

Pollution, Poverty, People of Color: The factory on the hill.

From the house where he was born, Henry Clark can stand in his back yard and see plumes pouring out of one of the biggest oil refineries in the United States. As a child, he was fascinated by the factory on the hill, all lit up at night. In the morning, he'd go out to play and find the leaves on the trees burned to a crisp. "Sometimes I'd find the air so foul, I'd have to grab my nose and run back into the house until it cleared up," he said. During World War II, African Americans like the Clark family moved into the shadow of the refinery because they had nowhere else to go. Now they live within a ring of five oil refineries, three chemical plants, eight Superfund sites, dozens of other toxic waste dumps, highways, rail yards, ports and marine terminals. Low-income residents seeking affordable homes may save money on shelter, but they pay the price in health.



SPECIAL SERIES

POLLUTION, POVERTY, PEOPLE OF COLOR

IN THIS SERIES:
COMMUNITIES
ACROSS THE US
FACE
ENVIRONMENTAL
INJUSTICES



Chevron refinery in North Richmond, Calif.

By Jane Kay and Cheryl Katz

Photos by Robert Durell

Environmental Health News

June 4, 2012

Part 1 of [Pollution, Poverty, People of Color](#)

NORTH RICHMOND, Calif. – From the house where he was born, Henry Clark can stand in his back yard and see plumes pouring out of one of the biggest oil refineries in the United States. As a child, he was fascinated by the factory on the hill, all lit up at night like the hellish twin of a fairy tale city. In the morning, he'd go out to play and find the leaves on the trees burned to a crisp. "Sometimes I'd find the air so foul, I'd have to grab my nose and run back into the house until it cleared up," he said.

The refinery would burn off excess gases, sending "energy and heat waves that would rock our house like we were caught in an earthquake," recalled Clark, 68. When the area

was engulfed in black smoke for up to a week after one accident, "nobody came to check on the health of North Richmond."

With all of the frequent explosions and fires that sent children fleeing schools, parks and a swimming pool within a mile of the refinery, "we just hoped that nothing happened that would blow everybody up," Clark said. "People still wonder when the next big accident is going to happen."

For 100 years, people, mostly blacks, have lived next door to the booming Chevron Richmond Refinery built by Standard Oil, a plant so huge it can process 240,000 barrels of crude oil a day. Hundreds of tanks holding millions of barrels of raw crude dot 2,900 acres of property on a hilly peninsula overlooking the Pacific Ocean and San Francisco Bay. Five thousand miles of pipeline there move gasoline, jet fuel, diesel and other chemical products.

During World War II, African Americans like Clark's family moved to homes in the shadow of this refinery because they had nowhere else to go. Coming to California looking for opportunity, they quickly learned that white neighborhoods and subdivisions didn't want them.



Henry Clark grew up in North Richmond.

The people of Richmond live within a ring of five major oil refineries, three chemical companies, eight Superfund sites, dozens of other toxic waste sites, highways, two rail yards, ports and marine terminals where tankers dock. The city of 103,701 doesn't share the demographic of San Francisco, 25 miles to the south, or even Contra Costa County, or the state as a whole.

In North Richmond – the tiny, unincorporated neighbor of Richmond – Latinos, blacks and Asians make up 97 percent of the 3,717 residents, compared with 82.9 percent in Richmond and 59.9 percent in California, according to 2010 U.S. Census figures.

The people of Richmond live within a ring of five oil refineries, three chemical plants, eight Superfund sites, dozens of other toxic waste sites, highways, two rail yards, ports and marine terminals.

Most houses sell for below \$100,000, among the lowest prices in the Bay Area, in the zip code shared with the Chevron refinery, and residents complain of a lack of paved streets, lighting and basic services. Short on jobs and long on poverty, there's not a grocery store or cafe in sight. The median income in North Richmond, \$36,875 in 2010, is less than Richmond's modest \$54,012 and less than half of Contra Costa County's \$78,385.

Low-income residents seeking affordable homes end up sharing a fence line with a

refinery and a cluster of other polluting businesses. They may save money on shelter, but they pay the price in health, researchers say.

