

## CHEMICAL CONTAMINATION IN FENCELINE COMMUNITIES

### Midway Village: Public Housing Built on Contaminated Soil

By Steve Lerner

Lula Bishop moved into Midway Village Complex in Daly City, California in 1978 and counted herself lucky at the time. The subsidized housing was in a relatively desirable neighborhood one mile from San Francisco Bay. Bishop was initially surprised by how attractive the housing was. True, her apartment was located across the fence line from a PG&E utility company maintenance yard, but the rest of the neighborhood was residential. There were also convenient facilities for her three children -- Kevin, Kenneth, and Tonya -- including a daycare center, Head Start program, a playground, a park, and elementary school.



Midway Housing Complex

Photo: Steve Lerner

"It was a very pretty place but it was surreal. Why would they put poor people here when they could have rented the units for \$2,000 a month?" Bishop asked herself. "There was something wrong with the picture." But once she learned that her beautiful new home was built on toxic wastes it suddenly made perfect sense to her. Poor people were housed there because it was polluted, she charges.

The first signs that something was amiss came when one of her sons developed a nasty, persistent rash on the front of his legs and knees where they had repeatedly come into contact with the soil when he knelt to play in the dirt. One day he brought in a two-headed frog and showed it to his mother and kept it in a jar with holes in the lid until it died. "I just thought it was a freak of nature," she recalls.



Lula Bishop

Photo: Steve Lerner

Bishop, 60, who lived at the complex for thirty years, also began to notice that her health and that of her children and neighbors went downhill fast after moving to the Midway Village. When she arrived at the housing complex, she was holding down two jobs and weighed 170 pounds. Over the following years she developed a painful scoliosis (curvature) of the spine, ballooned up to 350 pounds, and had to walk around bent over on crutches. After leaving Midway she had surgery in which a titanium rod was inserted to straighten her spine and she is now back to her original weight.

Bishop's oldest son was the hardest hit as a result of living atop the toxic wastes, Bishop claims. One day he came in and said to her: "Ma, look at this." He was pointing to his left eye that had become crossed overnight. From her work as a nursing assistant Bishop knew that there was something in his head pressing on his optic nerve and she took him to the hospital where he was operated on immediately and a small tumor was removed from his brain. The brain surgery was so deep that sometimes he couldn't even remember that his

brother and sister had come to visit the same day. Eventually, he recovered but there were a number of other Midway residents who died of brain tumors and a friend of Bishop's, who also had a brain tumor, went blind.

The kids in the Midway Housing Complex seemed to suffer the most severe medical problems because they played on contaminated soils, Bishop speculates. Many had eye problems: "They had to get eye glasses that were as thick as coke bottles," she says. In addition, there were a lot of behavior problems: "A kid would be perfectly normal one minute and then would lose it for no reason." There were also children born deformed and with reproductive abnormalities, she continues. Furthermore, many young female residents were either sterile, had fibroids, or suffered from unusual menstrual bleeding that cleared up if they moved away, she adds. "Too many neighbors were sick or dying," she observes.

For years, Bishop's grandchildren came to stay with her at Midway eight to ten hours a day and often overnight while their mother worked. Over time the kids developed rashes, headaches, sleep apnea, nosebleeds and a host of other health problems that required a large number of medications. When Bishop and her grandchildren moved out of the complex and into her daughter's house at some distance from the site all the health problems disappeared, she notes.

### **"People Shouldn't Live Here"**

The first indirect public notice of a contamination problem at Midway came in 1990 when Bishop was contacted by the San Mateo Housing Authority and told to convene a meeting of residents. At the meeting they were told that workers would soon arrive to "beautify" Midway Village and install a new drainage system. To Bishop's surprise, when the workers arrived they were wearing HAZMAT suits. Asked why they were covered in protective gear one of the workers replied: "For the same reason that you should go back inside and close the doors and windows." Bishop was confused and asked: "Well, what about us? Why do they need protective gear and supposedly we don't?" Later she befriended one of the workers who told her that he had been warned that there was hazardous waste in the ground and that they had to keep their suits and masks on at all times, she recalls. But when residents asked officials about the contamination they were told not to worry: "It's no more dangerous than it is to eat barbecued chicken where some of the skin has been charred on the grill," they were told.

Bishop didn't buy these assurances. If the housing complex was so safe then why were workers in protective gear; why were they pouring concrete patios in front of some of the housing units to cap the toxic soil; and why were residents being told not to plant gardens and instead to use newly installed above ground planters.

