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EPA PROGRESS REPORT 2004

PACIFIC SOUTHWEST REGION

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U.S. Environmental Protection Agency
Pacific Southwest/Region 9
EPA-909-R-04-001

Dear Readers,

When it comes to the environment, one thing is certain: We are all in this together. No single person, or agency, can do the job of protecting public health and the environment alone.

EPA is firmly committed to building and enhancing our partnerships with states, tribes, local governments, industry, and the agricultural and environmental communities. Collaboration is essential in securing real environmental results.

Here in the Pacific Southwest, the results of these joint efforts are everywhere.

In California last year, state and local agencies carried out over 91,000 hazardous waste, emergency readiness, and fuel tank facility inspections to prevent oil spills and toxic leaks.

In Indian Country, tribal governments in 2003 made significant improvements to drinking water and wastewater infrastructure serving some 20,000 homes, bringing better health protection to their tribal communities. Of the 146 tribes in the Pacific Southwest, 131 are developing their own environmental programs.

In Arizona, the Phoenix area has met health standards for carbon monoxide and ozone for six years in a row, thanks to state and local air quality measures. California's San Joaquin Valley, where air quality has become an urgent health issue, is in the early stages of a similar effort that calls upon everyone to contribute.

In Nevada, the state's four largest gold mining companies have taken voluntary measures to reduce their air emissions of mercury by 40%. In Hawaii, representatives from across the Pacific gathered to plan new strategies for protecting coral reefs and other endangered resources.

EPA supports efforts like these with funding, coordination and collaboration. For example, last year EPA's Pacific Southwest Regional Office issued over $341 million to states and tribes in grants and loans for water programs, from drinking water infrastructure to enforcement of clean water laws. These funds leverage even greater amounts from state and local governments.

In those areas where EPA has the leading role, we are proud of our accomplishments in the Pacific Southwest. In 2003, through compliance assistance and a strong enforcement presence, we significantly reduced pollution and helped ensure a level economic playing field for industry. Cleanup work continues to reduce health threats related to the 123 Superfund sites in our region. In this report you will find countless other efforts to make our air cleaner, our water purer, and our land better protected.

As our population and economy grow, so do the environmental and public health challenges. Together, we can create innovative solutions that protect our health and provide for future generations.

Wayne Nastri
Regional Administrator
EPA Pacific Southwest Region

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This report is also available on the Internet at www.epa.gov/region09/annualreport

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CLEAN AIR

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The Central Valley's air pollution problems stem from a variety of sources, including diesel engines, dust, cars and trucks, smoke, and the valley's topography and weather, which traps pollutants close to the ground in winter. Solutions will need to address all these factors.

Coming Together to Improve Air Quality
in California's San Joaquin Valley

The San Joaquin Valley has some of the worst air pollution in the nation. Airborne particulates (dust and soot) and smog pose a significant health threat to everyone who lives there, especially children, seniors, and people with respiratory problems. The valley is classified as a "serious" non-attainment area for particulates and a "severe" non-attainment area for ozone (smog) because it fails to meet national health standards set by EPA under the Clean Air Act. The valley's air agency, the San Joaquin Valley Air Pollution Control District, has requested reclassification to "extreme" for smog, which would allow more time to achieve the health standard.

While this reclassification calls for tighter emission controls, there's no question that reaching the goal of clean air will also require innovative, collaborative action to identify voluntary measures and other strategies to reduce air pollution.

Last year SB700 was passed, ending California's agricultural exemption to the Clean Air Act requirement that major air pollution sources go through the permitting process to limit their emissions. EPA held six workshops to help farmers determine whether they need to apply for such permits, and received 26 permit applications for stationary diesel irrigation pump engines. After SB700 took effect, on January 1, 2004, the state's air districts became the permitting authority.

Also in 2003, the air district adopted, and the state submitted to EPA, a plan for meeting the PM10 particulate health standard. EPA proposed to approve it in January 2004. "This plan ensures everyone will contribute to the solution," commented EPA Regional Administrator Wayne Nastri. "In particular, the agricultural community stepped up to develop ways to cut on-field emissions." EPA is also involved in a number of related efforts to clean up the valley's air.

Operation Clean Air

EPA is providing funding and technical support to public agencies and nonprofits in the context of a clean air strategy that strengthens partnerships among federal, state, and local agencies and community groups, which are working together as the Central Valley Task Force.

As part of the task force, EPA cosponsored the April 2003 kickoff conference for Operation Clean Air, a new collaborative effort to promote voluntary anti-pollution measures. EPA's Nastri gave the keynote address at the conference. To ensure that the effort included diversity among its participants, EPA funded scholarships for 30 nonprofit groups in the valley to attend the conference.

Cutting Pollution from Diesel Engines

One effort that already benefits valley residents is USDA's Environmental Quality Incentives Program (EQIP), which provided nearly $2.7 million last year to replace 250 diesel irrigation engines on valley farms. Replacing these engines with newer, cleaner-burning ones eliminates approximately one ton of smog-forming nitrogen oxide (NOx) emissions per year, per engine. Thus far, the program is estimated to have already reduced NOx emissions by 470 tons per year. EPA worked with USDA to make the funding available. Building on the California Air Resources Board's similar, highly successful Carl Moyer Program, EQIP helps farmers and ranchers do their part to clean up the valley's air. Over the next several years, USDA plans to provide $12 million for EQIP, which could potentially eliminate 1,000 tons per year of NOx from the valley's air.

Another voluntary but highly effective anti-pollution measure is the Locomotive Anti-Idling Project. EPA, in partnership with the San Joaquin Valley air district and the two major West Coast railroads, Burlington Northern Santa Fe and Union Pacific, plans to retrofit several switching locomotives used only in the San Joaquin Valley. The railroads are providing $75,000 in matching funds to install anti-idling devices on at least 10 of these locomotives to reduce NOx, sulfur dioxide, and diesel particulate emissions from these relatively dirty engines during extensive periods of idling. The microprocessor technology automatically shuts down and restarts the engine as needed, while reducing idling time by as much as 50 percent. The project is expected reduce annual NOx emissions by 1.53 tons, while saving over 10,000 gallons of fuel, per locomotive.

One more example is EPA's Clean School Bus USA program, which reduces children's exposure to diesel exhaust and the amount of air pollution created by school buses. Last year, EPA awarded Clovis Unified School District in Fresno County $286,700 to retrofit 53 buses with diesel oxidation catalysts and test their performance on emulsified diesel fuel. In addition, the district will retrofit nine buses with particulate filters and fuel them with ultra-low-sulfur diesel. The school district operates a bus fleet with 54 routes serving 33,418 children. The fleet is

EPA's Indoor Air Quality Tools for Schools exhibit at the Operation Clean Air event in Fresno, April 2003.

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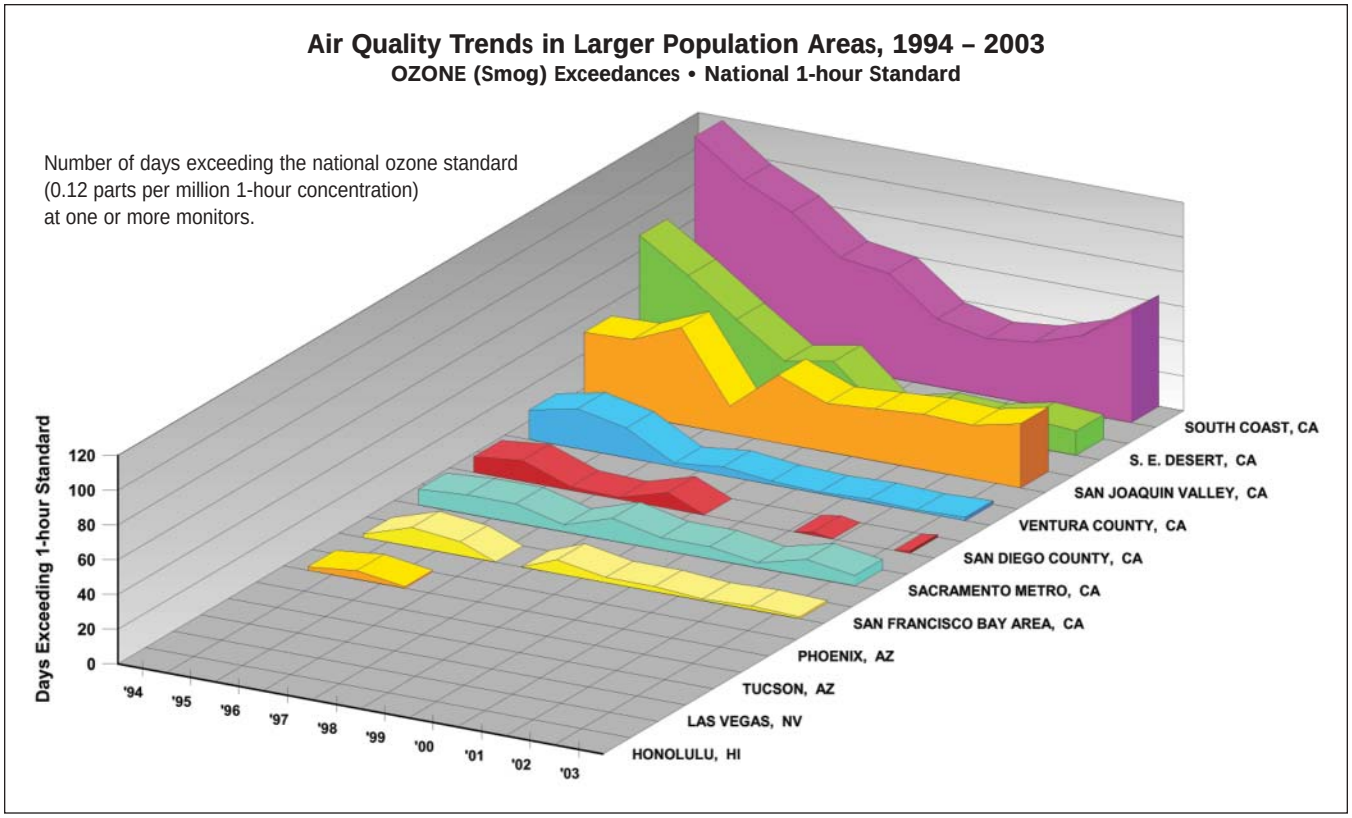
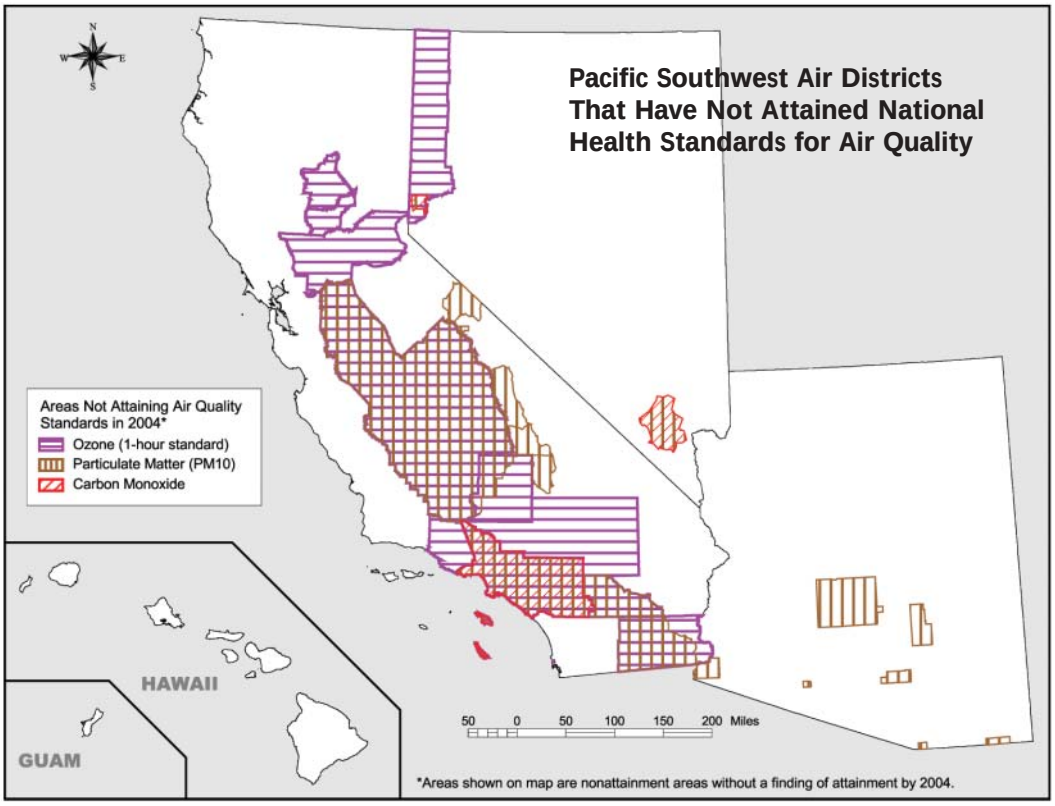


For an air district to attain the national health standard for ozone, it must have no more than three days with ozone exceeding the standard during the previous three years.



