in an objective and consistent fashion. The careful implementation of the Committee's recommendations will clearly move us closer to that goal.

- Letter from Governor Pete Wilson to Dr. James N. Seiber, Chair, Risk Assessment Advisory Committee, dated December 12, 1996

In 1996, the Risk Assessment Advisory Committee (RAAC) completed a year-long, comprehensive review of the policies, methods and guidelines used by Cal/EPA for identifying and assessing chemical toxicity. The Committee convened by OEHHA (pursuant to a statutory mandate created by Senate Bill 1082, Chapter 418, Statutes of 1993) consisted of 34 distinguished scientists from academia, industry, local government, and national scientific institutions. The committee members have expertise in risk assessment, including toxicology, epidemiology, public health, and biostatistics. The Committee's findings and recommendations are contained in the report entitled, *A Review of the California Environmental Protection Agency's Risk Assessment Practices, Policies, and Guidelines*, dated October, 1996.

In response to the RAAC report, Governor Wilson issued Executive Order W-137-96 on December 10, 1996, requiring all California state agencies which "assess the toxicity of, exposure to, or risk of chemicals in the environment to human health" to evaluate the RAAC report and develop plans to implement its recommendations. Implementation plans prepared by the various state agencies were submitted to OEHHA.

To develop implementation plans, over 100 recommendations of the RAAC have been classified into several themes, including consistency and harmonization; use of best available scientific information and methods; peer review and peer involvement; organization and management; and interface between risk assessment and risk management. RAAC recommendations relevant to specific regulatory programs were addressed by the appropriate board, department and office of Cal/EPA in their implementation plans.

A significant part of the effort to address the technical recommendations of the RAAC is being coordinated through the activities of the Cal/EPA Risk Assessment Coordination Work Group (RACWG). The RACWG, an internal working group chaired by OEHHA, consists of scientists representing the boards, departments, and offices in the Agency. Consistent with the RAAC recommendations, the RACWG strives to achieve consensus among Cal/EPA scientists on technical issues relating to toxicology and risk assessment. This is in concert with the goal that science-policy decisions and risk assessment criteria, guidance, and policies are based on a firm scientific foundation. The RACWG also harmonizes Cal/EPA's risk assessment practices with those of the U.S. Environmental Protection Agency.

Examples of recent and ongoing efforts of the RACWG include: compilation of a list of consensus cancer potency values used by programs in Cal/EPA (a similar list of non-cancer values is being compiled); development of a risk characterization policy, based on the U.S. Environmental Protection Agency's 1995 Risk Characterization Guidelines, and more specific guidance for its implementation; and addressing issues relating to environmental fate and transport of chemicals.

U.S. EPA-Cal/EPA Partnerships

OEHHA has been working in partnership with the U.S. EPA on projects that mutually benefit both agencies. These efforts seek to reduce conflicting scientific approaches and methods, exchange work products, and to share resources.

OEHHA and U.S. EPA have been conducting two training courses entitled *Risk and Decision-Making* and *Risk Communication and Public Involvement*. These courses are designed to inform risk managers of the dynamics of the risk assessment process.

Other efforts are underway pursuant to a memorandum of understanding between OEHHA and U.S. EPA's National Center for Environmental Assessment (NCEA) to harmonize state and federal risk assessment activities. Under this memorandum of understanding, OEHHA and NCEA have agreed to: periodically discuss risk assessment and guidance development projects in order to identify common activities that can be accomplished jointly; identify similarities and differences in risk assessment guidelines, practices and methodologies, and work toward harmonization; identify common issues and scientific questions facing both organizations, and work jointly toward a common resolution, when appropriate; and provide peer review of proposed guidelines, methods and major risk assessments.

Risk Assessment Activities

As the lead entity for chemical risk assessments in Cal/EPA, OEHHA seeks to protect and enhance public health and the environment by objective scientific evaluation of risks posed by hazardous substances. Some of OEHHA's recent and ongoing efforts include:

- Chemical specific evaluations such as the following, which provide health-based considerations to support risk management decisions —

A comprehensive health assessment of environmental tobacco smoke (ETS) or "second hand smoke," entitled *Health Effects of Exposure to Environmental Tobacco Smoke: Final Report* (September 1997). The report was accepted by the California Air Resources Board (ARB), then forwarded to the Department of Health Services (DHS) Tobacco Control Program for appropriate action under their mandate as the state's lead agency for addressing health effects related to tobacco use.

A final report, *Proposed Identification of Inorganic Lead as a Toxic Air Contaminant, Part B: Health Assessment* (March 1997), which provided the basis for the ARB's designation of inorganic lead as a toxic air contaminant.

A draft report, *Proposed Identification of Diesel Exhaust as a Toxic Air Contaminant* (May 1997), prepared for purposes of the ARB's Toxic Air Contaminant Program.

Adoption of 25 drinking water public health goals (see the next section), and continuing work on the development of additional numbers.

- Development of guidelines, in close coordination and collaboration with other Cal/EPA boards and departments, to promote scientific consistency and the use of the best available science in Agency risk assessments —

Guidelines for assessing human health risks posed by a facility's air emissions under the Air Toxics "Hot Spots" Program, which present a "tiered" approach to conducting risk assessments — from the traditional, "deterministic" method, which yield single values or point estimates of risk, to the "likelihood of risks" or stochastic method, which allows for inclusion of supplemental site-specific information and yields a range of potential risks and their likelihood of occurrence. The guidelines are described in a draft document (*Technical Support Document for Exposure Assessment and Stochastic Analysis*, dated December 1996), which is undergoing revision in response to peer review and public comments.

Guidelines and recommendations for estimating fish and shellfish consumption rates for use in assessing potential health risks from consuming fish and/or shellfish, which are presented in a draft document entitled, *Chemicals in Fish Report No. 1: Consumption of Fish and Shellfish in California and the United States, July 1997*.

An evaluation of the strengths and weaknesses of the U.S. Environmental Protection Agency's *Proposed Guidelines for Carcinogen Risk Assessment* (April 1996). By applying the approaches and methods in the proposed guidelines to carcinogen risk assessments on four chemicals (selected on the basis of their different toxicity characteristics and modes of action), OEHHA will determine whether adoption of the U.S. EPA guidelines for Cal/EPA use will be appropriate, and/or whether supplemental guidance will need to be developed for areas not adequately addressed by the guidelines.

Plans to develop a unified, multimedia, multipathway, multichemical exposure assessment method that may be used in all Cal/EPA risk assessment programs.

Through its various activities developing risk assessment guidance and conducting chemical-specific evaluations, it is OEHHA's intent to provide the Cal/EPA boards and departments with the tools necessary to achieve one of the Agency's overarching goals: to ensure regulatory decisions are based on rigorous and internally consistent science, at the level widely recognized to be the best available.

Drinking Water Public Health Goals

As mandated by recently enacted legislation (Chapter 755, Statutes of 1996, also known as the Calderon-Sher Safe Drinking Water Act of 1996), OEHHA has developed public health goals for 25 chemicals in drinking water.