She also felt betrayed. "They suckered us big time. They used me," Bishop says, anger rising in her voice. Prior to the arrival of the workers in "spacesuits" Bishop was president of the resident's association at the time and was on the beautification committee. She was one of a number of residents asked to decide what color to repaint the buildings and where trees and bushes should be planted. "Here I was telling new residents that we were blessed to be in this beautiful place and that we needed to keep up the appearance of the units and make the outside tidy. I was telling them that when all the time the housing was all built on toxic wastes."

Looking at Midway's grounds with new eyes, Bishop noticed areas in the grass smeared with a black, tarry substance. "The kids would get this black stuff on their clothes," she says, and they tracked it indoors with them. Later, when bulldozers and backhoes started digging up the grass, she could distinguish distinct layers of soil that were heavily contaminated with a black substance. Bishop also claims she saw a barrel containing a black substance that was unearthed during the excavation. "They just cover the stuff up and then they have to dig it up again seven years later," Bishop says. "I guess you could call it a cover up."

Asked if drums of toxic wastes had been unearthed on the grounds of the Midway Village Housing Complex, PG&E official Robert Doss said they had not. "This was a popular urban legend," he observes. What was unearthed was not a drum of hazardous wastes but rather a footing for playground equipment that was approximately the size of a drum. As for a cover-up,

Doss is emphatic that there has been none: "That's just wrong. Investigations of the contamination have been carried out in the open. Meetings have been convened in the neighborhood. Documentation has been made available in public places and the regulatory agencies have been very responsive to requests for information from residents."

But that description of how events unfolded does not resonate with Bishop. She and some of the other residents had to educate themselves about the contamination and its health effects and become toxics detectives. They went to Berkeley to get documents and as they made more requests their access to documents was restricted and copying costs were high. Furthermore, Bishop found herself under attack as she became outspoken about the contamination. After helping to organize the Midway Residents for Environmental Justice, San Mateo Housing Authority officials claimed that a check for \$225,000 was missing that was supposed to be used by the Resident Housing Association that Bishop directed. "Housing Authority officials said they gave me the check. They told lies about me," Bishop asserts. "People began to say that I was in this all for myself. They came after me tooth and nail. I told them they were trying to divide us. I asked them: 'If I had that kind of money would I be living here?'"

Eventually the truth will come out about the poisons Midway residents are living on, Bishop contends. "You can bury this stuff for years but eventually it bubbles up. It's like a lie, you can cover it up for awhile but eventually it will come to the surface," she says. "These people lied to us with a straight face. They will boil in hell for it," she prophesizes, concluding that "Some day they will have to realize that people shouldn't live here."

### **Mistakes Were Made**

Is Bishop correct in her view of the dangers of contamination at Midway? Mistakes were clearly made by government officials who initially permitted the Midway Village Housing Complex to be constructed on chemically contaminated soils. As early as 1944 federal housing authorities were informed by a building contractor that the land on which they proposed to build Navy housing was contaminated with "much decomposed lampblack and oil refuse mixed with the mud."<sup>1</sup> It is possible that, at the time, no one fully understood how toxic the substances in the soil were or what diseases they might cause. More recently, however, since the contamination of Midway has been quantified using modern techniques, questions remain about whether or not residents were informed about the extent of the contamination in a timely manner and about the possible health effects.

Questions also remain as to whether or not residents should have been immediately informed about the extent of the contamination and then relocated instead of left in place while the polluted earth that surrounded their homes was dug up and hauled away. Time and again, testing at the site revealed hotspots of contamination despite large-scale efforts to remove the problem. However, in the face of these repeated failures to fully cleanup the grounds, government regulatory officials never moved Midway residents out of harms way. Officials say relocation was not necessary while residents and activists disagree.

As it stands today, almost everything about the safety of living at Midway Village Housing Complex is hotly contested. What all parties agree upon, however, is that the public housing was built on contaminated fill that came from an old PG&E facility. Also uncontested is the fact that the children of the low-income, largely African-American resident population at Midway played in the contaminated soils. It is widely known that many Midway Village residents ate food out of their gardens grown on earth that was later carted away to Class I hazardous waste dumps. It is also indisputable that the series of extensive and expensive efforts to clean up the site, which have taken place over the last 16 years, have made no attempt to analyze or remove contaminated soils from beneath the housing units.