Shaded areas on map show districts where air does not meet national health standards for ozone (smog), particulates (dust, soot, and aerosols), or carbon monoxide.

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fully committed during the school year, and operates at about 50% capacity during the summer.

Indoor Air Quality and Air Toxics

EPA's Indoor Air Quality Tools for Schools program provided a $57,000 grant to the University of Tulsa to help the Fresno Teachers Association and the Fresno Unified School District's 89 schools identify, correct, and prevent indoor air quality problems. EPA also offered training to staff and teachers and performed school walk-throughs in Fresno and other Central Valley districts. EPA also gave Clovis Unified School District (37 schools) a Tools for Schools Excellence Award for reducing indoor air hazards, including pollutants that trigger asthma attacks.

In 2004, EPA is planning to award $150,000 in Community Air Toxics grants for projects that reduce toxic emissions in urban areas. Proposed projects will focus on two issues of concern: implementation of reduction activities that have been identified through a community-based, collaborative process, and which address stationary, mobile, and area pollution sources; and diesel exhaust reduction strategies.

Progress in Coastal, Desert Population Centers

The trend in air quality for most of the Pacific Southwest's metropolitan areas continues to be positive. On the California coast, the San Diego and Santa Barbara air districts have both achieved the national health standard for ozone (smog) for several years, so EPA officially redesignated them as "in attainment" of the standard. Based on the most recent three years of monitoring data in the San Francisco Bay Area, through 2003, EPA announced a "finding of attainment" for ozone in early 2004.

After years of steady improvement, the number of unhealthy air days has begun to rise in California's most populous air basin, the greater Los Angeles area (see ozone trends graph, facing page). EPA is working with the South Coast Air Quality Management District and others to assess these developments and strengthen progress toward healthy air.

EPA also worked with the state Air Resources Board, local air agency, tribes, and the city of Los Angeles to update a dust control (PM10) plan for rural Owens Valley, east of the southern Sierra Nevada. For decades, the valley had been plagued by dust storms rising from the dry Owens Lake bed that gave it the nation's worst PM10 problem. EPA helped bring together the valley's government agencies, tribes, and the Los Angeles Department of

EPA's Clean School Bus USA program awards grants to school districts to reduce pollution from diesel buses.

Water and Power (owner of most of the valley's water rights) to hammer out a plan to curtail the dust storms by re-flooding and planting salt-tolerant grasses on 29.8 square miles of the dry lake bed. These measures are now well underway.

In Arizona, the Phoenix area has now had six straight years of air meeting the health standards for carbon monoxide and ozone. The area has not yet attained the health standard for particulates, but is expected to do so by 2006, under a plan EPA approved in January 2002. The Las Vegas area (Clark County, Nev.), has recorded three straight years of clean data for carbon monoxide (CO), though PM10 – primarily dust from unpaved roads and construction sites – is still a problem. EPA proposed to approve the local air district's PM10 and CO plans, and the area began requiring cutting-edge dust control measures on large construction sites.

Collaboration Toward Cleaner Air

EPA Funds Monitoring and More

Under the Clean Air Act, state, local, and tribal governments in areas with unhealthy air are responsible for planning how they will attain national health standards, and putting their plans into effect. The law recognizes that these governments need money for these efforts. In 2003, EPA's Pacific Southwest Region issued over 200 grants totaling more than $35 million for clean air planning, air monitoring, research and related purposes. EPA also funds the states of Arizona and California's air monitoring in cities on the Mexican side of the U.S.-Mexico

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EPA People:
Colleen McKaughan

More than anyone else, Colleen McKaughan, associate director of the EPA Pacific Southwest Region's Air Division, is the face of EPA in the state of Arizona. This is a geographic area with a diverse set of cultures, from Indian nations to the U.S. Mexico border; from the urban to the growing suburban and all the rural areas in between.

Commuting between Phoenix and Tucson, McKaughan represents the EPA air program, but tries to assist all of EPA's major programs in the Pacific Southwest. Having a person within the state with Colleen's background, who regularly participates at public meetings, stakeholder events and presentations, allows Arizona residents direct access to EPA.

McKaughan gets results by working directly with a wide variety of people in regulatory agencies, industry groups, the environmental community and the news media. In one example, she has been instrumental in addressing the concerns of the community of Rillito, Ariz.

For many years, Rillito residents have been affected by emissions from the Arizona Portland Cement facility. It became clear that in order to address this problem, EPA would have to force the issuance of an appropriate air permit with needed emission control requirements, and rectify past permit problems through an enforcement action. Colleen worked with the permitting, enforcement and legal staffs at EPA's Pacific Southwest Regional Office to move these actions forward. She engaged senior managers to help reduce sensitivities resulting from EPA's actions. In addition, she met with community residents frequently to explain what was going on and answer questions about EPA's plans.

McKaughan's tireless work has allowed EPA to form a stronger relationship with the citizens of Rillito and is helping to bring a major facility into compliance with the Clean Air Act.

Border, in an effort to determine relative air pollution contributions by both countries.

In 2003, $3 million of these grants went to 21 tribes for their air quality programs. Among the results were new air monitoring stations for the Walker River Paiute Tribe, whose lands are in Nevada, and the Gila River Tribe, whose lands are in Arizona. In addition, EPA provides an instructor at the Tribal Air Monitoring Support Center of the Institute for Tribal Environmental Professionals at Northern Arizona University.

Western Regional Air Partnership

Arizona was one of five western states to submit the first regional haze plans to improve visibility in national parks, and wilderness areas near the Grand Canyon. The other states that submitted plans in December 2003 were New Mexico, Oregon, Utah, and Wyoming. The WRAP, a stakeholder effort funded by EPA, has coordinated the efforts of states, tribes, federal agencies, industry, and environmental groups to conduct research and develop policies to reduce haze. The western United States has 116 of the 156 federally-protected parks and wilderness areas under the regional haze program.

Improving Facility Permits

Under Title V of the 1990 Clean Air Act, major existing stationary sources of air pollution such as oil refineries and fossil fuel-burning power plants are now required to have operating permits that specify not only their emissions limits, but how they will monitor and report emissions, and who at the facility will be accountable for ensuring compliance. Last year, EPA's Pacific Southwest Air Division staff reviewed draft permits issued by air districts throughout the region, including California's Bay Area and South Coast air districts, and Maricopa County, Ariz., and made over 500 recommendations to clarify what each facility must do to ensure compliance. As these recommendations are added to permits, the result will be better monitoring and better compliance.

For example, refinery permits should include monitoring to ensure that electrostatic precipitators, which can reduce thousands of tons of particulate emissions per year, are working correctly. Routine flaring, or burning of gases at refineries, should be prohibited to reduce emissions of smog-forming volatile organic compounds and hazardous air pollutants. Last year, EPA assisted the Navajo Nation in developing its own Title V permitting program, while continuing to process permit applications for facilities on Navajo land. EPA issued 20 permits out of 23 applica-

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tions from facilities on tribal land in the Pacific Southwest, including 12 of 14 on the Navajo Nation.

Toxics Reduction Pilot Projects

South Phoenix, Ariz., has a history of mixed-use development creating a patchwork of industrial facilities, residential housing, landfills, and commercial enterprises, representing numerous pollution sources. Last year, after inspecting industrial facilities in the area, EPA took enforcement action against three facilities for failing to report hazardous chemicals, as required under the Emergency Planning and Community Right-to-Know Act (EPCRA). One of the facilities, a chemical storage warehouse, had had a fire, endangering community residents as well as firefighters.

EPA also provided funding to the Arizona Department of Environmental Quality (ADEQ) for a community-based toxics reduction project, which is producing an inventory of toxics sources, setting priorities for reduction, and identifying short-term and long-term actions that will reduce toxic emissions.

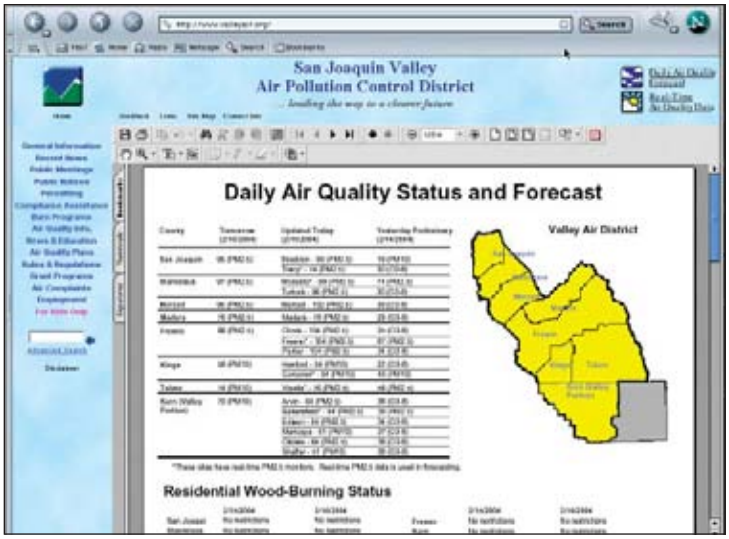
The community is directly involved, representing numerous neighborhood associations, local colleges, businesses, residents and other stakeholders. They have formed a Community Action Council, co-chaired by ADEQ and community representatives. The council is now setting priorities and developing reduction strategies for a pilot area within South Phoenix.

West Oakland, Calif., is a minority community of about 25,000 people, surrounded by freeways and bordering the Port of Oakland. Over the past year, EPA worked with the community and other regulatory agencies on a number of efforts to reduce air pollution. Although EPA would have preferred installation of effective emission controls, the Red Star Yeast facility's closure had the effect of reducing community exposure to harmful volatile organic compounds.

Enforcement Actions Benefit Communities

Law enforcement is a key tool in reducing the health impacts of air pollution. In addition to correcting violations and collecting fines, EPA encourages supplemental environmental projects (SEPs), which go beyond simple compliance. Here are some examples of the benefits realized from recent air enforcement cases:

- As part of a larger national settlement, Chevron USA agreed to pay an $800,000 penalty for failure to immediately report releases of hazardous substances and to properly carry out a risk management program required by the Clean Air Act at its refinery in El Segundo, Calif.



EPA's AIRNOW partnership with state and local air agencies provides real-time maps of smog and particulate pollution conditions – now including small particulates (PM 2.5) – at www.epa.gov/airnow.

The company also committed to projects that will directly benefit the city's residents, such as spending $300,000 on diesel emissions reduction projects in the El Segundo area and $100,000 on defibrillators and air compressor upgrades for the El Segundo Fire Department's emergency vehicles.

- Chromalloy Gas and Turbine Corp. paid a $92,522 penalty to settle Clean Air Act violations and will initiate a phaseout of its use of halogenated solvents to degrease parts at its Phoenix, Ariz., facility. The project will cost the company nearly $200,000 and is expected to decrease toxic emissions of trichloroethylene, a hazardous air pollutant, by approximately 6,500 pounds per year.
- National Cement's plant in Lebec, Calif., paid $838,296 in penalties to settle violations of the Clean Air Act and the Emergency Planning and Community Right-to-Know Act. The company violated the air emission standards and notification and monitoring requirements of its EPA air permit. The company has since installed additional pollution control equipment and made other changes that have reduced its excess emissions by 225,000 lbs/yr of nitrogen oxide, 18,000 lbs/yr of sulfur oxides and 2,600,900 lbs/yr of carbon monoxide.

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CHAPTER TWO

CLEAN WATER

Funding to carry out programs mandated by federal law, including the Clean Water Act, is an important part of EPA's ongoing partnership with states and tribes. In 2003, EPA funding for state and tribal water programs in the Pacific Southwest totaled over $341 million. (Above: Hanalei River, Kauai, Hawaii)

Putting Dollars to Work for Clean Water

More than half of the EPA Pacific Southwest Regional Office's budget goes to grants and loans to state, tribal and local governments. The largest portion of this goes to clean water and drinking water programs – in Fiscal Year 2003, more than $341 million. As detailed in the table on page 9, EPA manages a variety of grants and provides oversight of the states' and tribes' programs to protect surface waters and ensure safe drinking water supplies. (For more information on these grants and loans, go to www.epa.gov/region09/funding, and click on "available grants.")

Each year, the largest amounts go to the Clean Water and Drinking Water State Revolving Funds (SRFs), for state loans to local governments to build infrastructure such as drinking water treatment and sewage treatment plants, and projects to control polluted runoff. Last year, these two categories accounted for more than two-thirds of the EPA funding for water quality purposes.