A public health goal (PHG) is an estimate of the drinking water concentration of a contaminant at which adverse health effects would not be expected to occur in individuals consuming the water on a daily basis over a lifetime. A PHG is based exclusively on public health considerations, derived following a risk assessment performed by OEHHA using the most current principles, practices and methods. In conducting its risk assessment, OEHHA must consider: (a) to the extent the information is available, possible synergistic effects resulting from exposure to two or more contaminants; (b) effects of the contaminant upon subgroups in the population (such as infants, children, pregnant women, and the elderly) that are of greater risk of adverse health effects than the general population; (c) the contaminant exposure and body burden levels that alter physiological function or structure in a manner that may significantly increase the risk of illness; and (d) exposure to contaminants in media other than drinking water, including food and air, and the resulting body burden.

The OEHHA public health goals are used as guidance by the Department of Health Services to establish primary drinking water standards, also known as maximum contaminant levels. State law requires the Department to set the standard at a level as close as feasible to the OEHHA public health goal, and at a level not less than an established federal maximum concentration level.

OEHHA will adopt an additional 25 PHGs by January 1, 1999, and PHGs for all remaining drinking water contaminants for which the Department of Health Services has established a primary drinking water standard by December 31, 1999. PHGs adopted by OEHHA shall be reviewed periodically and revised as necessary based on the availability of new scientific data. Adoption of a PHG involves a peer review and public comment period.

California Public Health Goals (PHGs) for Chemicals in Drinking Water

Adopted December 31, 1997

Chemical	California PHG (in ppb)
Alachlor	4
Antimony	20
Benzo[a]pyrene	0.004
Chlordane	0.03
Copper	170
Cyanide	150
Dalapon	790
Diethylhexylphthalate (DEHP)	12
1,2-Dichlorobenzene (1,2-DCB)	600
1,4-Dichlorobenzene (1,4-DCB)	6
2,4-Dichlorophenoxyacetic acid (2,4-D)	70
Dinoseb	14
Endothall	580
Ethylbenzene	300
Fluoride	1,000
Glyphosate	1,000
Lead	2
Nitrate	10,000 as N
Nitrite	1,000 as N
Nitrate and Nitrite	10,000 as N
Oxamyl	50
Pentachlorophenol (PCP)	0.4
Picloram	500
Trichlorofluoromethane (Freon 11)	700
Trichlorotrifluoroethane (Freon 113)	4,000
Xylene(s)	1,800

PERMIT AND REGULATORY REFORM

Permit Reform

Tiered permitting

To achieve waste diversion mandates, local government and the private sector have aggressively implemented waste diversion programs. These programs include an infrastructure of new waste handling and processing facilities. These facilities could not be adequately regulated using existing regulations written only for landfills and transfer stations.

In response, the Integrated Waste Management Board (IWMB) established a new, flexible regulatory structure. The new structure added four tiers to the existing "Full" solid waste facilities permit. From the highest level of regulation to the lowest, the tiers are: Full, Standardized, Registration, Enforcement Agency Notification, and Exclusion.

In 1997 the IWMB placed into the tiers and developed regulations for nonhazardous ash facilities and operations. The IWMB also developed operational standards for the storage of organic waste. By late 1997 Local Enforcement Agencies (LEAs) had issued seven Standardized permits and eight Registration permits, all for composting facilities handling green waste, sewage sludge, and animal material.

Reducing regulatory duplication and overlap

Complementing the IWMB's tiered permitting program in 1997 was its continued working partnership with LEAs to reduce regulatory overlap. This effort, commenced in 1994 when Governor Wilson signed AB1220 into law, has been successful in bringing greater efficiency and clarity to the permit process.

Reduce Paperwork Requirements for Federal Air Toxics Program

The Air Resources Board (ARB) and other stakeholders formed a high-level negotiating team to resolve disparities between California's long-standing air toxics program and the federal program created under Title III of the 1990 Amendments to the Clean Air Act. California's aggressive approach to integration is expected to result in changes to the federal requirements that will reduce unnecessary paperwork for California stakeholders.

Permitting Backlog Elimination

Three years ago, in response to a significant backlog of work associated with the processing of hazardous waste permits and AB901 (Polanco/ Chapter 1104, Statutes of 1994), DTSC developed a plan to complete work on these permits. The plan identified 138 hazardous waste facilities (constituting 183 separate DTSC decisions) that were operating under an interim status or other grants of authorization which still required final action on their permit applications or closure plans. In the past three years, 129 decisions have been completed, 31 dropped, and work on the remaining 23 decisions is scheduled for completion by December 31, 1998.

Harmonization

In 1997 DPR has been working with the U.S. EPA to harmonize federal and state pesticide registration programs. The goals: reduce needless duplication, bring safer products to market faster, and remove hazardous products more quickly. Also, DPR has worked with U.S. EPA to ensure California interests are considered in implementing the Federal Food Quality Protection Act.

With passage of the North American Free Trade Agreement (NAFTA), harmonization has expanded beyond state and national borders. DPR is working with U.S. EPA and Health Canada to coordinate pesticide exposure assessments. DPR scientists have participated in numerous NAFTA pesticide projects. These include: spray drift model development; and occupational and residential exposure assessments.

Regulatory Structure Update

The Regulatory Structure Update, initiated in 1995, represents the state's most ambitious initiative to reform the complex regulatory system for hazardous waste management. Through this effort, DTSC is spearheading a comprehensive review of hazardous wastestreams and activities, which are regulated by California law but not by federal law. The goal is to identify and change requirements which are overly restrictive, duplicative, or which provide little or no added measure of protection for the public or the environment.

To date nearly 70 separate tasks, including the California Waste Classification System, have been studied as part of the project, and some significant regulatory burden relief has been provided to industry. Regulations establishing these substantive changes will be in place by December 30, 1998. Within the next year, recommendations will be made for all the remaining areas where California's program exceeds the federal program, toward the goal of even greater efficiency and consistency.

When completed, the public will continue to experience comprehensive environmental and public health protection and the regulated community will benefit from elimination of duplicative requirements, increased flexibility and decreased compliance costs. The regulation of recycling will also be enhanced with streamlined procedures. Treatment of hazardous wastes will better reflect the actual risks associated with these processes.

Unified Program and CUPAs

California employers who handle hazardous materials and/or treat hazardous wastes have been regulated historically by multiple agencies and subject to overlapping management standards, record keeping, reporting and inspection requirements. In 1993, the Wilson Administration worked with Senator Calderon to enact Senate Bill 1082 which improved the process used to achieve California's high environmental standards. The new Unified Program represents an innovative state and local effort to consolidate and make consistent six existing programs regulating hazardous materials /hazardous waste management. The Unified Program is implemented at the local level by Certified Unified Program Agencies (CUPAs) — with the streamlined result of 69 local entities now performing the hazardous waste regulatory activities previously handled by nearly 300 agencies.

Under the program, local agencies are certified by the Secretary for Environmental Protection as CUPAs. Cal/EPA received 97 applications from local agencies and commenced a review process that resulted in the ultimate certification of 69 CUPAs. The state is working with 15 counties not yet certified to implement the program, as well as providing ongoing support for local governments to meet their new responsibilities.

Fee Reform

DTSC has been funded by a complex, unreliable, and inconsistent array of fees that resulted in declining revenues. SB1222 (Chapter 638, Statutes of 1995) established a stakeholder-based task force on fee reform which determined that the state had insufficient funding to pay for cleanup of federal and state Superfund sites and recommended a closer link of fees to the departmental activities they support.