On every other subject, residents and environmental justice activists say one thing; and PG&E

officials and state and federal regulators contradict them. For example, residents claim that their health has been adversely affected, while corporate, judicial, and state regulatory officials say that health studies have failed to demonstrate this. Residents claim that a study found high levels of chromosomal abnormalities and among residents, while federal officials claim the study was flawed. Health experts disagree over whether or not there is an elevated level of disease at Midway. Residents contend that they continue to live on top of “super-fund” levels of toxic chemicals; regulators say that contaminated soils have been removed and pathways of exposure are now blocked, making the area safe for habitation.

These battles over the facts and their interpretation are common in fence-line communities where residents, regulators, and corporate executives take very different views about what constitutes acceptable levels of toxics in the air, soil, and water and what determines proof of health damages caused by pollutants. Not surprisingly, those who live closest to the contamination tend to be the most alarmed.

### **Midways’ History**

The source of the contamination at Midway Village Housing Complex dates back to the turn of the century when a Manufactured Gas Plant (MGP), a subsidiary of Pacific Gas & Electric (PG&E), operated from 1905 to 1916, leaving behind a legacy of toxic residues in the soil, including tar-like residues and a substance known as lampblack. Lampblack, a finely powdered carbon coal, contains polycyclic aromatic hydrocarbons (PAHs) and volatile organic chemicals (VOCs) – both classes of chemicals known to cause a wide variety of illnesses. Cyanide was also found in the soil.<sup>2</sup>

In 1944, in an effort to find a building site for new Navy housing, the U.S. Government, using its power of eminent domain, appropriated 10 acres of PG&E land as well as some adjoining private property. “As part of the construction of housing soil contaminated with PAHs was removed from the former MGP property and used for grading,” writes Dr. Charles Salocks, Staff Toxicologist at the California Environmental Protection Agency’s (CA-EPA) Office of Health Hazard Assessment (OHHA), Integrated Risk Assessment Branch.<sup>3</sup>

This initial mistake committed by Government officials back in WWII, which put at risk the health of Navy midshipmen and subsequently residents of Midway Village, has had a far-reaching impact that continues up to the present. Jockeying to avoid responsibility for this tragic mistake also continues today. While the land was under federal ownership PG&E had no control over what was done on it; nor, at the time, was there any evidence of contamination, explains Robert Doss, Manager of Environmental and Support Services for PG&E. This assertion, however, is undercut by a report suggesting that the contamination was clear for all to see, noting that the areas of Midway Village and Bayshore Park “that received fill could be visually identified by the characteristically dark color of the Lampblack.”<sup>4</sup>

Looking back at the U.S. Government’s use of contaminated soil for the grading of residential housing appears not just ill-advised but also possibly criminally negligent. However, suits seeking restitution for affected residents failed. The suit against the federal government was dismissed because the government does not permit itself to be sued in these kinds of cases. Further, several suits against PG&E, the San Mateo Housing Authority, and regulatory agencies were dismissed with a finding that the litigants had failed to establish that exposure to the contaminated soil had harmed resident health; and, some say, because lawyers botched the case.

In 1955 the Navy housing complex constructed on contaminated fill was turned over to San Mateo County for public housing and for schools; and the ten acres that the federal Government had confiscated from PG&E were returned to the company. In 1976, the U.S. Department of Housing and Urban Development (HUD) provided San Mateo County with funds to construct the Midway Village, a subsidized low-income housing complex with 35 multi-family town-homes with

150 units on 18 acres.<sup>5</sup>

Meanwhile, PG&E's site next door to the Midway Housing Complex was being transformed into PG&E's Martin Service Center where crews take equipment to be serviced. There was no disposal of hazardous wastes on the site nor were hazardous wastes burned there during the period that the site was used as a service center, Doss claims. This was not a dangerous facility to live next to, he maintains. The facility "has a low hazardous quotient," he states. But residents have a different version of what was going on across the fence line from their apartments. Helicopters and trucks would bring large pieces of equipment to the PG&E site and barrels of materials would burn late into the night emitting acrid odors, residents report. Doss describes this as untrue: no helicopters brought equipment or materials to the site, he says.

It wasn't until 1980, while re-grading their site, that PG&E officials found "significant quantities" of lampblack and MGP residues on their property and reported this fact to regulatory officials. By 1984 the contaminated area was listed by state regulators as a heavily-contaminated site -- commonly referred to as a "superfund site" -- that would have been eligible for state "superfund" monies to clean it up had PG&E not agreed to pay to haul away the contaminated soils. Much of the hazardous wastes on the PG&E site have been trucked away to class I hazardous waste sites; and a lengthy berm of other wastes has since been capped with concrete. Unknown, at the time, was what quantity of contaminated soils had spread across the property line into the residential area.