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The third largest category in FY 2003 was Special Appropriation Act Projects, also known as Congressional "earmarks." These are grants to state or local governments for projects specified by Congress. Most of this money, too, goes to drinking water and wastewater infrastructure projects, in the form of direct grants.

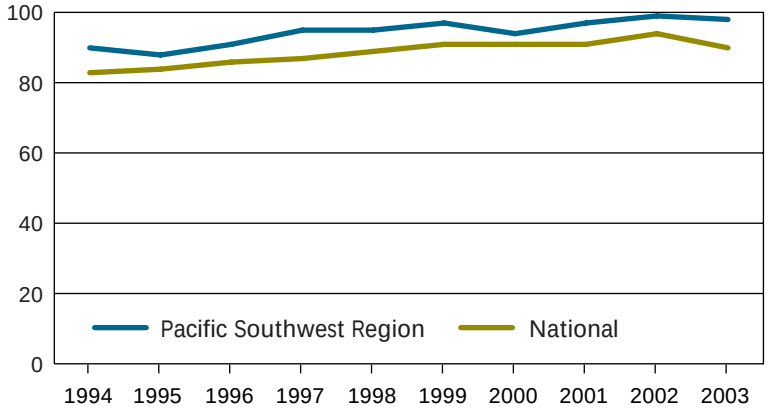
The fourth largest category was Non-point Source (NPS), to combat polluted runoff. This funding is for staffing state and tribal non-point source programs, as well as grants to local and tribal governments and nonprofits for restoring eroded watersheds and controlling polluted runoff from mines, farms, and urban areas.

The fifth major category was Water Pollution Control, which covers state programs authorized by the federal Clean Water Act: issuing discharge permits; setting water quality standards and Total Maximum Daily (pollutant) Loads, or TMDLs, for polluted waters; and monitoring of inland waters.

Additional grants were awarded for:

- Public Water Supply Systems (PWSS): grants to states and tribes for their drinking water compliance staffs
- Beach Protection: grants to states for water monitoring at coastal beaches
- Wetlands: grants for wetlands monitoring and planning, to state, local, and tribal governments and nonprofits
- Homeland Security: to assess the vulnerability of large urban drinking water systems
- Water Quality Agreements: for developing TMDLs and tribal pollution prevention programs
- Underground Injection Control (UIC): to prevent pollution of groundwater by issuing permits setting conditions for any disposal of fluids (such as oil drilling wastes) by underground injection
- Targeted Watersheds: for one high-priority watershed restoration project, which in 2003 was the Hanalei River of Kauai, Hawaii (see page 25 for more on efforts to protect this watershed)

Percentage of Population Served by Community Water Systems Meeting Health-Based Drinking Water Standards*



** Failing to meet a drinking water standard does not necessarily indicate an imminent health threat. If there is an imminent threat to public health from pathogens, the water system is required to take immediate action, notify the public, and shut down or issue a boil-water notice to all customers, advising them to boil their tap water before drinking it.*

State and Tribal Assistance Grants
Pacific Southwest Region

Clean Water Act State Revolving Fund (for loans)	$131,941,100
Drinking Water State Revolving Fund (for loans)	114,573,600
Special Appropriation Act Projects ("Congressional Earmarks")	29,246,700
Non-point Source (polluted runoff control)	25,413,042
Water Pollution Control, Clean Water Act grants	23,753,600
Public Water Supply Systems (drinking water compliance)	9,989,061
Beach Protection	1,758,000
Wetlands Monitoring and Planning	1,570,580
Water Quality Agreements	1,107,609
Underground Injection Control	1,087,500
Targeted Watersheds	700,000
Homeland Security (drinking water vulnerability assessments)	526,700
TOTAL	$341,667,492

Ensuring Safe Drinking Water

Thousands of public and private drinking water supply systems, ranging from huge urban systems to those in isolated tribal communities, deliver water to about 40 million people in the Pacific Southwest. EPA works with state, local, and tribal governments to ensure that drinking water systems consistently meet all federal health standards. The Pacific Southwest Region presents unique challenges in protecting drinking water in areas lacking adequate infrastructure, such as in the Pacific Islands, tribal communities, and U.S.-Mexico border communities.

Drinking water quality can pose serious problems. Two healthy five-year-old boys in Arizona died recently as a result of exposure to

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a water supply apparently contaminated by the little-known amoebic parasite *Naegleria fowleri*. EPA environmental engineer Jill Korte is involved in research efforts to determine the presence of this pathogen in the aquafers underlying Phoenix, and if found, how to prevent it from contaminating drinking water supplies. (See "EPA People" on page 13.)

Better Drinking Water for Phoenix

The Arizona Department of Environmental Quality and the city of Phoenix completed a $1.2 million, three-year project in June 2003 to improve the taste and smell of the city's drinking water.

Over the past three years, Phoenix's Water Services department, along with Arizona State University, the Salt River Project and the Central Arizona Project conducted algal studies, established a highly advanced water monitoring network and sampling techniques, and tested treatment alternatives. The neighboring cities of Tempe, Scottsdale, Gilbert, Glendale, Mesa, Peoria and Chandler also benefited from the project.

What Lurks Below: Hawaiian Cesspools

In Hawaii, many people in rural areas get their drinking water from underground sources. At the same time, many housing developments and other buildings flush their untreated sewage directly into the ground through cesspools. Raw, untreated sewage moves through the ground and can contaminate drinking water sources, streams, and the ocean. To solve this problem, EPA has prohibited construction of large new cesspools – those serving more than 20 people, or receiving over 1,000 gallons of wastewater daily – since April 2000. About 2,000 existing cesspools statewide must be closed by April 5, 2005, and be replaced with alternate sewage treatment systems.

EPA has been working with the Hawaii Department of Health to assist local governments in assuring compliance with the new regulations. The counties of Kauai and Hawaii have applied for loans from EPA's State Revolving Fund for wastewater facilities. In January 2004, EPA awarded a $76,000 grant to Hawaii County to help complete its search for large cesspools on the Big Island. The state completed a source water assessment, identifying contamination threats statewide, in November 2003.

Also in 2003, EPA awarded a $970,000 grant to the County of Hawaii for drinking water system upgrades that include providing six public water spigot sites on the Big Island and improvements to North Kona water lines.

Water Quality Collaboration

Monitoring Surface Waters

The first step in cleaning up polluted waters is identifying them. This is no easy task in EPA's Pacific Southwest Region, which has thousands of miles of rivers, streams, lakeshores, and beaches. In 2003, EPA collaborated with the California Coastal Commission and other agencies to sponsor the first Coastwide Snapshot Day, on May 17, when volunteers collected water samples from 500 coastal beaches, estuaries, rivers, and streams. The volunteers measured temperature, pH, turbidity, conductivity, and dissolved oxygen, then sent the samples to EPA's lab in Richmond, Calif., to test for nutrients (which deplete oxygen needed by fish and other aquatic life) and bacteria. The results are posted on the Commission's Web site, at www.coastal.ca.gov/publiced/pendx.html.

Routine monitoring and beach closure information for 440 beaches in California, Hawaii and Guam is now available on-line at yosemite.epa.gov/water/beach2003.nsf.

The Deer Valley Water Treatment Plant is one of Phoenix's facilities for purifying drinking water.

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In 2003, EPA's Richmond Lab analyzed 379 water samples for volunteer monitoring groups such as Friends of Temescal Creek in Oakland, Calif. As a result of five weeks of water sampling, which revealed high bacteria counts at certain places in the creek, the city found three sewer pipe leaks and one illegal discharge. After these were fixed, bacteria levels were reduced by over 90% – good news for swimmers in Lake Temescal, which is fed by the creek.

Taking water samples at Pacifica State Beach, San Mateo County, Calif. – one of many beaches, estuaries, rivers, and streams where water was tested on World Water Monitoring Day, October 18, 2003.

EPA, States Develop TMDLs to Limit Water Pollution

The Clean Water Act requires states to identify polluted bodies of water. The Total Maximum Daily Load (TMDL) process provides an assessment and planning framework for identifying pollutant load reductions or other actions needed to attain water quality standards which protect aquatic life, drinking water and other designated uses. TMDLs address all significant pollutants that cause or threaten to cause pollution in a water body that the state has determined to be impaired. Due to the great number of TMDLs that need to be written and the limited resources available to do this work, EPA collaborates with states in setting priorities for TMDLs, in addition to developing some TMDLs. In 2003, Arizona, California, Hawaii, and Nevada completed 110 TMDLs, and EPA completed 36.

The TMDLs adopted in 2003 include those for sediment runoff in California's North Coast rivers, for bacteria at Santa Monica Bay beaches, for mercury in Clear Lake (Lake County, Calif.), and for dissolved metals in streams in Arizona mining districts. In the Imperial Valley, the Colorado River Basin Regional Water Board adopted sediment TMDLs for the New and Alamo Rivers. To reach the water quality goals set by the TMDLs in the Imperial Valley, 90% of the region's farmers agreed to reduce sediment runoff from irrigation. Other agencies, landowners, and other stakeholders may assist states and EPA in developing TMDLs for specific watersheds.

Controlling Exposure to DDT

The largest known DDT-contaminated site lies offshore of the Palos Verdes Peninsula, Calif., where waste from a now-defunct DDT-manufacturing plant was deposited after passing through a regional sewage treatment system. In 2003, EPA kicked off a campaign to educate anglers, store owners and consumers on the dangers of eating locally caught fish contaminated with toxics such as DDT and PCBs. The October 2003 kickoff event was widely covered by local news media.

EPA and a consortium of federal, state, and local community partners have formed the Fish Contamination Education Collaborative and will spend the next several years educating Southern Californians on the health risks associated with eating contaminated fish, particularly white croaker, caught off the coast of Los Angeles and Orange counties. The campaign, urging the public to "Know Your Fish, Reduce the Risk," includes public outreach conducted in at least 10 languages, targeting consumers, community fish markets and anglers who fish at local piers and shorelines. It is part of EPA's effort to reduce human health risks posed by fish contamination related to the Palos Verdes Shelf Superfund site.

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Members of the Fish Contamination Education Collaborative show how to prepare a fish for cooking to reduce risks from PCB and DDT contamination at an EPA outreach event in Southern California.

The campaign complements other efforts to protect the public from DDT and PCB risks, including monitoring of fish contamination in the ocean and the marketplace, and enforcement of state fishing regulations. In addition, EPA is evaluating long-term cleanup alternatives such as capping the contaminated sea bottom with clean sand.

Preventing Polluted Runoff and Sewage Spills

EPA grants in 2003 to prevent polluted runoff helped get results in all four Pacific Southwest Region states (and tribal lands – see Communities and Ecosystems, Chapter 4). EPA also makes loans available for this purpose through the State Revolving Fund (SRF), an innovative method of financing a range of projects to restore and protect water quality. While the SRF traditionally funded the building of sewage collection and treatment facilities, it now also provides loans at below-market rates for non-point source and estuary protection programs.

In California, projects are underway to reduce sediment in Imperial Valley farm drainage channels, thus reducing pollution in the New River and the Salton Sea. Erosion control projects are reducing sediment runoff from dirt roads along the San Lorenzo River in Santa Cruz County and the South Fork of the Trinity River in the North Coast area – both are spawning areas for trout and salmon.

In Arizona, the Three Links Farm project reduced polluted runoff to six miles of the San Pedro River, and ensured minimum flows needed to restore aquatic life and riparian vegetation. The work involved construction of stock fences to keep cattle out of the stream, and reduced groundwater pumping. A similar project is underway on Nutrioso Creek. In Hawaii, an erosion control project in West Maui reduced sediment runoff to the sea by 68%, helping protect fragile coral reefs. A project on the Carson River, near Carson City, Nev., repaired nearly four miles of eroded riverbanks, preventing tons of sediment, as well as oxygen-depleting nutrients from animal waste, from washing into the river.

Reducing Impacts from Dairies

In the Pacific Southwest, there are 1,750 major confined animal feeding operations – CAFOs, most of which are dairies. Nutrient-laden runoff from them is a serious water pollution problem. EPA is part of the California Dairy Quality Assurance Partnership (CDQAP), a collaboration involving government agencies, the University of California at Davis, and the dairy industry. By the end of 2003, the CDQAP had certified 182 dairies using best management practices to prevent water

Dairy cows have been part of the rural landscape at Point Reyes, in Marin County, Calif., since the 1860s.

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pollution. EPA is working with USDA on a federal Dairy Waste Initiative to further develop such voluntary approaches. At the same time, EPA and states of California and Arizona have stepped up dairy inspections in the Central Valley and in Maricopa County, Ariz., to improve compliance with the Clean Water Act.

Enforcing Against Toxic Discharges

EPA took action under the Clean Water Act against a number of entities for stormwater and other discharge violations. Some examples:

Pick Your Part Auto Wrecking Co. paid $128,000 for stormwater violations at five auto wrecking and recycling yards in Southern California. The company will also now remove and recycle the toxic liquid metal mercury in switches from salvaged vehicles at its nine California yards, the first such program in the state. Nationwide, an estimated 10 tons of mercury are released to the environment each year from mercury-containing light switches during the shredding and crushing of old vehicles.