SB660 (Chapter 870, Statutes of 1997) implements the task force's recommendations. It establishes a funding "firewall" between regulatory programs and site mitigation/general support activities. It also provides increased budget and fee accountability for DTSC by directly linking expenditures with their fund source. It also creates a modest overall fee to provide funding for orphan site cleanups. Overall, one broad-based fee will be increased; nine fees will be eliminated, three will be replaced by cost reimbursements, and four fees will be reduced. Implementation of SB660, when coupled with other efforts to increase the appropriateness and timeliness of DTSC's cost reimbursement billing processes, will result in needed fiscal stability, predictability and accountability for the hazardous waste management program.

International Organization for Standardization (ISO) Initiatives

Cal/EPA has been instrumental in the development and implementation of the International Organization for Standardization's series of environmental standards and guidelines (collectively and commonly known as "ISO 14000"). ISO is a worldwide federation, whose members are the elected representatives of national standards bodies from 120 member countries, including the United States. Dedicated to promoting the development of voluntary international standards and related activities, the nongovernmental organization established ISO 14000 to help businesses improve environmental performance while maintaining or increasing economic productivity. A key function of the ISO 14000 standards and guidelines is to promote the incorporation of environmental management systems (EMS) into business operations and practices.

An EMS is an organization-wide, multidisciplinary effort designed and implemented to address the short- and long-term effects of that organization's activities and products on the environment. Cal/EPA has implemented a pilot study initiative to evaluate the performance and benefits of ISO-based EMS, especially as an integrated tool to achieve environmental objectives in a more effective and efficient manner. Many prominent businesses and organizations have formally expressed interest in participating as pilot projects for the initiative.

Another Cal/EPA ISO initiative is the Multi-State Working Group (MSWG) on EMS. California has joined nine U.S. states and other stakeholders representing academia, citizens, environmental interest groups, and industry in this informal collaboration to share information on EMS project results. The MSWG states, working with organizations implementing EMS's, will contribute to a database developed on behalf of the states and to be shared by government, business, and other appropriate stakeholders.

Permit Consolidation Zones

The development of new industrial facilities or the expansion of existing facilities requires multiple permits from a variety of government agencies. Examples include air quality, solid waste, and hazardous material permits. Each agency has its own requirements which are unique; however there are core permit requirements which are common to all environmental permit processes.

SB1299 (Peace, Chapter 872, 1995) established the Permit Consolidation Zone Pilot Program, which allows consolidation of permits from local, state and federal agencies. Cal/EPA promulgated SB1299 regulations in the spring of 1997. The regulations provide for issuance of a single facility compliance plan in lieu of the issuance of separate permits. The facility compliance plan represents a multi-media, performance-based approach to environmental permitting. The plan requires the same or greater level of environmental protection as permits issued separately by federal, state or local agencies.

SB1299 allows for the establishment of twenty Permit Consolidation Zones in California. Through 1998 four zones have been designated. They are located in the City of Fresno, Kern County, City of Bakersfield, and Orange County.

PUBLIC ASSISTANCE AND EDUCATION

One of the hallmarks of all Cal/EPA programs is a commitment to meaningful public involvement in environmental issues through public assistance and outreach programs. Toward this end, a number of agencywide efforts are underway which recognize the value of a well-informed and committed citizenry for affecting positive change.

Partnering with Stakeholders

Cal/EPA's working relationships with its customers, including the businesses we regulate, local government partners, and communities with which we work, continue to strengthen and improve, the result of a cooperative approach to sound environmental management.

Permit Assistance Centers: A statewide network of 13 Permit Assistance Centers is now in place to help companies by removing much of the hassle and confusion of complying with environmental and other regulations. These centers, which combine the resources of Cal/EPA with local and regional agencies, have helped thousands of businesses establish or expand their operations by providing information at a single location and having permitting experts from state, local, or regional agencies on site.

Permit Assistance Centers **1-800-GOV-1-STOP**

Business Revitalization Center
201 North Figueroa Street
Los Angeles, CA 90002
213-977-7900 / FAX-213-977-7905

Contra Costa Regional Permit Assistance Center
651 Pine Street, Second Floor
Martinez, CA 94553
925-229-5950 / FAX-925-229-5952

Fresno Area Permit Assistance Center
2600 Fresno Street
Fresno, CA 93721
559-498-1343 / FAX-559-498-1020

Greater Oakland Permit Assistance Center
250 Frank H. Ogawa Plaza, Second Floor
Oakland, CA 94612
510-286-6993 / FAX-510-286-6995

Inland Empire Permit Assistance Center:

Ontario Office
320 East D Street, Suite 100
Ontario, CA 91764
909-391-0723 / FAX-909-391-1733

Riverside Office
4080 Lemon Street, Second Floor
Riverside, CA 92501
909-955-1883 / FAX 909-955-1806

Kern County Permit Assistance Center
2700 M Street, Room 125
Bakersfield, CA 93301
805-862-5175 / FAX 805-862-5176

North Bay Permit Assistance Center
2550 Ventura Avenue
Santa Rosa, CA 95403
707-527-2481 / FAX-707-527-2661

Orange County Permit Assistance Center
300 North Flower Street, First Floor
Santa Ana, CA 92705
714-834-2840 / FAX-714-834-2764

San Diego Regional Permit Assistance Center
San Diego City Operations Building
1222 First Avenue, Fourth Floor
San Diego, CA 92101
619-236-5938 / FAX-619-236-7200

San Fernando Valley Permit Assistance Center
4717 Van Nuys Blvd., #102
Sherman Oaks, CA 91403
818-756-7572 / FAX-818-782-4621

Santa Clara Valley Permit Assistance Center
East Wing, Lower Level
70 West Hedding
San Jose, CA 95110-1705
408-277-1477 / FAX-408-277-1484

South Orange County Permit Assistance Center
23161 Lake Center Drive
Lake Forest, CA 92630
949-461-3560 / FAX-949-461-3519



CalGOLD: Due to the outstanding success achieved by the Permit Assistance Center program and in an effort to expand program coverage to the entire state, Cal/EPA created California Government: On-Line to Desktops (CalGOLD) to provide permit assistance on the Internet. Special software has been developed to provide customized responses to businesses' permit requests with a click of a mouse. The CalGOLD site also offers direct Internet links to state, local, regional, and federal permitting authorities for more information.

Ombudsmen Programs: In 1997, Cal/EPA sponsored five Ombudsman Forums in locations throughout the state. These forums, which featured representatives from each of Cal/EPA's boards and departments, provided an opportunity to engage local government and industry representatives in the effort to identify and meet future environmental challenges. In addition to providing attendees with the latest information on state environmental programs and responding to specific regional issues, the forums underscored the importance of strong coordination among agencies with interrelated functions.

California Environmental Hotline



In the Spring of 1997 Cal/EPA initiated the California Environmental Hotline. This hotline is a component of a nationwide public/private partnership — the U.S. Environmental Hotline (also known as Earth's 911"). This innovative public service provides geographically specific environmental information at low or no cost to the public. This program provides for the integration of public, private and non-profit environmental outreach efforts into one unique communication platform.

The hotline is California's free 24 hour resource for geographically specific environmental information. The hotline includes information on air quality, hazardous materials, solid waste, water quality, pesticide use, and recycling. In addition new sections are being developed to include energy, environmental education and community specific volunteer opportunities.

The service is made possible through an innovative public/private partnership between the California Environmental Protection Agency, the U.S. Environmental Protection Agency, the National Governors Association, and dozens of national public and private organizations.