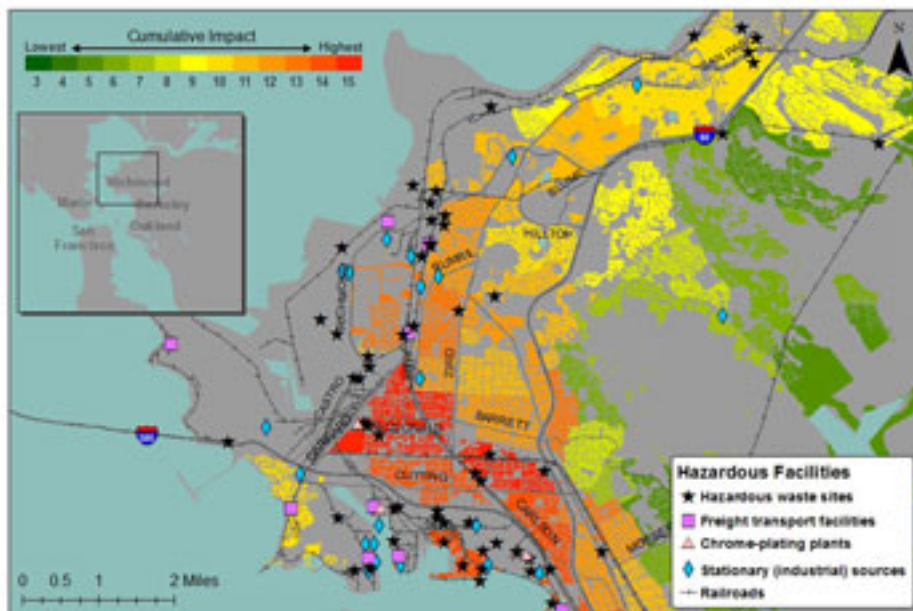
Decades of toxic emissions from industries – as well as lung-penetrating diesel particles spewed by truck routes and rail lines running next door to neighborhoods – may be taking a toll on residents' health. The people of Richmond, particularly African Americans, are at significantly higher risk of dying from heart disease and strokes and more likely to go to hospitals for asthma than other county residents. Health experts say their environment likely is playing a major role.

While most coastal cities breathe ocean breezes mixed with traffic exhaust, people in north and central Richmond are exposed to a greater array of contaminants, many of them at higher concentrations. Included are benzene, mercury and other hazardous air pollutants that have been linked to cancer, reproductive problems and neurological effects. People can't escape the fumes indoors, either. One [study](#) showed that some of the industrial pollutants are inside Richmond homes.

It's the triple whammy of race, poverty and environment converging nationwide to create communities near pollution sources where nobody else wants to live. Black leaders from the Civil Rights Movement called the phenomenon environmental racism, and beginning in the early 1980s, they documented the pattern at North Carolina's Warren County PCBs landfill, Louisiana's "Cancer Alley," Tennessee's Dickson County, Chicago's South Side, Houston's Sunnyside garbage dump and other places across the country.

About 56 percent of the nine million Americans who live in neighborhoods within three kilometers of large commercial hazardous waste facilities are people of color, according to a landmark, 2007 [environmental justice report](#) by the United Church of Christ. In California, it's 81 percent. Poverty rates in these neighborhoods are 1.5 times higher than elsewhere.

Those numbers, however, reflect a miniscule portion of the threats faced by nonwhite and low-income families. Thousands of additional towns are near other major sources of pollution, including refineries, chemical plants, freeways and ports.



Click map to see full size.

Richmond is one of these beleaguered towns, on the forefront of the nation's environmental justice struggle, waging a fight that began a century ago.

Nowhere else to go

In the San Francisco Bay Area, African Americans didn't move next to an oil refinery by chance.

Early black settlers came to California as part of a migration between 1890 and the 1920s, many following family and friends to emerging industry in the East Bay. They escaped Jim Crow traditions of the South, but "lived a tenuous existence on the outer edges of the city's industrial vision, trapped at the bottom of the economic and social hierarchy," according to Sacramento State University professor Shirley Ann Wilson Moore in her book, *To Place Our Deeds*.

During World War II, blacks again arrived mainly from southern states seeking jobs in shipbuilding plants built under government contract with industrialist Henry J. Kaiser. Henry Clark's father, Jimmy Clark of Little Rock, Ark., came seeking opportunity as the first town barber.

Richmond turned to segregated housing in the decade after its 1905 incorporation. When Kaiser got the war contract for shipbuilding in 1941, most of Richmond's African American population was concentrated in and around North Richmond. Early records describe North Richmond as bordering a garbage dump with few streetlights, scarce fire and police protection and unpaved streets turning to "muddy quagmires in the rain."



Recreational boaters share harbor waters with a refinery, a General Chemical plant and Superfund sites.

The Richmond Housing Authority, in 1941, was told by the federal government to provide low-cost housing to the shipyard workers who swelled Richmond to a city five times its earlier size. But by 1952, no African American had lived in any of Richmond's permanent low-rent housing. There was nothing in rentals or sales available to blacks in the central city.