In Arizona, two cases involved acidic runoff from mines polluting streams. Phelps Dodge Corp. agreed to pay $220,000 in penalties for discharges of contaminated water from the abandoned United Verde Mine in Jerome, Ariz., and spend about $11 million to build structures to prevent polluted runoff. In a typical year, thousands of pounds of toxic dissolved copper and zinc, and hundreds of pounds of cadmium, are discharged to an ephemeral stream bed and have the potential to wash down to the Verde River in wet years.

The same company also paid $105,000 to settle claims that it discharged polluted water containing toxic copper and sulfide from the Christmas Mine near Winkleman, Ariz., to the Dripping Springs Wash, a tributary of the Gila River.

Action to Reduce Sewage Spills

Sewage spills and overflows are one of the most common causes of water contamination at beaches. In 2003, EPA took enforcement actions against local government agencies responsible for such spills, resulting in greater focus on the adequacy of aging sewage collection systems and of operational and maintenance practices.

EPA People:
Jill Korte

In 2002, two five-year-old boys living near Peoria, Ariz., died from exposure to an amoeba, *Naegleria fowleri*, which had apparently contaminated the public water supply system. This amoeba causes infection not by ingestion, but by being inhaled while bathing or swimming. A rare, deadly disease, meningioencephalitis, ensues when the amoeba reaches the brain via the olfactory nerve.

It is still unclear whether the Peoria cases were an isolated outbreak, or whether the aquifer, or groundwater wells tapping it, support the amoeba's growth – which could have broader public health implications for the Southwest. To find out, Jill Korte of EPA's Pacific Southwest Drinking Water Office developed a research proposal to identify the types of microbes that live in wells tapping the warm water aquifer underlying the Phoenix area. The goal is to find out if *Naegleria* and other pathogens are in the wells, and what conditions contribute to their survival. This work complements other studies now underway by the National Water Quality Center and the University of Arizona.

Researchers already know that *Naegleria* is widespread in the environment, survives in the soil, and tolerates warm temperatures, such as those found in hot springs. Beneath the Phoenix area is a unique warm water aquifer with temperatures ranging from 65 to 115˚F.

Though the project is directed by EPA's lab in Cincinnati, Ohio, Korte remains involved. She is working with the Arizona Department of Environmental Quality (ADEQ) to develop plans to collect well water samples for DNA analyses, and will travel to Arizona to conduct sampling. She is coordinating involvement by EPA, ADEQ, water utilities, the University of Arizona, and the National Water Quality Center. Sampling is set to begin in mid-2004.

Korte's job at EPA involves overseeing Arizona's drinking water program and working with the state on drinking water rule development, interpretation, and implementation. She also participates in national workgroups on drinking water rule development and on resolving issues as new drinking water rules take effect.

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CLEAN LAND

The newly-completed Slickrock Creek Retention Reservoir, above, together with an existing water treatment plant, now prevents more than 95% of the Iron Mountain Mine Superfund site's toxic discharges from polluting the Sacramento River.

Hazardous Waste in EPA's Pacific Southwest Region

EPA carries out several federal laws dealing with hazardous waste: First is Superfund, which cleans up the nation's biggest, costliest abandoned hazardous waste sites (the National Priorities List), as well as sites where quick action is needed to deal with imminent threats to public health or the environment. Second is the Resource Conservation and Recovery Act, which regulates hazardous waste storage, transportation, and disposal; cleans up spills and leaks at hzardous waste and underground fuel storage facilities; and encourages saving energy and natural resources through waste recycling, recovery, and reduction. Third is Brownfields, which promotes cleanup and reuse of sites with less serious contamination. Cleanups under these laws are based on the "polluter pays" principle, which means that in most cases, taxpayers don't get stuck with the bill.

In 2003, EPA's Pacific Southwest Region secured binding commitments totaling over $128 million from responsible parties to pay for hazardous waste cleanups. Construction of cleanup facilities (such as groundwater

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treatment plants) is complete at 44% of the region's 123 Superfund National Priorities List sites, and construction is underway at another 36% of the sites. The remaining 20% are in the investigation stage, although early action has been taken to deal with immediate risks.

Collaborating on Revitalization

Brownfields

Last year, EPA accelerated efforts to revitalize abandoned industrial sites (brownfields) with grants totaling over $7 million in the Pacific Southwest Region to state and local governments, tribes, and nonprofits for assessment, cleanup, a revolving loan fund for cleanups, and job training. This included, for the first time, sites contaminated with leaking fuel from underground storage tanks.

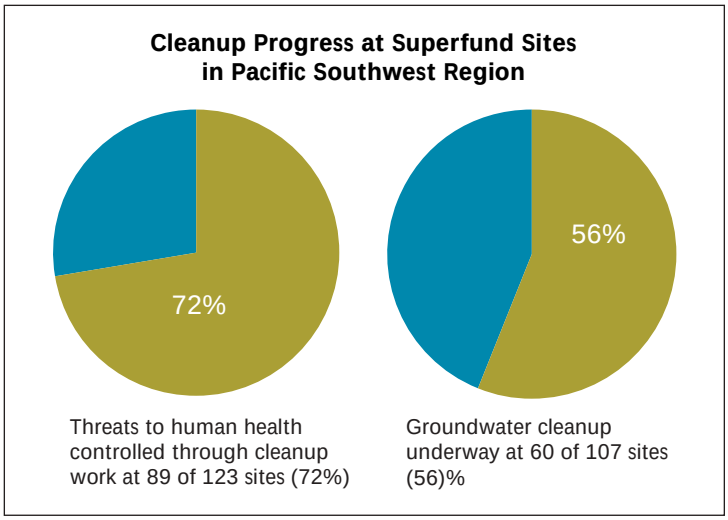
Homes, Jobs and a Ballpark

EPA awarded the city of Oakland, Calif., a $100,000 grant to help assess and clean up abandoned gas station sites where potential soil contamination from leaking underground tanks has hindered redevelopment. At one site, EPA worked with Oakland and Alameda County to clear the way for four homes to be built by Habitat for Humanity on a former gas station site in the city's Fruitvale neighborhood. Familes moved into the new homes in October 2003. Nearby, EPA grant funds are being used to clean up a former industrial area adjacent to the Bay Area Rapid Transit (BART) rail system so that the site can be redeveloped into a "transit village" with homes, shops, and offices clustered around BART's Fruitvale Station.

In Los Angeles, EPA awarded a $200,000 grant to the city for environmental job training at Brownfields sites. The city's Community Development Department has targeted the Wilmington industrial tract near the Port of Los Angeles, the Goodyear tract in South Central and the Crown Coach site near East Los Angeles for assessment, cleanup and redevelopment. The city plans to train 50 students, achieve an 80 percent placement rate, and track students for a full year. The seven-week, 300-hour job training program consists of hazardous waste handling, innovative environmental technologies, lead abatement, and asbestos abatement. Recruitment will focus on low-income residents and placement will be conducted by the city's WorkSource Centers.

In West Covina, Calif., EPA and California's Department of Toxic Substances Control entered into two prospective purchaser agreements with the city to clear the way for a planned Big League Dreams sports complex and a municipal golf course on parts of the former BKK Landfill site. Other parts of the property were used as a hazardous waste landfill, and a municipal waste landfill as recently as 1996. The agreements encourage reuse of the land the city plans to purchase from the BKK Corp. The city may sell the land for commercial development, or develop it without incurring liability for cleanup costs. However, the agreements do not relieve BKK, the owner and operator of the landfills, from liability.

At the WDI Superfund Site in Santa Fe Springs, Calif., that city is using a grant from EPA's Superfund Redevelopment Initiative to develop a specific plan for beneficial reuse of the site. Parts of the 38-acre site, including a buried concrete reservoir, were formerly used for disposal of oil drilling wastes. Construction of an impermeable cap over the waste reservoir and installation of monitoring systems is expected to be underway by mid-2004.



Left: Potential human exposure to toxics has been controlled at more than ⅔ of Superfund cleanup sites in the Pacific Southwest. Right: Migration of contaminated groundwater is under control at more than half of the region's Superfund sites with groundwater contamination.

Cleanup Highlights

Iron Mountain Mine

At the Iron Mountain Mine near Redding, Calif., one of the nation's toughest, costliest cleanup challenges, EPA completed construction of the $40 million Slickrock Creek Retention Reservoir, which collects polluted runoff from the former mine. The runoff is extremely acidic and tainted with toxic dissolved copper and zinc. This dam and reservoir, together with a treatment plant already in operation, now prevent 95% of the mine's toxic discharges from flowing into the Sacramento River. The river has

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four salmon spawning runs each year, and supplies drinking water directly to 70,000 people.

The treatment plant, built in the early 1990s, has treated over 1.05 billion gallons of poisoned water, the equivalent of 120,000 tanker trucks, and prevented 1.6 million pounds of copper and 5.6 million pounds of zinc – 80-90% of the mine's toxic discharges – from reaching the river. Before treatment began, the mine discharged more than a ton of toxic metals into the river per day, making it the nation's largest discharger of toxic metals.

The mine, active for more than a century but abandoned in the 1960s, honeycombed the mountain with tunnels. The tunnels now act as conduits for air and water, which percolates through the metal-bearing ores of the mountain, sustaining six strains of sulfur- and iron-loving bacteria, which dissolve the metals and acidify the water. The chemical reactions involving the bacteria and water are continuous, creating a constant flow of toxic runoff to creeks that border the mountain. The rainy season increases the flow. Cleanup efforts have focused on capturing the runoff and treating it to neutralize the acidity and remove the metals. The resulting cleaner water can then flow downstream harmlessly, but tons of inert sludge from the treatment process must be trucked back up the mountain for disposal in pits left by earlier mining operations.

In December 2000, EPA successfully settled cost recovery litigation, providing $160 million to assure that the treatment plant will be operated and maintained in perpetuity. It was the largest settlement with a single potentially responsible party in EPA history.

Santa Monica Drinking Water Cleanup

In November 2003, EPA and the Los Angeles Regional Water Quality Control Board facilitated an agreement between the city of Santa Monica and three major oil companies to restore the Charnock Sub-basin as a drinking water source. This well field, which formerly supplied about half the city's water, had been shut down since 1996, when its water was found to be contaminated with MTBE, a gasoline additive that had leaked from underground fuel tanks at 27 sites.

In 1999, EPA and the Regional Board ordered the oil companies to supply replacement water to the city, at a cost of more than $3 million a year – a total of more than $13 million by late 2003. The 2003 legal settlement requires the oil companies to build treatment systems for the Charnock water supply wells, to remove the MTBE as water is pumped out. "This agreement proves that when all levels of government – local, state and federal – work together, we serve the common good and produce a comprehensive solution to a difficult problem," commented EPA Regional Administrator Wayne Nastri.

EPA Regional Administrator Wayne Nastri presents a "big check" for a $100,000 grant to Los Angeles Councilwoman Janice Hahn and Deputy Mayor Jonathan Kevles. The grant will help the city assess, clean up, and redevelop abandoned gas station sites like this one, where leaking underground storage tanks may have contaminated soil and groundwater.

Perchlorate

Perchlorate is a rocket fuel component that became detectable in water at low levels in 1997, when the state of California developed a new testing method for it. Although the level at which perchlorate poses a risk is under review by the National Academy of Sciences, this chemical can disrupt the thyroid gland, which is essential for proper development of newborns and infants.

Since 1997, perchlorate has been found in groundwater in 348 of 6,400 drinking water wells tested in California, and at 12 Superfund hazardous waste cleanup sites in California and Arizona. The presence of perchlorate has increased the cost of these cleanups, and delayed them, as cleanups already underway have had to be re-evaluated. Several such sites are in the San Gabriel Valley in Southern California, where a 10-square-mile plume of groundwater was found to be contaminated with perchlorate, in addition to other chemicals from industrial facilities. Treatment of the contaminated water to remove perchlorate began in 2000, and is expected to continue for at least 30 years.

The highest levels in EPA's Pacific Southwest Region were found in Las Vegas Wash in Henderson, Nev., where a Kerr-McGee facility had manufactured the substance. Over the past two years, Kerr-McGee has been pumping the groundwater through a treatment plant, removing

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about one ton of perchlorate per day and reducing perchlorate levels in the wash by 70%.

In 2003, EPA ordered Goodrich Corp. and Emhart Industries, as potentially responsible parties, to investigate a 160-acre parcel in the Rialto-Colton area of San Bernardino County, which is a suspected source of perchlorate found in 10 nearby drinking water wells owned by several water supply systems.