A number of National/International companies support the Hotline program. These partners enable the program to expand and operate throughout California. Bank of America, BP Solar, Edison International, Home Depot, Microsoft, Sprint and Ford underwrite operational and development costs. American West Airlines, Environmental Systems Research Institute, Brooktrout, Dialogic, Getnet, Teleport Communications Group provide technical and resource support.

Enhanced Communication

Tremendous gains have been realized by tapping the power of dynamic communication technologies, including the Internet. In 1997, Cal/EPA and all of its boards and departments had Internet home pages which provided stakeholders and other interested parties with a wealth of information.

Cal/EPA Online	Air Resources Board www.arb.ca.gov	Integrated Waste Management Board www.ciwmb.ca.gov
Cal/EPA www.calepa.ca.gov	State Water Resources Control Board www.swrcb.ca.gov	Department of Toxic Substances Control www.dtsc.ca.gov
	Department of Pesticide Regulation www.cdpr.ca.gov	Office of Environmental Health Hazard Assessment www.oehha.org

California Environmental Education Interagency Network

The California Environmental Education Interagency Network (CEEIN), a consortium of environmental educators representing California state departments, boards, and commissions of the Department of Education, California Environmental Protection Agency, and the California Resources Agency, has proven an effective vehicle for exchanging resources and information. A major effort of the CEEIN is a partnership with the Walt Disney Company, "Jiminy Cricket's Environmental Challenge." This environmental education program provides an opportunity for fifth grade students throughout California to participate in environmental awareness and action projects. Student-generated projects have ranged from wetland habitat restoration to school waste prevention and diversion programs. Student participation has expanded by more than 300 percent since the program's inception.



Jiminy Cricket's Environmental Challenge competition is open to all 5th grade classes throughout the state. The project is the result of a unique partnership between The Walt Disney Company and California's Environmental Education Interagency Network.

Department of Pesticide Regulation

To make pesticide information more accessible to the public, the Department of Pesticide Regulation (DPR) put its worker safety brochures online in 1997. The "Pesticide Safety Information Series" leaflets help employers train their workers in pesticide handling and in working where pesticides are used. Leaflets that cover the agricultural work place have been revised to reflect recent changes in state and federal worker protection standards.

Leaflets are available in both English and Spanish. The leaflets can be found in the "Current DPR Publications" section of the Department's Web site (<http://www.cdpr.ca.gov>). DPR's "Consumer Fact Sheets" — targeted at improving pesticide safety at home — are also available on DPR's home page.

DPR Responds to Native Americans

Native Americans in Humboldt, Lake, Del Norte and Shasta counties expressed concern regarding herbicide use in forests, along roadsides, and in waterways. Vegetation in these areas is used by Native Americans for food, crafts, and ceremonial purposes. In response, DPR conducted monitoring of herbicide residue in these counties. Also, DPR has provided technical and health information on pesticide and herbicide use to these groups.



DPR scientists collect plant samples for herbicide residue analysis in response to the environmental concerns of Native Americans.

Air Resources Board

Strengthening public assistance and education is a major goal in the Air Resources Board's (ARB) Strategic Plan and an important component of ARB's programs. Public understanding of California's air pollution problem and plans to improve air quality is critical to gain support for both current and future initiatives. Resources available to the public include:

- A toll-free public information hotline and an e-mail helpline. In 1997, ARB responded to over 500 helpline calls and over 900 e-mail inquiries.
- Electronic access to information on current federal, state, and local air laws and regulations; listings of available publications; a clearinghouse on Best Available Control Technology; and news on current and future control efforts.
- Numerous short, easy-to-read publications on air quality issues and actions the public can take to reduce pollution and cut exposure.

Business Assistance/Ombudsman Activities

ARB has also developed a multifaceted business assistance program to help businesses meet California's air quality requirements. The Office of the Ombudsman is a key component of this program. The Ombudsman serves as an advocate for businesses with grievances against the agency, and also reaches out to the business community as a whole. The program includes:

ARB's Self-Assessment Handbooks use a comic book format with self-evaluation checklists to make air quality regulations understandable to those working "hands on" with polluting equipment or processes. Handbooks cover many industries and are produced in several languages.

- Business assistance publications such as the "California Environmental Business Assistance Resources" directory and the "Pollution Prevention Guide."
- An easy-to-use computer model to help small businesses conduct risk assessments at low cost.
- An award-winning Compliance Assistance Program that uses innovative tools to help businesses clearly understand air pollution requirements and control techniques.
- Stakeholder outreach efforts, including involvement in regulatory development workshops and Board hearings. Starting in 1997, the Office of the Ombudsman provided reports to ARB on stakeholder outreach and involvement for all regulatory items.



SELF-INSPECTION CHECKLIST

WEEK OF:

	SUN	MON	TUES	WED	THUR	FRI	SAT	
GOOD WORKING ORDER								WORKING GAUGES, NO LEAKS
CLOSED CONTAINERS								NO OPEN BUNG HOLES
CLOSED COVERS								GOOD FIT, NO LEAKS
SOLVENT SPRAY								NO AIR, ^{SHOWER} SPRAY, SPLASHING
DRY PARTS								REMOVE SLOWLY, RACK PARTS
FREEBOARD RATIO								0.75 OR MORE
HOIST SPEED								11 FEET PER MINUTE (OR LESS)

Department of Toxic Substances Control

The Department of Toxic Substances Control (DTSC) has continued to provide communications services and regulatory assistance to its stakeholders which include regulated businesses, community groups, the media, and other governmental agencies.

The DTSC ensures that information on hazardous waste regulatory activities is available to the public. Additionally, the northern and southern California regional coordinators serve an important ombudsman role, acting as liaisons to external entities to provide information and facilitate dispute resolution of regulatory issues. The regulatory and public assistance program promotes educational outreach programs and provides frontline answers to industry and the public on hazardous waste management and site cleanup requirements through the services of regional duty officers.

Office of Environmental Health Hazard Assessment

Educating the Public About Chemical Risks

The Office of Environmental Health Hazard Assessment (OEHHA) engages in various activities aimed at increasing the level of public awareness about potential adverse health effects associated with exposures to chemicals in the environment. For example, OEHHA issues advisories on sport fish consumption, which consist of specific advice on eating certain species. In addition general advice on ways to reduce exposures to chemicals in sport fish. This information is distributed through the Department of Fish and Game's California Sport Fishing Regulations, and is also posted on OEHHA's web site. OEHHA also conducts training for physicians and other health care providers on recognizing and treating pesticide-related illness, and on the state requirements for reporting cases of pesticide-related illness.

Assisting the Regulated Community

Most OEHHA programs are responsible for generating scientific evaluations to be used to support regulatory decision-making, rather than for directly taking regulatory action. There are, however, two programs in OEHHA which provide information and assistance to affected parties on how to comply with relevant regulatory requirements: the Proposition 65 Implementation Program, and the Registered Environmental Assessors (REA) Program. Staff in both programs are available to respond to telephone inquiries regarding state requirements, and information is routinely distributed to interested parties through regular mailings, Web site postings, and staff participation in trade exhibits.

OEHHA's use of its Web site (www.oehha.org) and electronic mail significantly improved its communication with interested parties, providing ready access to scientific documents, various draft documents, public notices and other information, in addition to more direct communication with OEHHA staff.

Waste Management

Bringing Schools On Board

Students can learn about waste management through instructional programs in the classroom, but they can also practice these concepts by participating in on-site school recycling and waste prevention programs. These efforts teach the students lessons in personal responsibility, and contribute to reducing the amount of waste disposed at school sites around the state. The IWMB surveyed California's 996 public school districts to identify those with waste prevention and recycling programs and those in need of assistance in establishing programs. The findings were used by the IWMB in identifying districts that need assistance to establish waste reduction and recycling programs.