Nonwhites were pushed to unincorporated North Richmond and other neighborhoods dominated by the refinery, chemical companies, highways, rail yards and ports.

"It was the only land available to them when they wanted to purchase property. People don't put themselves in harm's way intentionally," said Betty Reid Soskin, 93, who

moved to the Bay Area with her family when she was eight. She lectures on the African American experience in World War II at the National Historical Park's Rosie the Riveter project in Richmond. "Real estate developers could determine where you lived. The local banker could determine who could get mortgages."

"Social policy determines history," Soskin said. "We have developed sensitivities to environmental injustice, and those sensitivities did not exist during that time."

The pattern of neglect continues today, said the Rev. Kenneth Davis, who used to come to North Richmond from San Francisco in the 1970s to visit friends and blues clubs.

"It's like we're on an island," Davis said. "No grocery store to get fresh fruits and vegetables and meat. The only things you can buy are drink and dope. There's nothing but old nasty rotten food on the shelves and plenty of beer, wine and whiskey."

Davis, who moved to a senior apartment in North Richmond in 2006, said he can see the refinery from his third-floor window, and blames Chevron and other companies for his chronic cough since moving here. As a pastor, he wonders about the deeper effects of pollution and poverty. "I'm beginning to think there's a correlation between the toxic fumes that we're breathing and the violence that is so prevalent in our community."

Joining the African Americans are newcomers from Laos, Latin America and the Pacific Islands, again seeking refuge and opportunity here amongst the factories and freeways in North Richmond.



Sandy Saeteurn, a community organizer, stands at the end of street near where she attended Peres Elementary School in Richmond. A sign warns that there is an underground pipeline carrying petroleum.

Tons of trouble

Sandy Saeteurn grew up in North Richmond, a Mien from Laos who came with her mother, five sisters and two brothers when she was three months old. Her family was part of the new wave of immigrants to the Bay Area, this time fleeing the aftermath of wars in Southeast Asia in the late 1970s and early 1980s. By the time the Asian newcomers arrived, the black social clubs and much of the cultural life had pretty much disappeared as people with means fled the neglected neighborhoods. The pollution remained, though.

Some children have ocean views, some have pastoral, rolling hills. Here in North Richmond, children have chemical plants that look like magical Las Vegas, only to turn, without notice, into a stinking hellfire.

"At school, along with earthquake drills, we were practicing chemical explosion drills,"

said Saeturn, who attended Peres Elementary School, across a parkway and railroad tracks from the Chevron refinery. It is one of two public schools within a mile of it.

"The teacher sent us indoors, and gave us paper napkins to put over our mouths and noses, then loaded us into school buses. We were driven around until it was supposedly safe to come back."

-Sandy Saeturn, 27

"I remember once coming out and the playground was enveloped in smoke. The smell was really awful, a strong, sort of gassy smell, and you couldn't see a couple of feet in front of you. We were all coughing," said Saeturn, now 27 and a community organizer.

"The teacher sent us indoors, and gave us paper napkins to put over our mouths and noses, then loaded us into school buses. We were driven around until it was supposedly safe to come back. When we got back, it was time to go home. Our parents were there waiting for us."

One in four Richmond residents lives in areas of high air pollution from nearby industry or busy roadways, according to a city estimate based on [data from the U.S. Environmental Protection Agency's Toxic Release Inventory](#) and the California Air Resources Board.

Violations of air-quality rules are more frequent in Richmond than in the rest of the region, according to city calculations. Over a 10-year period, there were 13.1 incidents per 100,000 people compared with 0.96 for the entire Bay Area.

In Contra Costa County, the Bay Area's most industrialized county, businesses released more than 3.5 million pounds of toxic chemicals into air, water and waste sites in 2010, according to the [EPA's inventory](#), which is based on companies reporting more than 10,000 pounds of chemicals per year.



The Chevron petroleum processing plant is next to a residential street in North Richmond.

More than 80 percent of the county's releases come from its four oil refineries within 20 miles of Richmond – Chevron; Tesoro Refining and Marketing Co. and Shell Oil Products in Martinez, and ConocoPhillips Refinery in Rodeo.

The Chevron refinery, which is by far Richmond's biggest polluter, released 575,669 pounds of chemicals into air, water and waste facilities in 2010, more than the whole of Alameda County or Santa Clara County, home to Silicon Valley.