**Berm used to contain hazardous wastes**  
*Photo: Steve Lerner*

### **Contaminated Soils Discovered**

In the process of investigating the extent of pollution at the PG&E property, officials began to test the soil across the fence line in Midway Village where in 1989 polycyclic aromatic hydrocarbons (PAHs) were discovered in the soil. The levels of PAHs on the residential grounds were orders of magnitude below those found on the PG&E grounds (around 10,000 ppm), Doss asserts. And while the levels at Midway village were above background levels "they were not much more," he adds. PAHs are products of combustion, Doss explains, and as such they are nearly ubiquitous compounds found in car exhaust, soot, forest fires, and on barbecued meat.

While PG&E officials downplay the level of contamination and health risk at Midway Village from exposure to PAHs, others point out that while contamination levels at Midway Village were considerably below those found on the PG&E facility, they nevertheless were considerably above the 10 ppm standard established as safe. In fact, some samples taken from the subsoil adjacent to living units were as high as 626 ppm. Other reports suggest that the early sampling of soils at Midway Village found PAH levels that were "150 times the normal level common to urban areas." This is significant, the report continues, because "Lab animals exposed to high dosage of the chemicals [PAHs] exhibit a greater incidence of lung cancer, stomach, and skin cancer, birth defects, immune deficiencies, and respiratory ailments."<sup>6</sup>

Having found above background levels of PAHs at Midway, PG&E officials notified the San Mateo Housing Authority, which owned the residential complex; the California Department of Health; and the state's Department of Toxic Substance Control (DTSC). They did not, however, notify residents at Midway of their findings. "That was the responsibility of the Housing Authority, Doss notes. But a number of residents disagree. PG&E did not come clean with its residential neighbors that there was a potential health problem, claims LaDonna Williams, a former resident of Midway. In fact, PG&E engaged in a deliberate attempt to hide the full extent of the contamination, she asserts.

Once the toxics at Midway were discovered during the course of efforts to improve the drainage on site, on December, 16, 1991, Department of Toxic Substances Control issued an order requiring PG&E, the San Mateo Housing Authority (SMHA), and the U.S. Department of Housing and Urban Development (HUD) to carry out a remedial investigation and clean-up of the contamination. HUD paid 90 percent of the costs of the remediation, PG&E paid 9 percent, and Daly City paid 1 percent.

### **LaDonna Williams' Story**

LaDonna Williams grew up a quarter mile from the Midway Village Housing Complex near the old Navy housing in an area across the freeway from what was then baseball's famed Candlestick Park. As a child, Williams used to play near the old abandoned Manufactured Gas Plant. "There was a little creek down there next to the plant where we used to splash around," she recalls. At the time Williams had no idea that she was mucking about in soils that would later be listed as a heavily-contaminated superfund site polluted with arsenic, lead, cyanide, benzene, diesel-range petroleum hydrocarbons, naphthalene, and other PAHs and VOCs. These chemicals of potential concern (COPC) in Midway's soil and indoor air would subsequently be the subject of multiple investigations by state toxics regulators.

When Williams moved in there was no fence between the residential area, the park and the PG&E facility nor was there any warning sign, she recalls. "My kids would be in the dirt all the time digging tunnels and leaping off the mounds as if they were superman towers," she continues. "And then they would track dirt into the house."

For years Williams had been struck by how many Midway residents were sick. When she took her kids to Kaiser or St. Mary's hospitals with medical problems she often met other Midway Village residents. Their children were suffering from deformities, seizures, severe neurological conditions, asthma, rashes, hair falling out, and other medical problems "you might expect from chemical exposure," Williams claims. Residents of Midway were also experiencing high rates of diabetes and cancer, she adds.

But her first inkling that the housing project was contaminated with toxic chemicals from the PG&E facility came in 1990, a year after Williams moved out of Midway Village, when her mother was diagnosed with cancer. Her suspicions were aroused when a friend told her that "men in 'spacesuits' – head-to-foot rubberized protective gear with gas masks and goggles -- were digging up stuff at Midway Village and people were being told to close their windows and get back in their houses. Could the excavation and removal of soils at Midway Village have something to do with her mother's cancer, she wondered?