Helping Teachers Spread the Word

The IWMB continues to provide resource materials, and hands-on training to educators around the state in waste management education. Educators receive the IWMB curriculum, "Closing the Loop," by attending teacher training workshops sponsored by the California Department of Education and the IWMB. More than 80 workshops were conducted in 1997, training more than 1000 K-12 teachers in concepts ranging from waste prevention and recycling to vermicomposting and school gardens. Additional resources provided to California teachers include "how-to" guides on waste reduction and worm composting, the "Reusable School News" newsletter and the video "Kids Talkin' Trash."

Water Resources Control Board Calendar



Every year the SWRCB sponsors an art contest for the children, grandchildren, and nieces and nephews of SWRCB and Regional Board employees. Contest rules specify what aspect of water quality protection the children, ages 12 and under, should depict in their drawings. The winning drawings are then featured in a poster which also includes the coming year's calendar. This poster-calendar is then distributed at schools, conferences and Earth Day events.

***The Governor's
Environmental
and Economic
Leadership Award
Winners***

1997

**Eco Pass Pilot Program
The Santa Clara Valley
Transportation Authority**

**Quick Charge L.A. – The Electric
Vehicle Infrastructure Program**

Quincy Library Group

**Wastewater "Pollution Solution"
/Tri Valley Growers**

Water Education Foundation

**Intel Corporation,
Santa Clara, California**

The Cache Creek Area Plan

**Bayer Corporation
Berkeley, California**

**The Center for Urban Agriculture
at Fairview Gardens**

1998

Prado Wetlands Reconstruction

**Advanced Plastics Recycling
Technology/MBA Polymers, Inc.**

**Multiple Species Conservation
Program – County of San Diego
Subarea Plan**

Cleaner Air Partnership

**Bolsa Chica Wetlands Acquisition
and Restoration Project**

**The Nature School – Creek
Restoration and Ecology
Education for Kids**

**The Upper Sacramento
River Exchange**

**Ridgehaven Green Building
Demonstration Project**

**Lake Tahoe Transportation and
Water Quality Coalition**

**Sacramento International Airport
Air Quality Program**

The Governor's Environmental and Economic Leadership Awards

On Earth Day 1993, Governor Wilson initiated the Governor's Environmental and Economic Leadership Awards to honor California organizations, companies, and individuals whose achievements demonstrate outstanding work in the areas of resource conservation and environmental protection – with accomplishments that illustrate the symbiotic relationship of these goals to economic progress. Awards are presented in four categories: Environmental Economic Partnerships, Environmental Management, Innovation, and Environmental Restoration and Rehabilitation.



The Nature School, San Diego, California



The Upper Sacramento River Exchange, Dunsmuir, California

ENVIRONMENTAL TECHNOLOGY

Californians have worked toward cleaner air, water, and land for many years. As environmental awareness and programs evolved during the last three decades, the state's laws and standards became models emulated around the world; they also fostered a vital environmental technology industry. Today, more than 160,000 Californians are employed by companies producing over \$23 billion worth of pollution prevention and control, waste treatment, and related environmental technologies and services.

Despite these advances, a patchwork of regulatory laws, jurisdictions, and procedures continues to frustrate innovation and timely use of environmental technologies. Cal/EPA, in partnership with the financial and legal communities, the technology industry, laboratories, academia, and citizens' organizations, has implemented several initiatives to improve environmental protection by strengthening California's vital environmental technology industry.

Certification Program

In 1994, in response to recommendations from the California Environmental Technology Partnership, Cal/EPA established the nation's first effort to certify the effectiveness and reliability of environmental technologies. The Environmental Technology Certification Program provides an internationally-recognized, independent evaluation of technology performance.

In four years, the program has evolved from an idea conceived in the private sector to a voluntary program implemented in government with the vital support and involvement of the technology industry, the financial and legal communities, universities' research laboratories, and public interest groups. The award-winning program is a major element of the state's strategies to stimulate and sustain environmental and economic performance, and to encourage and promote technological innovation. In 1997, Cal/EPA made great strides in expanding the program to other environmental media and establishing program credibility and acceptance in the state, national, and international arenas.

To date, Cal/EPA has certified 70 air and hazardous waste technologies, ensuring their greater credibility and access to new capital, broader markets, and regulatory jurisdictions. Companies with California-certified technologies range from domestic manufacturers to multinational corporations with billions of dollars in annual revenues. A complete list of certified technologies and participating companies is provided on the program's Internet Web site at <http://www.calepa.ca.gov/CertList.htm>.

This year, Cal/EPA certified the following hazardous waste-related technologies:

- A direct, continuous, on-line monitor that detects aromatic hydrocarbons in water by relying on the hydrocarbon's natural, intrinsic fluorescence;
- A bypass engine oil filtration system that radically extends the intervals between oil changes;





Turner Designs Inc. "TD-4100" online aromatic hydrocarbon monitor, which Cal/EPA certified in May 1997.

- An alkaline battery system consisting of rechargeable alkaline zinc - manganese dioxide dry cell batteries.
- An extractor that uses solvents at elevated temperature and pressure to accelerate extraction processes and allow multiple extractions from mixed or individual solvents; and
- A batch chemical treatment process designed to treat aqueous formaldehyde in waste from histopathology tissue specimen preservation.

In 1997, 13 manufacturers applied for certification for a wide variety of processes and equipment, including low-emitting valves, aftermarket scrubbers for chimneys and wood-burning stoves, and water-based dust suppressants. Air quality equipment recently certified by Cal/EPA includes:

- Closed-system flow-control valves that reduce fugitive volatile organic compounds (VOC) emissions from a variety of industrial applications;
- Various steam boilers with a unique premix burner design that decreases residence time, increases velocity, and reduces emissions of NO_x; and
- A photovoltaic self-contained power producer, usage of which eliminates or reduces emissions from electricity generation.

The passage of Assembly Bill 1943 (Bordonaro/Chapter 367) expanded Cal/EPA's authority to evaluate and certify environmental technologies into all media. As first steps in fulfilling the bill's directives, Cal/EPA developed and adopted the third component in its Environmental Technology Certification Program - policies, procedures and guidelines for evaluating and certifying water and wastewater-related technologies.

Additionally, Cal/EPA is considering implementing certification procedures for off-road aftermarket parts. Currently, California Vehicle Code Section 27156 prohibits any modification to any required motor vehicle pollution control device. Cal/EPA regulations prohibit the sale, offer for sale, or installation of aftermarket parts, unless such parts have been exempted from this provision. Under the proposed certification component, Cal/EPA's ARB would exempt such parts that were demonstrated to not increase emissions above applicable off-road mobile source category certification standards.

Protocols for Evaluating Environmental Technologies

In 1997, Cal/EPA-facilitated work groups developed three protocols for technology evaluation and certification.

- The "generic" protocol (entitled Generic Guidance to Proponents on Environmental Technology Verification Protocols) describes the program's common principles on performance claims, data quality, and testing.
- The first "technology-specific" protocol was established for bioremediation technologies (entitled Acceptance Criteria, Performance and Process Standards for the Certification of Bioremediation Technologies). This protocol delineates information needs, minimum criteria, and process for demonstrating microbial bioremediation processes.