Included are several carcinogens released into the air and water – 3,807 pounds of benzene, 135 pounds of 1,3-butadiene and 606 pounds of nickel. The rest is an array

of chemicals such as toluene, hydrocyanide, ammonia, sulfuric acid and ethylbenzene, that can have respiratory or neurological effects.

Chevron has cut its total toxic air emissions from the refinery's stacks and equipment by 43 percent since 2004, according to the Toxics Release Inventory.

The company has made "significant investments in environmental controls and equipment over the past four decades," said Melissa Ritchie, a refinery spokeswoman, in an emailed response to questions. Included are new burners that cut nitrogen oxides, a main ingredient of smog, and a 90 percent cut in emissions from a process called flaring to meet regulations adopted by the local air district.

"Our refinery has been a proud member of the Richmond community for more than 100 years, longer than the city of Richmond has been incorporated. We would like to be here for a long time to come," she said.

"Our refinery has been a proud member of the Richmond community for more than 100 years. We would like to be here for a long time to come." *Melissa Ritchie, Chevron refinery*

But some toxic chemical releases, including benzene, lead, 1,3-butadiene, tetrachloroethylene and sulfuric acid, rose above the 2004 levels in almost every year since then.

For example, Chevron increased its air emissions of benzene, a known human carcinogen linked to leukemia in workers, to nearly two tons in 2010, up 420 pounds from 2004. In comparison, Alameda and Santa Clara counties have no industries reporting benzene.

It's not just Chevron. All five refineries near Richmond, including ConocoPhillips and BP Richmond, reported discharging a total of 14 tons of benzene in 2010.

| | |
|--------------------------------|----------|
| Richmond | |
| Population | 103,701 |
| Median household income | \$54,012 |
| Below poverty | 16.4% |
| People of color | 82.9% |
| | |
| North Richmond | |
| Population | 3,717 |
| Median income | \$36,875 |
| Below poverty level | 21.8% |
| People of color | 97% |
| {Source: 2006 and 2010 Census} | |

General Chemicals West also is a major source of emissions, including more than a ton of sulfuric acid, a chemical that can trigger respiratory problems, in 2010. Airgas Dry Ice put 16,884 pounds of corrosive ammonia into the air. Chevron's research site, Chevron Technology Center, reported more than 6,000 pounds of N-hexane and toluene, solvents that can affect the nervous system.

Topped off with freeway emissions, a commercial port and other factories along most of its 32-mile shoreline, a vortex of pollution swirls around central and North Richmond

residents from all directions.

The city also is pockmarked by dozens of abandoned sites bearing the poisonous vestiges of Richmond's past. One Superfund [site](#), a former pesticide distributor, continues to leak the banned insecticide DDT and other chemicals into a canal draining to Richmond's harbor, where many of the city's Southeast Asian and black residents fish for food.

Experts say any one of these toxic exposures could be cause enough for concern. But the picture is even more dramatic for Richmond residents when researchers consider the cumulative effects of all of them.

How much their health suffers, however, is largely a mystery.

Asthma and heart disease

Neighbors of Richmond's toxic corridor experience some health problems measurably more than people living elsewhere in the region.

"Historically there have been significant health disparities in Richmond compared to Contra Costa County," said Kinshasa Curl, administrative chief of Richmond's environmental division, which designed an element in the city's general plan to address environmental and health inequities.

The health gap is especially striking among low-income, non-white residents, whose homes tend to cluster around the industrial sites. "People of color in Richmond live on average 10 years less than white people living in other parts of the county," Curl said.

Richmond residents overall are at significantly higher risk of dying from heart disease and strokes, according to the Contra Costa County Health Service Department's [Community Health Indicators 2010](#). African-Americans have it worst of all – they are 1.5 times more likely than the county's average to die from these diseases.

The health inequities appear most acute for asthma. California Department of Public Health statistics show that residents of all ages in Richmond are 1.5 times more likely than those in the rest of the county to go to hospital emergency departments for asthma attacks. Again, African Americans are especially hard-hit, with asthma emergency visits and admissions about four times that of other racial groups in the county.

The same [pattern](#) holds true nationally. Blacks are much more likely to die of heart disease and stroke than their white counterparts, and black children are more likely to have asthma. The reasons include diet, stress, access to medical care and other factors. The role of environmental pollutants is unclear, but many health experts say they do contribute.



Refinery storage tanks loom above homes in Atchison Village, an older community in North

Richmond.

Around the country, numerous health studies, including a decade-long study by the South Coast Air Quality Management District in the Los Angeles basin, have shown that people near major roadways and ports suffer more severe health problems than people elsewhere. [Children](#) have a greater risk of impaired lung function, and babies are more likely to be born prematurely or with lower weights. Near major transportation routes, the [risk of cancer](#) is higher due to diesel exhaust and other air contaminants. Around the world, fine particles generated by vehicles and industry have been linked to increased deaths from [heart attacks and lung diseases](#).