A number of EPA's nationally recognized perchlorate experts work out of the Pacific Southwest Regional Office and have played leadership roles in sorting out the technical, legal and regulatory issues surrounding perchlorate. For more information, go to www.clu-in.org/perchlorate.

One Cleanup Program: TCE in Mountain View, Calif.

In the Silicon Valley city of Mountain View, EPA and California state agencies are working together under EPA's "One Cleanup" program at eight sites where groundwater has been contaminated with trichloroethylene (TCE). EPA is coordinating with the Regional Water Quality Control Board and the Bay Area Air Quality Management District on air monitoring, groundwater cleanup, and public outreach efforts so that investigation and cleanup issues are being addressed consistently across the sites.

In 2001, EPA's new draft health risk assessment for TCE found that the chemical, which contaminates groundwater at hundreds of Superfund sites throughout the nation, may present a health risk at much lower levels than previously known. The new data caused concern in Mountain View, where TCE-tainted groundwater was being pumped out and treated by air-stripping at the Middlefield-Ellis-Whisman (MEW) Study Area, the Naval Air Station Moffett Field, and GTE sites. Nearby residents and workers worried that they might be exposed to harmful levels of TCE, either from soil vapor rising from the contaminated ground water through foundation cracks or plumbing conduits into buildings (vapor intrusion) or from the air-stripping devices, which can disperse low levels of TCE into the outdoor air.

In response to these community concerns, the potentially responsible parties (PRPs), who have been cleaning up the groundwater contamination at these sites for years, voluntarily replaced nine of the air strippers with liquid phase carbon treatment systems or advanced oxidation systems, both of which release no TCE into the air.

EPA directed the PRPs to test the indoor and outdoor air at 26 buildings and 66 residences that overlie the highest levels of TCE in shallow groundwater. EPA also began testing outdoor air at ten reference sites for comparison, and NASA did air sampling at the former NAS Moffett Field. Over 2,000 air samples were collected in 2003. EPA is using the data to evaluate the potential long-term health risks to building occupants and residents from the vapor intrusion pathway. All the data indicate that there is no short-term or immediate health risk to residents or workers in the area.

To reduce long-term risks, PRPs took interim measures to reduce levels of TCE in the air in 12 commercial buildings and one residence where elevated levels of TCE were detected. The measures included sealing cracks in floors and potential piping conduits, installing a subslab depressurization system, and optimizing building ventilation systems.

EPA has also helped concerned community members form the Northeast Mountain View Advisory Council, which meets with EPA monthly to discuss air testing results and the ongoing groundwater cleanup, ask questions, and voice concerns.

In Mountain View, Calif., responsible parties removed equipment that had treated TCE-contaminated groundwater by air-stripping, and replaced it with systems that release no TCE into the air.

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In Fiscal Year 2003, EPA responded to 24 incidents in the Pacific Southwest where hazardous chemicals posed an imminent threat to human health or the environment.

Construction Complete: Sharpe Defense Depot and Koppers

EPA designated the Sharpe Defense Depot's cleanup as a "construction complete" in 2003 when all short-term cleanup actions were complete and the groundwater pump-and-treat system was operating successfully. The 724-acre base near Lathrop, Calif., was listed on EPA's Superfund National Priorities List following confirmation that metals, pesticides, and solvents had contaminated soil and groundwater at the site. The Army successfully remediated contaminated soils using soil vapor extraction and excavation with off-site disposal. Three groundwater treatment systems were installed to clean up the groundwater. Sharpe Defense Depot remains a functioning military base.

EPA also reached the "construction complete" milestone at Koppers, an inactive wood treating site near Oroville, Calif. A covenant of restrictions is in place designating the 205-acre site for industrial use only and restricting use of groundwater at the site. Groundwater contamination is contained and declining as water is pumped out, treated, and pumped back into the ground. This will continue for about 20 more years, until the water is clean.

Emergency Response

Building Emergency Response Capacity, Readiness

Since the tragedy of 9/11/2001, EPA has been increasing its capacity to respond to emergencies, regardless of cause. When chemical spills, oil spills, chemical fires, or hazardous waste present an imminent threat to public health or the environment, EPA has the authority to respond whether the emergency stems from an accident, terrorism, or extreme weather events like floods. In the Pacific Southwest, EPA has enhanced its emergency response infrastructure, opening new Emergency Response Field Offices in Las Vegas, Nev., and Long Beach, Calif., to shorten response time for emergencies in Arizona, southern Nevada, and southern California; a new Pacific Southwest response center in San Francisco; and new emergency response equipment warehouses in San Francisco and the Los Angeles area.

Last year, EPA's Pacific Southwest Emergency Response staff participated in industry-sponsored spill drills as well as multi-agency simulated responses to biological attacks and intentional releases of radioactive materials in San Francisco, Seattle, and Clark County (Las Vegas), Nev. EPA also participated in exercises to strengthen security at nuclear power plants in the region.

Throughout the Pacific Southwest Region, EPA has been working with federal, state, and local health and air quality agencies to create a system for early detection of biological terrorism incidents. EPA continues to support state and local partner agencies building their capacity to respond to emergencies, in one case providing funding for a new hazardous materials emergency response truck for Washoe County, Nev. (the Reno-Tahoe area).

To deal with emergencies along the U.S.-Mexico border, EPA has worked with Mexican authorities to put bi-national sister city response plans in place that facilitate cooperation between U.S. and Mexican jurisdictions that face each other across the border. The fifth such agreement, for Tijuana and the city and county governments of San Diego, Calif., was signed in October 2003. In 2004, work is underway on the sixth sister city agreement in the Pacific Southwest Region, for the city of Mexicali, Baja California, and Calexico, Calif.

For oil and chemical spill prevention and preparedness, EPA routinely inspects industrial facilities for compliance with Spill Control and Countermeasure (SPCC) regulations, Facility Response Plan requirements, and the Emergency Planning and Community Right-to-Know Act (EPCRA). Violations found at 11 facilities resulted in penalties of over $830,000, including one involving a diesel spill on the lower Colorado River from fuel tanks on a farm. In addition to the routine inspections, last year EPA conducted three surprise oil spill drills at major oil storage and transport facilities, and visited seven high-risk chemical facilities in populated areas in the Pacific Southwest, to test their readiness. In 2004, EPA plans to conduct 12 surprise oil spill simulation exercises at major oil facilities.

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Taking Rapid Action

In addition, EPA responded to 24 incidents involving hazardous chemicals and 13 oil spills in Fiscal Year 2003, including:

- A nearly five-acre, three-story-high pile of construction and demolition debris in Fresno, Calif., caught fire on January 11, 2003. Smoke from the fire stayed low due to the winter inversion layer, creating air quality issues that prompted the local air district to issue health advisories and the state to request EPA assistance. Working within a Unified Command structure with more than 20 agencies, EPA conducted air monitoring, water management, fire fighting and heavy equipment operations and provided health and safety support. The Fresno Fire Department, Fresno County Environmental Health and the state's Integrated Waste Management Board were key players in a month-long effort to extinguish the blaze. Once the fire was out, EPA partnered with the state waste board to remove the remaining 105,000 tons of debris to a permitted landfill.
- At Ford City, a community near the National Petroleum Reserve in California's Kern County, EPA worked with the state Department of Toxic Substances Control to remove 3,300 tons of lead-contaminated soil around 14 homes. The soil was disposed at the Clean Harbors hazardous waste landfill in Buttonwillow, Calif.
- At the request of the Gila River Indian Community, EPA removed thousands of gallons of hazardous waste from an abandoned site on tribal land near Sacaton, Ariz. Nearly 100 55-gallon drums of flammable, toxic chemicals, and 3,000 gallons of hydrochloric acid sludge, were removed from a defunct company that extracted precious metals from mine waste.
- EPA's Pacific Southwest Region sent five on-scene coordinators to help with recovery of material from the Space Shuttle Columbia disaster in Texas.
- On the Pacific island territory of Guam and the Commonwealth of the Northern Mariana Islands, which includes Saipan, EPA recovered, removed, and safely disposed of abandoned lab chemicals and pesticides.

EPA People:
Ned Black

Ned Black is the leading ecological risk assessor for the Pacific Southwest Region's Superfund Division. In this role, he is responsible for laying a firm scientific foundation for EPA's decisions on Superfund hazardous waste cleanups. His work is essential to ensuring that Superfund cleanups adequately protect human health and the environment.

Often, data is lacking on how each toxic chemical at a contaminated site affects the variety of species and habitats present, making it a challenge to produce scientifically defensible ecological risk assessments. To meet this challenge, Dr. Black chairs a Biological Technical Assistance Group (BTAG), which has become the primary forum for discussion of current technical literature among key staff from state and federal agencies, including the U.S. Fish and Wildlife Service. This group has brought a consistent, scientific, and consensus-based approach to the agencies' ecological risk assessments. As a result, potential confrontation with responsible parties about assessments that form the basis for costly cleanup work has largely been avoided.

Through his efforts on the BTAG, Dr. Black has been instrumental in progress at some of the more contentious hazardous waste cleanup sites in the Pacific Southwest, including California's Leviathan Mine, Casmalia, Alameda Naval Air Station, Hunters Point Naval Shipyard, and McClellan Air Force Base sites, and Hawaii's Pearl Harbor site. Dr. Black has prepared or reviewed ecological risk assessments for each of these sites, and many more.

Dr. Black has also developed a two-day training class in ecological risk assessment, which he has made available to state and local government officials, as well as EPA staff. By sharing his knowledge and experience through this training and by nurturing the BTAG, Dr. Black has leveraged his effectiveness, providing the tools for state and local governments to make cleanup decisions based on defensible ecological risk assessments.

His success is due in large measure to his extensive, and nationally recognized, expertise in biology, ecology, and the scientific principles of ecological risk assessment. Dr. Black has brought a keen professionalism, dedication to EPA's mission of protecting human health and the environment, and scientific credibility to cleanup efforts in the Pacific Southwest.

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CHAPTER FOUR

COMMUNITIES & ECOSYSTEMS

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EPA works closely with the governments of four states, 146 tribes, six Pacific island jurisdictions, and Mexico to protect public health and the environment. Some of these Pacific Islands are more than 6,000 miles from EPA's regional office in San Francisco (see map, page 32).

EPA's Pacific Southwest Region not only works with state and local governments to protect public health and the environment, but with the region's 146 tribes; U.S. territories of the Pacific Ocean, such as Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands; and the U.S.-Mexico border area.

EPA also has programs to address the special needs of children, who are more sensitive to pollutants than adults; and wetland ecosystems, which are crucial to sustaining fish and wildlife populations.

Progress in the Pacific Islands

Public Health Successes on Guam

On Guam, a Pacific island territory about 6,000 miles from the U.S. mainland, the drinking water and sewage systems have been plagued by inadequate infrastructure and poor maintenance for years, often resulting in sewage spills and drinking water contamination that threatens the health of residents and visitors. Guam's Ordot Dump has also been a notorious pol-

luter, with frequent fires billowing toxic smoke and contaminated leachate fouling the Lonfit River. After repeated efforts to work with Guam officials failed, EPA successfully pursued two major enforcement cases in 2003 to safeguard public health from these hazards.

The Guam Waterworks Authority had repeatedly violated the Clean Water Act and Safe Drinking Water Act, spilling over 500 million gallons of raw sewage from 1999 through 2002. Some of these spills polluted drinking water sources, frequently making tap water unsafe to drink. The Guam water agency often advised residents to boil tap water before drinking it. Monitoring was inadequate.

EPA sued in federal court, seeking a court order to require Guam Waterworks to make a series of managerial and engineering changes to ensure safe tap water. In January 2003, a new governor, Felix Camacho, took office, along with a newly-elected commission that oversees Guam utilities. Since then, the new administration and utilities commission have been working cooperatively with EPA to address Guam's water woes.

In a partial settlement of the case, the Guam commission agreed to make the changes EPA identified, and promptly got to work – hiring properly trained professionals, drafting a master plan and technical assessments, overhauling financial and operational systems, enhancing water disinfection, improving reliability of existing infrastructure, and starting to rebuild the island's aging drinking water and wastewater systems. Under the terms of the agreement, the work will continue over the next four years.

Pollution from Guam's Ordot Dump has been more localized, but no less threatening to nearby residents. In addition to spreading noxious smoke and toxic leachate, the dump has been a breeding ground for rats and mosquitoes. In 2003, an EPA settlement with the government of Guam set deadlines for opening a new landfill and permanently closing, and preventing further pollution from, Ordot. The agreement requires Guam to analyze at least three sites for a new landfill that complies with U.S. environmental regulations.

Under the agreement, Guam will also spend $1 million to develop a household hazardous waste diversion and management program, to keep toxics out of the new landfill. In addition, the Government of Guam will pay a $200,000 penalty for environmental violations at Ordot.