- Cal/EPA's third protocol (entitled Performance-Based Certification of Hazardous Waste Measurement and Monitoring Technologies) addresses requirements for certifying measurement and monitoring technologies.

These protocols ensure sound scientific bases for Cal/EPA's technology certifications and provide applicants consistent and clear certification guidelines and criteria.

Canadian Partnership

Cal/EPA worked in close consultation with Canada to launch the Canadian Environmental Technology Verification Program, modeled after California's program, in June 1997. Both programs were the "showcase" features at the 90th Annual Air and Waste Management Association's international conference in Toronto. Cal/EPA and Canada also initiated a "round-robin" evaluation of two of each other's certified technologies. The purpose of the evaluation is to compare the respective programs and explore the possibility for certification/verification reciprocity. Recently, Cal/EPA and its Canadian counterpart, Environment Canada, signed an historic agreement to recognize and accept one another's evaluation data.



Peter Rooney, Secretary for Environmental Protection signs a agreement with Environment Canada on technology certification.

Bioremediation Reference Laboratory

Cal/EPA established the Bioremediation Reference Laboratory last year in partnership with the Ernest Orlando Lawrence Berkeley National Laboratory and the University of California. The laboratory will apply "state-of-the-art" diagnostic techniques to evaluate emerging in situ microbial bioremediation technologies. The laboratory resulted from Cal/EPA's pioneering effort to extend certification to this rapidly emerging means of addressing many soil and groundwater cleanup cases.

Portable Equipment Registration

Until 1997, users of portable engines (like cranes, pumps, wood chippers, dredges, and compressors) had to register and pay fees in each air district in which they operated. Under the Air Resources Board's (ARB) new Statewide Portable Equipment Registration Program, owners and operators of portable engines may choose to register their complying equipment only once to operate anywhere in California, saving time and money. The program provides air quality benefits by offering administrative incentives (for example, simplified record-keeping and reporting requirements) to replace older portable equipment with new, cleaner equipment.



A portable generator used to produce electricity for various purposes such as carnival rides or motion picture lighting.



Technology Symposium

In 1997, Cal/EPA's ARB held a three-day symposium to identify promising technologies and creative strategies to meet California's needs for additional emission reductions. Over 300 attendees heard from leading technology developers, manufacturers, and scientists on the status, timing, and potential for development of new clean air technologies. Sessions focused on on-road and off-road mobile sources, coatings and solvents, and combustion controls.

Six-State Partnership

Winners of the Council of State Government's Innovation in Government award, Cal/EPA and its six-state partners (Illinois, Massachusetts, New Jersey, New York, and Pennsylvania) have evaluated twelve technologies, two from each state. This is a milestone in the partners' efforts to compare and contrast the states' technology acceptance requirements, and determine whether and in what ways interstate reciprocity can be established.

Promoting Environmental Exports

California enjoys a worldwide reputation of environmental entrepreneurship for economical and state-of-the-art environmental technologies. A new partnership between the California Trade and Commerce Agency and Cal/EPA is promoting these environmental exports to Asia. Under a two-year grant from the U.S.-Asia Environmental Partnership, the California Environmental Partnership will help environmental technology companies identify and develop export opportunities in Asia, the world's fastest-growing environmental market. This partnership is the latest addition to the "California-Association of Southeast Asian Nations Initiative" announced in June 1996 by Governor Wilson.

The partnership marks the first of its kind in the Asian environmental arena and will link California companies with potential trade and investment partners. This partnership is intended to serve as a model for government-to-government interaction with support from the private sector, national laboratories, and academia to assist in improving the environmental quality in Asia. The specific sectors covered by the Partnership include water, air, solid waste, hazardous waste, medical waste, noise, pollution prevention, clean production technology, and policy and regulatory development.



Interstate Technology and Regulatory Cooperation

California and Texas prompted the formation of the "Interstate Technology and Regulatory Cooperation" (ITRC) Work Group in 1994 to streamline state review and approval of new cleanup technologies. Cal/EPA staff cochaired the ITRC whose membership includes 27 states working cooperatively with federal agencies and public, tribal, and industry stakeholders. In 1997, the ITRC developed protocols for: (1) low-temperature thermal desorption for chlorinated organics and mercury contamination; (2) closure criteria for soil vapor extraction, bioventing, and natural attenuation at petroleum hydrocarbon sites; (3) selection and installation of permeable barrier walls; (4) metals in soil; (5) plasma technologies; and (6) expedited site characterization. State reviewers, technology developers, and other interested parties can use these documents to ensure consistency in certifying technologies.

Future Environmental Trends

Air Quality

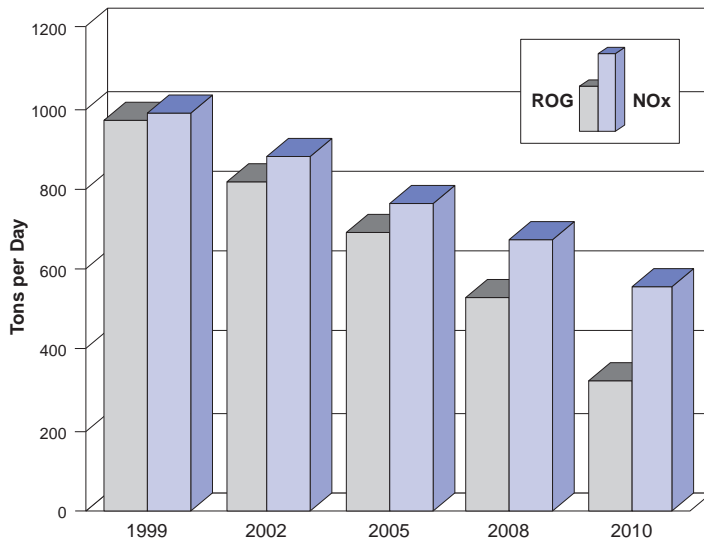
California has made great strides in reducing air pollution and we expect additional improvement even with continued growth.

California's clean air plans are the blueprint for future strategies to ensure this progress. The 1994 State Implementation Plan (SIP) for Ozone is the most comprehensive of these plans, calling for new emission reductions from virtually all sources during the next decade and beyond. The emission reduction strategies in the SIP are designed to cut ozone levels and bring all of California into attainment with the federal one-hour ozone standard by 2010 or earlier.

The future emission reductions anticipated in the SIP (between 1999 and 2010) for the South Coast illustrate the scope of the plan. In this timeframe, the SIP strategies are expected to both: (1) offset more than a 15 percent increase in population and a 20 percent increase in vehicle miles traveled; and (2) reduce ROG emissions by over 60 percent and NOx emissions by over 40 percent.

Implementing the strategies in California's clean air plans for ozone, carbon monoxide, and particulate matter will continue to produce the emission reductions we need to help achieve all of the federal air quality standards and make progress toward the more health protective state standards.

**Future Emissions of Ozone-Forming Compounds in the South Coast Air Basin
based on the 1994 Ozone SIP**



Water Quality

The future of water quality protection in California resides within each of its 15,000 watersheds.

Over the past 25 years, permitting programs have significantly reduced pollutants discharged to California's waters from point sources. Unfortunately, water quality continues to be degraded from nonpoint sources. Any future success in reducing nonpoint source pollution and achieving cost-effective reductions in point source pollution requires a shift to a more geographically-targeted approach.

"Watershed management ... it's a better approach, but it's not an easy approach."