Richmond's estimated cancer risk is higher than nearby cities, based on a combination of pollution exposures and demographic factors, according to a 2007 University of California, Santa Cruz [report on environmental justice in the Bay Area](#).

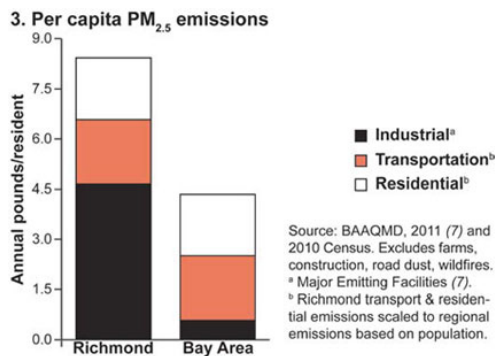
Eric Stevenson, director of technical services at the Bay Area Air Quality Management District, said his agency is often asked how it can let people live next door to a refinery. "The question is," he said, "what is the impact and what is the danger of the impact?"

Health effects near industries in Richmond have not been well studied. It can be difficult for epidemiologists to prove a connection between exposures and diseases because of confounding factors, such as smoking and diet, and how frequently people move around.

Some people living near Richmond's industrial backbone complain of problems like headaches, breathing difficulties and fatigue. Others see high rates of autoimmune disorders, such as psoriasis, among their family and friends.

"I'm the only one in my family who doesn't have asthma," said Johnny White, 58, whose family settled in North Richmond in the 1930s. "Out of my bedroom window, I could see Chevron flaring and fire coming out of the stacks. My mother and grandmother would go around and shut all the windows. We'd have to take my niece, Tracy, to the hospital and get her on a breathing machine.

"As kids, we used to play basketball in Shields-Reid Park, a few blocks from the refinery," he said "We'd actually know what hour they would start flaring. Your nose would start running. We'd say let's take a break and go inside."



Outdoors, indoors, everywhere

But what starts outdoors doesn't stay there. It moves inside people's homes, too.

A team of scientists came to Richmond in 2006 to conduct a new kind of study, one that would try to answer residents' questions of which outdoor pollutants were coming

indoors. At 40 homes in Richmond and 10 in nearby Bolinas, which has no heavy industry, equipment monitored pollution levels outdoors and indoors.

The [results](#) were striking. The outdoor levels around Richmond homes were almost double the levels around Bolinas homes, and the chemicals moved indoors. Vanadium and nickel in outdoors air were among the highest in the state.

"In Richmond, we see high correlations indoors and outdoors for pollutants that come predominantly from industrial sources," such as sulfates and vanadium, said Rachel Morello-Frosch, an associate professor in the UC Berkeley School of Public Health and an author of the study.

Combustion byproducts such as polycyclic aromatic hydrocarbons, or PAHs, were found at higher levels inside Richmond homes than in Bolinas homes. Fine particulates exceeded California's annual air quality standard in nearly half of Richmond homes.

Vanadium can irritate the upper respiratory tract lungs, eyes and skin and lead to chronic bronchitis. Sulfates can be inhaled deep into the lungs. Some PAHs are potent carcinogens, and they have been linked to neurological effects, such as reduced IQs, in children exposed in the womb.

“Toxic pollution from oil refineries doesn’t stay outside; it seeps into homes, where people spend most of their time.”

-Julia Brody, Silent Spring Institute

"We found that living near an oil refinery adds exposures that may be hazardous to your health," said Julia Brody, the study's lead author and executive director of the Silent Spring Institute in Newton, Mass. "Toxic pollution from oil refineries doesn't stay outside; it seeps into homes, where people spend most of their time."

Standing in her yard in Atchison Village, a World War II Richmond housing development, Sylvia Hopkins looks out on the pink tanks of the Chevron refinery less than two miles away. She let scientists monitor her home in the indoor-outdoor study just to find out what she was breathing.

"Why do we live here?" she asks rhetorically. "Poor people live here. People don't move here if they have a lot of money. That's the way it is in industrial towns."

Poor and minority families such as Henry Clark's have been pushed into the path of pollution in Richmond for 100 years, says Clark, who founded the West County Toxics Coalition. So if there is any justice, he said, Richmond shouldn't bear any new toxic burdens for the next 100.

"We already are disproportionately affected. We're talking about not adding fuel to the fire."