Saipan's Tanapag Village now PCB-free

In June 2003, more than a decade after capacitors filled with toxic PCBs were discovered in Tanapag Village, Saipan, the U.S. Army Corps of Engineers completed excavation and treatment of all remaining PCB-contaminated soil in the village and a nearby cemetery, under an EPA cleanup order. The capacitors were originally decomissioned from a military base in Kwajalein and relocated to Saipan. Fifty-five capacitors were removed from Tanapag Village and then shipped off-island in the early 1990s, but earlier spills and leaks had contaminated the soil at 22 locations. With EPA oversight, the Corps excavated over 40,000 tons of soil and treated it by an Indirect Thermal Desorption (ITD) process. All of the concentrated PCBs extracted by the treatment process were shipped to the U.S. mainland for disposal.

EPA Holds Pacific Islands Conference, Awards Coral Reef Grants

EPA held its annual Pacific Islands Environmental Conference for 2003 in Hawaii. The conference drew participants from Guam to Hilo and beyond, and the conference proceedings were posted on EPA's Web site, at www.epa.gov/region09/cross_pr/islands/conf03.

The conference was preceded by the Regional Workshop on Coral Reefs and Land-based Pollution, which focused on coral reef threats stemming from soil erosion and polluted runoff. Last year, EPA awarded a total of $1.32 million in grants for coral reef protection projects. For more information on the grants and recipients, go to www.epa.gov/region09/cross_pr/islands/coralreef.htm.

From Mangrove Wetlands to Computer Systems

EPA grants supported important environmental work in the far-flung islands of the Pacific. For example, EPA

Saipan's new Marpi Landfill under construction. The new solid waste landfill, first in the Pacific Islands to comply with federal standards for preventing pollution, opened in February 2003.

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EPA Pacific Southwest Regional Administrator Wayne Nastri, center, met with Felix Antone, Governor of the Traditional O'odham Leaders in Mexico. The two discussed a $30,000 EPA Border Program Grant awarded last year for testing drinking water in several Tohono O'odham communities in Northern Sonora, Mexico.

awarded a $102,063 grant to the American Samoa Coastal Management Program to conserve and protect mangrove tree wetlands on Tutulia and Aunu'u Islands.

The project will support locally-managed monitoring of mangrove wetlands and a program to educate local communities about the importance of conserving them. The goal is to provide a sustainable model of mangrove management that can be used on other Pacific islands as well.

Healthy mangroves protect coral reefs from sedimentation, which can kill corals. Mangrove stands also protect villages from flooding and storm wave damage, and provide habitat for wildlife. Most mangrove areas in American Samoa have been filled in since the early 1900s. Only five significant stands remain.

On many islands, pollution of scarce fresh water resources by pig waste has been a problem. EPA awarded a $70,000 grant to Northern Marianas College to develop an alternative waste management system for piggeries. The project, run by the college's Cooperative Research Extension, will demonstrate sustainable pig waste management by using portable pens and dry litter from local sources such as coconut husks and grass clippings, as affordable ways to prevent water pollution.

The first phase of the project will be on the Northern Mariana Islands and Guam. The second will expand it to Palau and the Federated State of Micronesia. Outreach materials will be produced and distributed to other islands.

EPA also awarded a $178,600 grant to the Guam Environmental Protection Agency to develop computer systems for environmental information and data sharing. The grant will assist the Guam EPA in constructing links to the national EPA network.

Working with Tribal Communities

November of 2003 marked the tenth anniversary of the Indian Environmental General Assistance Program (GAP). Over the past decade, tribes throughout the Pacific Southwest have partnered with EPA through this program to protect the environment in Indian Country. Today, 131 tribes – 90 percent of tribes in the Pacific Southwest – are developing environmental programs through GAP.

This partnership helps tribes build the capacity and programs needed to meet their individual needs, and has led to many environmental accomplishments. In 2003, EPA's Pacific Southwest Regional Office issued grants and Interagency Agreement funds to support tribal programs totaling $45 million. These grants include the GAP capacity-building grants and other grants specific to programs in air, water, waste, pesticides and toxics. Work completed in 2003 with funding from previous years includes:

- improvement of drinking water for 13,000 tribal homes
- training of 60 tribal solid waste managers in dump closure and solid waste management
- further development of air monitors on tribal lands, making a total of 43 tribal air monitors in the region
- improvement of wastewater facilities for 7,000 tribal homes
- closure of 31 tribal dumps
- improvement of air quality for 21 tribes
- 16 cleanup projects that removed abandoned cars, tires and scrap metal
- 11 tribal recycling projects
- 15 watershed restoration projects

Dramatic Improvements on Tribal Lands

With funding from EPA, USDA, and the Indian Health Service, the Cocopah Tribe on the lower Colorado River, near the U.S.-Mexico Border, drilled two new drinking water wells, built a 500,000-gallon storage tank, upgraded their water distribution system, and built a drinking water treatment facility. On the Tohono O'odham Reservation, west of Tucson, Ariz., EPA grants are funding installment of continuous disinfection units at 74 water sources to keep drinking water free of disease pathogens. The Ak-Chin

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Community, located near Phoenix, built a new sewage treatment plant, installed sewage pipes to all buildings, and closed and removed 100 septic systems that had threatened the purity of drinking water from local wells.

With EPA funding, the Kashia Band of Pomo Indians, on California's Sonoma County coastline, cleaned up 12 illegal dump sites, removing eight abandoned cars, 21 car batteries, a mobile home, 110 tires, 19 appliances, 16 tons of household trash, and 32 tons of scrap metal. They also established a recycling center and an oil recycling facility, and held two environmental fairs. The Pala Band of Mission Indians removed over 34,000 waste tires from their Southern California reservation.

Finding Solutions for Klamath River

In September 2002, 33,000 salmon died in 36 miles of the lower Klamath River due to high temperatures, disease, and insufficient water to prevent these fish-killing conditions. Several tribes who rely on Klamath River resources asked EPA for help in preventing future fish kills. In late July 2003, EPA awarded a $100,000 grant to the Yurok Tribe, which will be shared among five tribes along the river to help find solutions to problems facing the Klamath. The funds will support monitoring of river conditions and fishery studies. Ultimately, the information will be used to help federal and state agencies in California and Oregon gain a better understanding of the Klamath Basin.

Environmental Law Enforcement on Tribal Lands

EPA continues to enforce federal environmental laws on tribal lands, in cooperation with the tribes. In May 2003, EPA ordered the operators of a solid waste dump on Torres Martinez Desert Cahuilla tribal land near Thermal, Calif., to stop a smoldering dump fire which polluted the air with smoke. EPA also inspected 75 underground fuel storage tank (UST) facilities on tribal lands, trained 88 tribal inspectors to carry out UST inspections, and published a poster and booklet for service stations on how to prevent leaks and spills of fuel, oil, freon, and other toxics (Preventing Leaks and Spills at Service Stations: A Guide for Facilities, EPA publication #909-K-03-001, can be ordered by calling EPA's UST program at 415-972-3367).

U.S.-Mexico Border Communities

Two Nations Sign Border 2012 Plan

On April 4, 2003, in Tijuana, Baja California, the U.S. and Mexico signed a new 10-year cooperative plan to protect public health and the environment in the 2,000-mile border region where almost 12 million citizens of both countries live. The new program, Border 2012, will focus on decreasing air, water, waste and soil pollution and lowering the risks of exposure to pesticides and other chemicals.

At the signing event, officials of EPA and Mexico's SEMARNAT (Secreteria del Medio Ambiente y Recursos Naturales) were joined by representatives of 10 U.S. and Mexico border states, U.S. border tribes, and other federal, state and local agencies who helped develop the program and will participate in carrying it out. The new program focuses on measurable environmental and public health outcomes.

The agencies convened regional workgroups for California and Baja (in Calexico, May 29) and Arizona and Sonora (Tucson, June 5), co-chaired by EPA Deputy Regional Administrator Laura Yoshii and top officials from SEMARNAT and these U.S. and Mexican border states. The regional workgroups appointed task forces assigned to carry out Border 2012 goals.

Copies of the Border 2012 Plan and related documents are available in English and Spanish at either of the following Web sites:

www.epa.gov/usmexicoborder
www.semarnat.gob.mx/portal/UCAI/frontera2012

Grants Fund Border Environmental Projects

EPA grants awarded in 2003 are funding over a dozen projects in the Pacific Southwest and border states of

The border community of Chilpancingo, near Tijuana, Baja California.

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Wetlands along Calera Creek, San Mateo County, Calif. These wetlands, fed by water from Pacifica's new state-of-the-art wastewater treatment plant, provide wildlife habitat and make the treated water even cleaner before the creek empties into the Pacific Ocean.

Mexico. The largest amounts were for wastewater infrastructure in Bisbee, Ariz. ($11.3 million), Mexicali, Baja California ($10 million), and Somerton, Ariz. ($4 million).

The "Mexicali II" project will benefit area residents and ecosystems in several ways: Once this wastewater treatment plant in Mexicali is completed, it will remove up to 16 million gallons per day of raw and partially-treated sewage that currently enters the New River. The treated effluent will remain in Mexico, and flow into the Lower Colorado River Delta, helping restore this unique ecosystem.

Other projects funded in 2003 and scheduled for 2004 include stabilizing an abandoned lead smelter in Chilpancingo, a community near Tijuana ($85,000); an inventory of hazardous chemicals at facilities on both sides of the border in the Calexico/Mexicali area ($70,000); establishment of a clearinghouse to link donors and recipients of used and surplus emergency response equipment on both sides of the border ($32,000); and a pilot program for sampling and analysis of hazardous materials and wastes being transported across the border ($65,000).

Children's Environmental Health

Interest in children's environmental health continues to grow with the recognition that existing environmental programs and health standards may not sufficiently protect children. Children generally eat more food, drink more water, and breathe more air relative to their size than adults do, and consequently may be exposed to relatively higher amounts of contaminants. Children's normal activities, such as putting their hands in their mouths or playing on the ground, create opportunities for exposures to contaminants that adults do not face. In addition, environmental contaminants may affect children disproportionately because their immune defenses are not fully developed or their growing organs are more easily harmed. Damage to developing organ systems may carry lifelong consequences.

Many of the health problems that result from exposure to harmful environmental conditions can be prevented, managed, and treated. Thus, EPA is taking a variety of actions to make our environment a better one for children. For example, EPA is encouraging school districts to adopt the EPA Indoor Air Quality Tools for Schools Program and the Integrated Pest Management program to promote healthy school environments. The EPA Clean School Bus USA program is providing resources and technical support to promote cleaner school buses and reduce exposure to harmful diesel bus fumes. EPA continues to promote a number of programs to reduce exposure to lead and mercury. For example, although fish is an important part of a balanced diet, federal and state fish advisories guide consumers to limit their intake of certain fish that contain higher levels of mercury.

EPA is supporting children's health research through Children's Environmental Health Centers at the University of Southern California Keck School of Medicine, the University of California at Berkeley and the University of California at Davis.

EPA's Web pages on children's health in the Pacific Southwest (www.epa.gov/region09/cross_pr/childhealth) provide additional detail on key children's health programs and research in the Pacific Southwest.

Wetlands and Watersheds

Wetlands, including seasonal wetlands that appear dry most of the year, are essential for fish and wildlife habitat, as well as preventing floods and filtering pollutants. EPA's Pacific Southwest Wetlands Office protects wetlands by working with landowners, nonprofits, and other agencies to promote voluntary protection of wetlands through conservation easements, partnerships, grants, acquisition, and restoration, and through permitting and enforcement of the Clean Water Act's Section 404, which restricts unauthorized filling or conversion of wetlands.

Southern California Wetlands Recovery Project Wins Award

Fewer than 5% of Southern California's original coastal wetlands remain, so protecting and restoring the remaining wetlands is a high priority. EPA is a leading member

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of the Southern California Wetlands Recovery Project, a local, state, and federal government effort which received the President's National Partnership Award. The partnership has thus far funded 17 projects, and completed six, including acquisition of 45 acres of threatened wetlands at Huntington Beach, and eradication of the invasive seaweed *Caulerpa taxifolia* in San Elijio Lagoon. The fast-growing plant, most likely discarded from a home aquarium, was eliminated in time to prevent the kind of disaster that followed its introduction into the Mediterranean, where it has covered many square miles of shallow bottom, effectively destroying these areas as habitat for all other marine life.

The Southern California Wetlands Recovery Project has also completed plans to reduce pollution and enhance the habitat value of existing wetlands at Carpenteria, Malibu Lagoon, Ormond Beach, and Goleta Slough.

Estuaries Benefit from NEP

Through the National Estuaries Program, EPA funds ongoing efforts to protect and restore estuaries, where rivers or streams meet the sea, such as San Francisco Bay and Delta. In that ecosystem, project partners led by the California Department of Fish and Game initiated tidal wetlands restoration on about 15 square miles of salt-evaporating ponds at the mouth of the Napa River south of Napa – just one of 145 priority actions being taken by more than 30 participating agencies and groups to restore Bay-Delta ecosystems.