Mary Jane Forster
SWRCB Member

When the SWRCB adopted its Watershed Management Initiative in 1995, it was the initial step in a multiyear process. The key concept of this approach is that each watershed has a different set of problems with the best solutions to these problems ultimately being the individually crafted management measures designed to meet the specific needs of each particular watershed.

The approach California is using is based on developing local solutions to local problems. It is founded on the knowledge that nonpoint pollution is best controlled through programs involving all stakeholders working together.

The ultimate goal of watershed management is to integrate water quality monitoring, assessment, planning, standard development, point source regulation, nonpoint source management, groundwater protection and other programs at the SWRCB and the Regional Boards. This will promote a more coordinated and efficient use of personnel and fiscal resources while ensuring maximum water quality protection.

Furthermore, watershed work will support local community watershed protection efforts to implement cost-effective strategies for natural resource protection.

Factored into the watershed management process by the Regional Boards will be development of TMDLs — total maximum daily loadings — of pollutants in those water bodies deemed "impaired" by the Regional Boards.

While this section of the federal Clean Water Act requires states to deal with already impaired waters, its implementation will provide prevention and protection measures, all a part of the watershed management process.

Specific goals in the TMDL process include:

- enhanced understanding of the sources of pollutants
- ability to measure pollutant contributions from various sources and apportion future wasteloads
- enhanced watershed stewardship
- long-term monitoring with appropriate adjustments in progress based on monitoring feedback

While the concept of watershed management appears simple — stakeholders, private and public sectors all working together toward a common goal, its full implementation will most likely take many years to achieve.

In the words of SWRCB Member Mary Jane Forster: "Watershed management is a comprehensive, fully integrated approach to water quality assessment and management. It's a better approach, but it's not an easy approach."

Pesticides

When modern synthetic pesticides were introduced shortly after World War II, they revolutionized American agriculture. As a University of California (UC) study pointed out in 1992, pesticides made possible the style and scale of California agriculture. Pesticides were easy to obtain and to use—their health and environmental costs were not well understood at first. Through pesticides, California farms can produce crops profitably in otherwise unsuitable locations. Because pesticides make feasible the monoculture of genetically similar crops (which have genetically similar vulnerability to pests), they simplify the management of large operations. Using pesticides, farmers could extend growing seasons to take advantage of valuable market niches. Finally, pesticides have been widely used after harvest to maintain product quality and extend shelf life.

Although problems associated with the widespread use of synthetic pesticides began almost immediately, it wasn't until the 1960s that they came into focus. Persistent pesticides accumulated in the food chain, harming birds and other wildlife. Pesticide contamination of surface water caused bird and fish kills, and groundwater contamination closed community wells. Incidents of worker illness began to be better recognized and documented. Advances in science made possible toxicological experiments that pointed to possible chronic health effects in humans and other mammals. One of the most serious effects has been the development of genetic strains of pests resistant to pesticides. Heavy reliance on chemicals has also led to destruction of beneficial organisms that normally keep pests in check. This destruction of natural enemies often results in a buildup of an ever-greater number of pests, or outbreaks of secondary pests that had previously not caused problems.

The search for safer, ecologically sounder ways to manage pests began more than two decades ago, and will continue for another generation. In the 1990s, use of alternative pest control strategies moved into the mainstream of California agriculture. A variety of approaches, ranging from altering planting practices and using physical barriers to pest attack, to bolstering populations of natural enemies to disrupt a pest's life cycle, are in widespread use. More than 25 years of UC research into integrated pest management (IPM) has paid dividends as farmers have a great many choices for pest control, and these alternatives have become increasingly accepted by farmers. (IPM is a sustainable approach to managing pests by combining biological, cultural, physical, and chemical tools in a way that minimizes economic, health, and environmental risks.) Pesticides will continue to be key elements in IPM programs, but not the chemicals of yesterday. Twenty-five years from now, very few pesticides widely used a quarter century ago will still be on the market. They will have been replaced by materials that are not as persistent, do not contaminate groundwater, are target-specific, and less toxic. Manufacturers will use all the tools at their command, including biotechnology, to develop materials that take the most direct, narrow path possible to a pest, and once there, do their work in the least intrusive way possible. New equipment is being designed that will make possible ever more focused applications of pesticides, minimizing the amount of chemical that must be used as well as the potential for drift.

IPM is a knowledge-intensive enterprise and more sophisticated tools will be used to collect information and translate it into action. Weather stations, electronic soil probes, computers and telecommunications are already helping to collect and analyze information about pests, natural enemies, weather, and other factors.

The next 20 years will see an explosion in our knowledge of pest biology, of the interaction of pests with their environment and how we can disrupt that relationship to better control pests. Biotechnology is giving scientists powerful new ways to understand and manipulate the genetic traits of plants and microorganisms. Pesticides are being engineered to better perform their tasks, and as our knowledge of biotechnology increases, new horizons will open. Plants are being designed to be resistant to certain herbicides, which paradoxically is expected to lead to decreased overall herbicide use. Other plants are being bioengineered to incorporate built-in pesticide protection, or to be less attractive to typical pests.

The next 20 years will also continue to change how pesticides are regulated. In the past, the emphasis was on assuring that each pesticide can be used safely and that the requirements for safe use are strictly enforced. It has been a "chemical-by-chemical" approach. In the future, pesticides will be regulated in the context of the overall ecology of crop production, pest management, and pesticide use.

Using the wide range of regulatory authority and developing a series of private-public partnerships to expand mutual resources, DPR will continue to work to develop lower-impact pest management strategies that reduce the overall risk from the use of pesticides. Without compromising the vitality of California's economy, this strategy is expected to reduce the overall reliance on and amount of pesticides used in the state.

Solid Waste Management

Throughout the 1990s, waste management policy in California has focused on reducing the amount of material going to landfills by 50 percent through waste prevention, reuse and recycling. A regulatory and enforcement framework to manage health and safety issues relating to disposed waste has also been created. As a result, over the last seven years the amount of waste diverted has more than doubled, to more than 30 percent, and new landfills have come on-line, ensuring that California has adequate short- and mid-term landfill capacity.

In this same time frame, new approaches to waste management have been proposed and tested in California as well as in other states and countries. We expect that many of these may become part of mainstream waste management in the coming decades.

Waste prevention and resource efficiency

In Europe, and increasingly in California and the rest of the United States, the adoption of Environmental Management Systems (EMS) such as the ISO 14000 series by producers of goods and services has led to decreased use of raw materials, improvement in product quality and yield, and to significant decreases in the generation of toxic by-products, air and water pollution, and waste generation. Companies are not only designing products for extended lifecycles, but also ultimately for reuse or ease of recycling. They are setting targets for redesigned products and production processes to reduce waste and minimize the generation of harmful materials. An almost inevitable result of these process efficiencies has been significant cost reduction and cross-media environmental impact. We expect companies adopting an approved EMS will seek such regulatory relief as single multimedia permits, less-frequent inspection, and reduced penalties for self-declared violations if remediation is accomplished. Cal/EPA will seek the appropriate balance between self-regulatory processes and necessary reporting and enforcement.

Green buildings

Construction and demolition waste in some areas constitutes a large fraction of the waste stream. It is possible not only to design demolition so that many of the construction and furnishing materials can be reused or recycled, but also to encourage the use of recycled-content materials and products during construction.

Beneficial use of nonindustrial waste

Agricultural, wood, yard, and food waste constitute a significant portion of the waste stream. Their use as compost presents an opportunity to significantly regenerate the soil's ability to retain water and nutrients, increase disease-controlling microorganisms, and reduce infestation of harmful weeds and pathogens.

Conversion technologies

For noncompostable organic wastes and in areas where transportation to market makes composting economically infeasible, conversion technologies such as gasification, ethanol production, and methane generation may become a viable alternative to disposal. In such plants, air and water emissions are minimized and only process residue must be managed as waste.

Hazardous Waste Management

The next 20 years will see tremendous changes in California's hazardous waste management landscape. Among the most significant areas of progress:

- After more than two decades of diligent corrective action activities at hazardous waste facilities and affected generator sites, it is anticipated that the adverse impacts resulting from releases of hazardous waste will be virtually eliminated to allow productive reuse of valuable land and water resources.
- All hazardous waste releases throughout the state will be characterized to determine the extent of contamination and potential impacts to public health and the environment. Measures will be in place to eliminate any adverse impacts where possible, but at a minimum, situations will be controlled so that additional impacts will not be realized. This will accomplish one of the major goals of the state and federal hazardous waste programs which is to minimize risks from hazardous wastes.
- Within the next ten years, environmental cleanup work at all of the 150 military base closures which have been announced to date for California will have either been completed, or the cleanup systems will be in place to ensure maximum environmental protection. This effort will pave the way for beneficial new uses at these former military bases, spurring economic development and job creation.
- Two decades from now, it is likely that the federal Superfund program will have terminated. Current sentiment in Congress does not favor any strong desire to continue this program beyond its original goal. The National Priorities List hazardous sites will have been cleaned up, under the lead of the federal government.
- Implementation of California's Unified Program coupled with the Permit Consolidation Zone Program (SB1299) and the state's efforts to encourage the use of Environmental Management Systems (EMS) through the ISO 14000 Pilot Project Initiative, will result in fundamental environmental regulatory reform in the future. These initiatives move away from single purpose programs, to cross-media and facility-wide approaches.
- SB1299's creation of a compliance plan — as an alternative to the traditional antiquated multiple permit process — will allow industry, government and the public to focus on overall performance in meeting environmental and public health standards.
- Streamlined reporting and monitoring, elimination of duplicative requirements, and better oversight will result from the creation of the compliance plan and the Unified Program. The Unified Program is the focal point for local environmental compliance plan approval and verification at the local level.

Toxic Substances Control

The hazardous waste management challenge is an enormous one in California, but it is being addressed with forward-looking activities and a strong commitment by Cal/EPA. Success as a regulatory agency is grounded in maintaining sound working relationships with local governments, businesses, affected communities and environmental organizations. Continued progress in environmental protection, including cleaning up contaminated sites, inspecting hazardous waste facilities, promoting environmental technologies and developing pollution prevention strategies will be achieved through an ongoing and strengthened partnership with all of our stakeholders.

Future hazardous waste activities will be related to the outcomes of the Regulatory Structure Update, the Site Mitigation Update and other regulatory improvement initiatives. These initiatives apply the latest scientific information, eliminate costly and unnecessary duplication among governmental agencies and solidify a customer-service approach to environmental regulation.

Continued progress also can be expected in the management of hazardous waste. While the number of businesses regulated and the number of hazardous waste shipments in California have increased significantly over the past decade, the safe management of hazardous waste has improved as well. Equally encouraging is the rapid expansion of recycling programs and development of new environmental technologies that hold the promise for even greater progress. These trends are likely to continue.

The cleanup of contaminated sites in California has reduced potential threats to public health and the environment. Chief among these efforts are the Brownfields Initiative, the Expedited Remedial Action Program and the Voluntary Cleanup Program.

California stands on the cutting edge of developing and using emerging environmental technologies that hold the promise for significant advances and improvements in waste management in the years to come. Efforts such as Cal/EPA's Technology Certification Program, ISO 14000 pilot projects and the California Environmental Partnership to develop export opportunities in Asia are leading the way in environmental entrepreneurship on a global scene.

The Office of Environmental Health Hazard Assessment has been designated as lead agency in providing guidance on risk assessments (Governor's Executive Order W-137-96). Risk assessment represents an important component in environmental decision-making, providing information about the risks posed by exposures to environmental contaminants for the risk manager to consider. The field of risk assessment has been continually evolving since its early beginnings during the 1970s when — amidst increasing public concern about the chronic health effects of environmental contaminants — regulatory agencies developed procedures for identifying chronic health hazards and estimating the risks they pose to human health.

In the 1980s, the National Research Council published its landmark report, *Risk Assessment in the Federal Government: Managing the Process*, which formally described the risk assessment process, dividing it into four steps: hazard identification; dose-response assessment; exposure assessment; and risk characterization. Throughout each step, there are certain points where a definitive conclusion regarding human health implications cannot be drawn from the available scientific evidence, and a range of possible conclusions can be inferred. (For example, in the absence of human evidence, observations of adverse effects in animal tests are considered relevant in the hazard identification step, and high-level doses that produce tumors in experimental animals are used for extrapolating tumor responses that may be expected to result from low-level human exposures to environmental contaminants — using certain models and assumptions — in the dose-response step.) To bridge the gaps between the scientific data and the conclusions that need to be drawn to move to the subsequent step of the risk assessment process, policies have been incorporated into existing risk assessment guidance to drive the selection of a particular — often the most health-protective — inference over other available ones. Many of these policies were formulated at the federal level by the U.S. Environmental Protection Agency and adopted by California in its risk assessment programs.

Over the years, the experience gained in the use of risk assessments in regulatory decision-making and the availability of new scientific evidence have indicated a need to modify existing approaches to ensure that outputs of the process reflect the best available data and provide the most complete conclusions about risk. Efforts today are focused on developing new approaches and generating and evaluating new data in order to enable risk assessors to adequately consider such issues as sensitive subpopulations, cumulative risks, multimedia exposures, mechanisms of action, and complex mixtures.

Much effort is underway at the federal level to address many of these issues. For Cal/EPA, the recommendations issued by the Risk Assessment Advisory Committee (RAAC) in 1996 following its review of the risk assessment practices, policies and guidelines utilized by the Agency will continue to serve as the roadmap for improving and strengthening the scientific basis for assessments used in California's environmental protection programs. General recommendations made by the RAAC address themes that include consistency among the boards and departments and harmonization with the U.S. Environmental Protection Agency; use of the best scientific information; and improved interface between risk assessment and risk man-

agement. In addition, the RAAC also made specific recommendations dealing with various issues relating to risk assessment, such as exploring alternatives to bridging gaps in toxicity data other than using large uncertainty factors; developing guidelines on the appropriate use of uncertainty factors, including guidance on taking severity of effect into account in setting these factors; taking steps to integrate fate and transport modeling efforts with human exposure assessment; putting more emphasis on receptor-based exposure assessment, when appropriate and cost-effective; improving the characterization of uncertainty and variability in risk assessments and in communicating this information to risk managers and the public; and reviewing present data collection/data management efforts and initiating measures to minimize overlap and to improve accessibility and quality of data. (For more information on the RAAC's recommendations, see *A Review of the California Environmental Protection Agency's Risk Assessment Practices, Policies, and Guidelines*, October 1996.)



**CALIFORNIA
ENVIRONMENTAL
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Secretary - Peter M. Rooney (916) 445-3846



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