On the Central California Coast, the Morro Bay Estuary Program has completed 14 of 31 planned priority actions, including protecting 116 acres of threatened dune, coastal scrub, salt marsh, and riparian habitat, opening a visitor center, and improving a volunteer water monitoring program. The Santa Monica Bay Program secured protection for 141 acres of natural habitat, just one of 21 completed priority actions, and 51 more underway. Last year the state legislature created the Santa Monica Bay Restoration Commission to strengthen the effort.

Hanalei River Gets $700,000 for Watershed Work

EPA awarded the Hanalei Heritage River Program in Kauai, Hawaii, a $700,000 grant for watershed protection – the only watershed in the Pacific Southwest Region to receive funding from EPA's new national Watershed Initiative. The money is supporting local efforts for ecological restoration, community development, and historic and cultural preservation.

Among the actions funded are replacement of area cesspools that contaminate the river, agricultural best management practices to reduce sediments muddying the river, and monitoring to document the effect of these activities on coral reefs and fish populations.

The Hanalei River was designated an American Heritage River in July of 1998. The Hanalei Heritage River Program has already developed a five-year action plan and established a successful framework for community cooperation and agency collaboration.

EPA People

Elizabeth Stahl

Elizabeth Stahl has been a grants management specialist with the EPA Grants Office in San Francisco for the past 12 years. She has worked mainly with California and Arizona tribes and has provided them with assistance in administrative and financial aspects of grant management. Although much of Elizabeth's time is spent in the office and on the phone, "one of the favorite parts of my job is travelling to tribal lands. I think the unique perspective I get from these trips allows me to understand the specific issues which apply to tribes and to provide them with better grant assistance."

Because of their experiences during tribal visits, Elizabeth and the staff in the Grants Management Office have developed grant administration workshops tailored to tribes. In 2003 Elizabeth presented grant training at the annual Tribal/EPA conference in the fall, at a General Assistance Program meeting, and at various tribal offices to individual tribal staff.

Elizabeth also is one of the Regional Tribal Operations Committee (RTOC) representatives for the Policy and Management Division. This provides her with the opportunity to hear directly from the 130 tribes and tribal consortia who have EPA grants. "Being an RTOC representative really helps me to see the 'big picture' in grants management."

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COMPLIANCE & STEWARDSHIP

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Effective environmental stewardship involves a variety of approaches: enforcement, compliance assistance, and voluntary, innovative approaches to go beyond compliance and achieve superior environmental results. (Above: restored wetlands alongside vineyards near Sonoma, Calif.)

Advancing Compliance: Utilizing All Available Tools

Compliance with environmental laws is fundamental to EPA's goals of clean air, water, and land. Credible, fair enforcement is the guarantee, and 2003 was another strong year for EPA in the Pacific Southwest. Enforcement actions were up 25% over 2002, and federal cases brought significant pollution reductions as well as penalties, as the examples in this chapter show. Just as important as the environmental benefits, EPA's enforcement presence supported a level economic playing field for those who *do* comply – an important factor in alignment of environmental protection and economic health.

These statistics don't count actions taken solely by the states' and tribes' own enforcement programs, which are supported by annual EPA grants. EPA also continued its collaboration with state and tribal partners to help facilities, especially small businesses, comply voluntarily. In addition, other EPA grants, such as those that support University of California sustainable

agriculture demonstration projects, foster innovation to achieve superior environmental results.

Arizona

In Arizona, EPA more than doubled its enforcement actions against polluters, from 45 in 2002 to 94 in 2003. EPA collected a total of $115,500 in civil penalties for numerous air, water, hazardous waste, community right-to-know, and pesticide violations. EPA also received commitments for more than $71 million in cleanup work – $70 million of which came from an EPA settlement with responsible parties for cleanup of the North Indian Bend Wash Superfund site in Scottsdale, Ariz.

In an administrative settlement finalized in September, a Phoenix recycling company, Onyx Special Services Inc., agreed to pay $11,481 in penalties for PCB storage and worker protection violations and improper disposal. The company also agreed to a supplemental environmental project (SEP), spending $43,000 to purchase four thermal imagers for the Phoenix fire department. These life-saving devices, used by firefighters as they enter a burning building, enable them to find victims hidden by smoke.

California

In California, EPA increased its enforcement actions against polluters 33% over a two-year period. EPA took 195 enforcement actions against businesses and government facilities throughout the state, up from 188 in 2002 and 146 in 2001.

EPA negotiated settlements totaling nearly $40 million for cleanup of the Casmalia Resources hazardous waste Superfund site in Central California. The Casmalia site was a commercial hazardous waste treatment, storage and disposal facility 10 miles from Santa Maria. Between 1972 and 1989, the site accepted over 5.5 billion pounds of liquid and solid hazardous waste, including seven million drums of waste.

EPA also reached a $10 million settlement requiring 17 companies to clean up the Waste Disposal Inc. Superfund site in Santa Fe Springs. The 38-acre waste facility includes a buried 42-million gallon, concrete-lined reservoir built in the 1920s and later used by the oil industry as a landfill. Soils are contaminated with metals, polyaromatic hydrocarbons and volatile organic compounds.

Nevada

EPA and the Nevada Division of Environmental Protection worked together in 2003, taking enforcement actions that resulted in settlements and penalties totaling more than $600,000, as well as reduced pollution. One Las Vegas wood furniture manufacturer, Capital Cabinet Corp., was required to reduce air emissions of smog-forming chemicals by 50 tons per year. Nevada's technical assistance program, operated under contract with the University of Nevada, helped many businesses comply with enviromnmental regulations while reducing hazardous and industrial waste. Last year, the program helped five facilities reduce these wastes by a total of 47,000 pounds.

Hawaii

EPA increased its enforcement actions against polluters in Hawaii in 2003 by 67% over 2002. EPA took 25 enforcement actions against businesses and government facilities throughout the state for violations of federal environmental laws, up from 15 in 2002.

In one highly-publicized case, EPA levied a fine of

Last year, the U.S. Army's chemical weapons destruction facility on Johnston Island in the Pacific was dismantled, after destroying a stockpile of over 400,000 chemical weapons over a ten-year period. (See story, page 28.)

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A vineyard in the Salinas Valley, Calif. EPA grants funded a number of agricultural projects aimed at reducing use of toxic pesticides, including one that is developing standards for sustainable production in the winegrape industry.

$7,920 on a grocery store in the Chinatown area of Honolulu for illegally selling and distributing unregistered mothballs. Hing Mau Inc. sold naphthalene mothballs that were not registered with EPA and did not have an approved label. Illegal naphthalene mothballs pose a hazard to young children, since they can easily be mistaken for candy, or simply tempt young children to touch and play with them.

Pacific Islands

In 2003, EPA increased its enforcement actions against polluters in the Pacific Islands such as Guam, American Samoa and the Marianas by 119 percent over 2002 efforts. EPA took 15 enforcement actions in the Commonwealth of Northern Mariana Islands and nine in Guam, for a total of 24 actions against businesses and government facilities throughout the Pacific Islands area, up from 11 in 2002.

In a criminal case, a defendant pleaded guilty to tampering with and falsifying drinking water samples that he submitted to the Commonwealth of the Northern Mariana Islands' Division of Environmental Quality under the EPA's safe drinking water program. The defendant had taken water samples from garment factories, restaurants and bottled water companies on Saipan. He admitted he tampered with samples and falsified information to conceal that his water treatment and filtration equipment failed to purify water sufficiently to meet Safe Drinking Water Act standards. He was sentenced in U.S. District Court to 15 months imprisonment, fined $3,000, and ordered to serve 300 hours of community service. He will be subject to deportation upon the completion of his sentence.

The U.S. Army, as part of a settlement with the EPA, paid $91,125 in penalties for the release of a small amount of extremely toxic VX nerve agent, and agreed to spend $182,500 on a SEP to revegetate portions of Johnston Atoll, approximately 800 miles southwest of Hawaii. The Army is working with the Air Force, U.S. Department of Interior and EPA to restore Johnston Atoll to a wildlife refuge after years of serving as the Army's first major chemical agent disposal base. Last year, the Army dismantled the facility, recycling the removable portions and demolishing the concrete building that housed it.

Stewardship in Agriculture

The Pacific Southwest Region – California, Arizona, Nevada, Hawaii and other Pacific islands – grows 50% of the nation's produce, has 25% of the nation's dairies, and employs 25% of the nation's farm workers. California alone produces 350 different commodities, many grown nowhere else in the U.S. But this intensive agricultural production has major impacts on the environment and public health.

There is particulate air pollution from road dust, plowing, harvesting, diesel tractors and irrigation pumps, and waste burning (see Clean Air Chapter: San Joaquin Valley); ammonia and smog-forming volatile organic compounds from dairy manure and pesticides; methane from animal feed lots; and stratospheric ozone depletion from the soil fumigant methyl bromide. Agricultural runoff, with pesticides, chemical fertilizers, nutrients from animal waste, and salts from irrigation drainage, is the nation's biggest source of water pollution.

To tackle these problems, EPA takes a multi-pronged approach, including collaborative efforts with farmers, universities, and local, state, and federal agencies, as well as regulatory approaches such as clean air planning and law enforcement efforts.

San Joaqin Valley Dairy Waste Initiative

For example, EPA is participating in the San Joaquin Valley Federal Dairy Waste Initiative, which is pooling the efforts of federal agencies such as USDA and the Natural

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Resources Conservation Service (NRCS, formerly known as the Soil Conservation Service) to work with dairy operators, Cal/EPA, and environmental groups to investigate treatment alternatives for dairy waste. Potential solutions include methane digesters to transform manure into methane, or natural gas, which can be used to generate electricity; and upgraded municipal wastewater treatment plants that can handle dairy waste.

EPA has been working with many of these stakeholders since 1999, when the agency joined the California Dairy Quality Assurance Partnership, and supported its efforts with a $440,000 grant to the University of California at Davis. This partnership has developed a certification program for dairy operators, in which they make commitments to use the best available practices to minimize pollution from dairy waste. By the end of 2003, 182 dairies had been certified – about 10% of the major animal feeding operations in the state; an additional 95 dairies were going through the certification process.

Leveraging $6 Million to Support Sustainable Agriculture

Over the past three years, using $20,000 in grants from EPA, philanthropic foundations have formed Funders for Sustainable Food Systems, and raised $1.7 million toward a goal of $6 million to support sustainable agriculture in California. The group has solicited input from key stakeholders, published a report, *Roots of Change: Agriculture, Ecology and Health in California*, and formed an advisory council to set funding priorities and issue grants.

First Enforcement Cases Involving GMOs

In EPA's first major cases involving genetically-modified organisms, Pioneer Hi-Bred International Inc. and Dow AgroSciences paid fines totaling nearly $20,000 for failing to comply with EPA's experimental use permits governing the testing of genetically modified corn. As part of its settlement, Pioneer was required to test its biotech corn plot in Kauai, Hawaii, and report its findings to assure that an experimental gene grown in the corn had not been transferred to adjacent seed corn fields. During testing, the company paid a fine of $72,000 for failing to immediately notify EPA of test results that initially indicated the experimental gene may have spread to seeds grown nearby. Follow-up testing indicated that the initial results were either false or attributable to an unrelated field test regulated by the U.S. Department of Agriculture. EPA regulates biopesticides under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

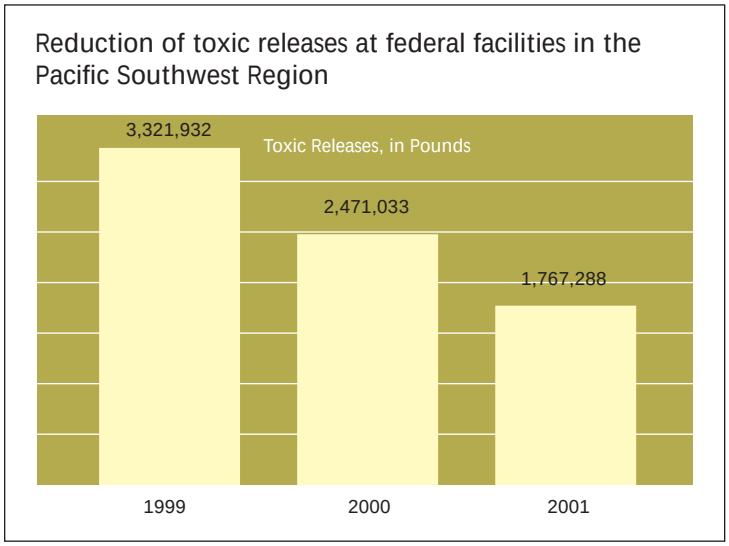
Toxics Release Inventory Spurs Reductions

When EPA's Toxics Release Inventory (TRI) data showed that Nevada gold mines were a major source of mercury releases to the environment, EPA worked with the industry on voluntary reduction measures that would forgo the need for regulation. The effort paid off: Nevada's four largest gold mining companies reduced their air emissions of mercury from a total of 21,098 pounds per year to 12,743 pounds – a 40% drop.

Since 1987, the Toxics Release Inventory has tracked toxic releases from industrial and federal facilities throughout the nation. The availability of this data alone has spurred facilities to reduce toxic releases, as informed communities bring public pressure to bear on facility managers.

Federal facilities, such as military bases, are included under TRI disclosure requirements. Between 1999 and 2001 (the most recent year of TRI data available), the TRI shows, federal facilities in the Pacific Southwest Region have reduced toxic releases by an impressive 47% (see bar graph, below).

The TRI, however, provides useful data only if facilities comply with its reporting requirements (under the 1986 Emergency Planning and Community Right-to-Know Act, EPCRA). To make sure they do, EPA inspections include examination of facility records to determine whether they have complied. Last year, Conoco Phillips paid $150,975 to settle EPCRA violations at its petrochemical refinery in Wilmington, Calif. EPA alleged that



Federal agencies' facilities in the Pacific Southwest Region have reduced their toxic releases by 47% in just two years.

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Navajo Nation EPA and U.S. EPA staff inspecting an underground fuel storage tank facility at Chinle, Navajo Nation. In 2003, EPA's underground storage tank program trained many tribal UST inspectors.

the facility had failed to file timely or accurate estimates of releases of toxic chemicals to the environment in 1997–1998. EPA also fined previous owner Unocal $105,600 for similar violations in 1996 at the same facility.

To access TRI data for your community, go to www.epa.gov/enviro.

Collaborating to Prevent Pollution and Promote Recycling

EPA has many voluntary programs and grants to demonstrate the economic as well as environmental benefits of preventing pollution. Here are some results from 2003:

Federal Facilities Reduce Toxics

Over the last six years, EPA staff have evaluated 18 of the Pacific Southwest Region's federal agency facilities, including several military bases, which are the equivalent of small cities. EPA made 202 specific recommendations for actions to prevent pollution. The managers of these facilities adopted 78% of EPA's recommendations, ranging from recycling procedures to use of less-toxic cleaning fluids. The high degree of cooperation showed the success of EPA's collaborative approach to working with other federal agencies to reduce their environmental impacts. Military personnel and workers at the facilities, as well as people in surrounding communities, will benefit from these changes in standard operating procedures for years to come.

BFR Roundtables Spur Legislation

When brominated flame retardants (BFRs) started showing up in mothers' breast milk, EPA sponsored a series of roundtable discussions to bring health organizations, industry, and government agencies together to discuss the risks and possible solutions. The roundtables helped spur passage of state legislation in California to ban two of the most dangerous BFRs starting in 2008. Nationally, EPA secured an agreement with the only U.S. manufacturer making "penta" and "octa" BFRs to phase out production by the end of 2004.

Reducing PBTs: Persistent Bioaccumulative Toxics

PBTs threaten human health and the environment because they last a long time, build up in the food chain, and are toxic even at very low levels. EPA is working to reduce PBT usage through projects including:

- EPA has determined that backyard burning is the largest source of dioxin emissions in the country. Region 9 has awarded grants to three tribes to demonstrate innovative open-burning reduction programs as models for other tribes and local governments.
- An EPA grant funded a Hawaii Department of Health project that collected 1,500 pounds of mercury from schools, dentists, and homes. Such collection projects help prevent incidents in which children find small containers of mercury and play with it, contaminating themselves, their homes, and in some cases, their schools, resulting in cleanup operations that cost hundreds of thousands of dollars. Over the past year, there have been two such incidents in Nevada and one in Hawaii.

Resource Conservation Challenge

The Resource Conservation Challenge is a major national effort to find flexible, yet more effective ways to conserve our valuable resources through waste reduction and energy recovery, while benefiting public health and the environment.

In Hawaii, an EPA grant funded the new Kea'anu Recycling Center on the Big Island's major city, Hilo. The center was so popular that people brought in triple the anticipated amount of recyclable materials in its first two months. Another EPA grant, the result of a Congressional appropriation of $223,500 for this specific purpose, is funding the startup of a similar facility on the Kona Coast of the Big Island. Recycling efforts statewide are expected to get another major boost in 2005 when Hawaii's "Bottle Bill"

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takes effect, giving people refunds for every drink container they recycle. EPA provided funding for the state to plan implementation of this new law.

Under EPA's Pollution Prevention Grants program, EPA funds state projects such as a UC Berkeley project which replaced 3,000 mercury-containing items such as thermometers and barometers, collecting 280 pounds of mercury. Another grant funded the University of Nevada, Reno's Business Environmental Program.

WasteWise

Last year 25 new partners joined WasteWise, an EPA program that encourages businesses and other facilities to adopt cost-effective solid waste reduction measures that boost the bottom line while reducing solid waste. Among the new partners: Fort Independence Indian Reservation, Frito-Lay of Hawaii, Arizona State Parks, ARAMARK, Inc., and Green Suites International.

Innovations Work Group Grants

EPA's Innovations Work Group provides funds to selected pilot projects designed to demonstrate innovative ways to promote recycling and reduce waste. Last year, EPA awarded a total of $148,000 in grants for innovative projects, including:

- The Bay Area Rapid Transit (BART) District's development of a sustainability policy, which led to new lighting control technology in BART garages that use 25% less energy
- California's Merced County is cooperating with Central Valley dairies to compost the county's greenwaste with manure, creating a valuable fertilizer.
- Testing chemical management services in universities to reduce the amount of unused chemicals stored in university labs and to reduce the risk of chemical exposures to students and staff. The new campus at UC Merced will pilot test this approach in 2004.

EPA People

Norwood Scott

Compliance with underground fuel storage tank (UST) regulations is essential to prevent leaks that contaminate soil and groundwater. In the past three years, thanks to EPA's Norwood Scott, compliance in the Pacific Islands has increased dramatically – in American Samoa, for instance, the compliance rate went from zero to nearly 100%.

When Scott inspected USTs on the main island of Tutuila in January 2001, none of the island's 15 service stations was in compliance. He worked one-on-one with each of the tank owners as well as the petroleum marketers to show them how to comply. His efforts in Hawaii were also a success. He provided extensive training for the state's UST staff and managers, working with them to ensure that Hawaii developed a strong enforcement program.

At EPA's Pacific Southwest Regional Office, Scott leads the five-person team that manages UST grants for state, tribal, and trust territory UST programs. His leadership, skill, and creativity have contributed to the region's reputation for having one of the nation's best UST programs.

Ramon Mendoza

EPA engineer Ramon Mendoza is at home working in the Pacific Islands. Likening it to his Peace Corps days in Africa, Ramon says, "I feel great being able to make a positive difference, and in the Pacific Islands I feel that what I do really has an impact. Plus the people there are great to work with. I might be 6,000 miles from the office, but I always feel welcome."

Ramon is the EPA Pacific Islands Office jack-of-all trades for waste and contamination issues. In the past year, Ramon has helped uncover and get rid of unexploded ordnance on Saipan, helped shut down CNMI's notorious Puerto Rico dump, led an enforcement action involving an oil spill in American Samoa, helped Yap analyze the risk of PCBs in its port, and provided hazardous waste training in the Philippines, the country where he was born.

Ramon, who volunteers in his spare time helping the elderly in San Francisco's Tenderloin, is the only EPA Pacific Southwest employee who includes a machete in his field kit. "When you're in the islands, man, you never know what to expect—thick brush, brown tree snakes, or an 8-inch artillery shell from World War II. You've got to be prepared for anything." Ramon's next challenge is working to help develop a region-wide recycling program in the Pacific.

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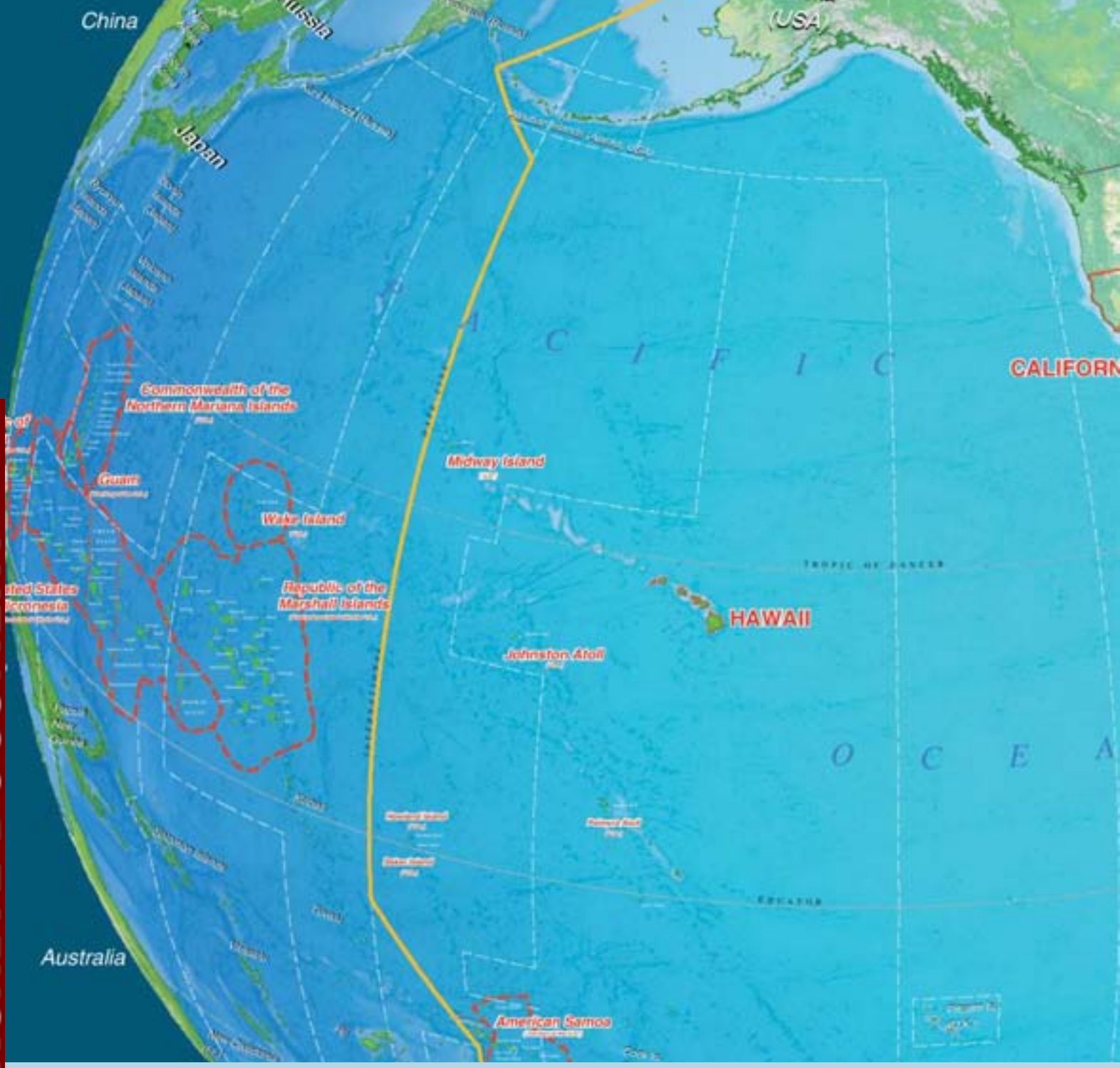

EPA and e-Government

Efforts to protect public human health and safeguard the natural environment depend on access to high-quality information – by federal, state and local agencies, businesses and organizations, and members of the public. By strengthening information management and expanding use of the Internet, EPA is helping helping fulfill the promise of e-government to better serve the American people.

EPA's Web portal at www.epa.gov provides access to a vast array of resources and services. For citizens seeking information about environmental conditions and issues in their communities, resources such as EPA's Where You Live page (at www.epa.gov/epahome/whereyoulive.htm) and Window to My Environment (www.epa.gov/enviro/wme) bring together a wealth of knowledge and tools for involvement.

EPA's work as the lead federal agency for e-rulemaking culminated last year in the launching of Regulations.gov (at www.regulations.gov), which provides the public with online acess to regulatory documents and the opportunity to comment on federal rulemakings. EPA also contributes to

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The full range of EPA's information resources for the public are available at www.epa.gov.

Grants.gov, a one-stop resource for federal grant opportunities, and new online processes that streamline federal grant accounting and payments.

EPA has also been working with states on the Environmental Information Exchange Network, a unified network that integrates access to high-quality air, water and waste information systems. Currently, 49 states report data electronically through EPA's network portal, reducing their reporting burden while increasing accuracy and timeliness of data.

U.S. Environmental Protection Agency

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