Upon reflection, Williams now recognizes that there were early signs that the soil in which she grew her vegetables was not healthy but at the time she ignored these omens. "For one thing the worms were weird and there were two-headed frogs. When the kids would catch the frogs they'd bring them to us and show us that they had no eyes or were missing limbs," she says. Dogs around the housing complex also looked mangy and scabrous and there was a horse barn nearby with "skinny, sick-looking horses." Even the trees died, she recalls. Williams now reasons that the invisible toxins that were contaminating the plants and animals were also wreaking havoc with the health of her family.

The list of ills her family experienced would discourage even Job. Her mother and stepfather died of cancer at 51. Both of them lived nearby and visited Williams' home in Midway Village frequently. They helped her with her garden growing okra and tomatoes and ate out of her garden. "There is no doubt in my mind what killed them. Because of what's in the ground at that damn place, I had to bury them," she says.<sup>7</sup>

Williams' children were also afflicted: two had asthma and frequent nosebleeds; and one of her daughters, now 30, was born brain damaged and experienced numerous seizures while living at Midway Village. The seizures abated as soon as the family moved away. Williams' son experienced rashes all over his body and severe headaches, which also disappeared after the family moved. A 12 year-old girl, who is a member of William's extended family, came to visit Midway Village, experienced a severe nose bleed, was taken to the hospital and died two days later, she claims. Williams' sister came to visit and passed out. Williams herself experienced severe headaches, respiratory distress, digestive problems, and suicidal thoughts all of which abated after she left the housing complex.

Beyond her family's medical problems, Williams enumerates numerous residents who had cancer or other severe health problems. Among them is the son of the couple who moved into her unit after she left who died of cancer; another resident's son had a brain tumor; a female resident had breast and uterus cancer; and another girl in a unit near her had a brain tumor.

Describing her 17 year struggle to bring the health problems of Midway Village to the attention of regulatory authorities, Williams says: "It has cost me my health, my sanity, and my marriage." Despite these sacrifices, Williams says she has faith that eventually residents will be relocated because the evidence shows that there is heavy contamination of the site, that there are toxic chemicals in the soil under the living units, and that there is a route of exposure. By now officials should have moved residents "but it is like a bird flying in front of you. If you don't want to see it you don't, even if it pecks you in the head."

"This is still a Superfund site," Williams told agency officials during one of the many meetings she attended. "You claim to protect the health of the public. Then do it. You have knowingly placed us on this heavily contaminated land – the dirtiest land in San Mateo County – and you have used it for low-income housing. This is environmental racism and environmental genocide," she charged. In response, representatives from both the state and federal EPA told her that she was trying to create a panic in the housing complex, she recalls. Robert Doss, manager of environmental support services at PG&E, is particularly upset to hear his company accused of environmental racism. "This could not be further from the truth," he says. PG&E has an explicit Environmental Justice policy in place that is applied throughout its operations. "Statements like this are amazing but not unexpected," he adds.

But is the charge of environmental racism so preposterous? San Francisco Weekly reporter Martin Kuz compares the cleanup of PAH contamination from a Gas Manufacturing Plant at Midway where most of the residents are people of color with the cleanup of similar pollution at Alhambra near Los Angeles where most of the residents were white. Several differences between the two cleanup initiatives suggest unequal treatment. First, in Alhambra residents were all relocated for six months while the cleanup took place, whereas at Midway this did not occur. Second, all the driveways, sidewalks, and patios at Alhambra were removed so that contaminated soil under them could be removed. Again, this did not take place at Midway. Third, an average of four to five feet of soil was removed at Alhambra, while two to five feet were removed at Midway. Fourth, and most tellingly, soil from beneath the crawl space below the homes in Alhambra was removed, whereas the dirt beneath the living units at Midway remains untouched.<sup>8</sup>

### **Resident Activists**

But even before these comparisons were made, Midway Village found nothing inappropriate about the charge of environmental racism. In 1997, frustrated with the unwillingness of regulatory officials to relocate them, LaDonna Williams (who had moved out after a decade at Midway) and a small group of Midway residents who remained at the complex formed People for Children's Health and Environmental Justice. A core group of this organization still meets periodically and



lobbies for relocation and compensation. Among them are Irma Anderson, Mary Tanner, and Maria Downing.



**Irma Anderson and Mary Tanner**

*Photo: Steve Lerner*

Anderson is a long-term Midway resident activist who has knocked on doors as part of an informal health survey and passed out leaflets warning about the dangers of contamination. Most of the residents who were outspoken have either died or moved away; and those who remain are afraid to speak out because they don't want to lose their housing, she explains. The controversy over the contamination has torn the community apart and Anderson receives obscene phone calls and has doors slammed in her face by residents worried that those making a fuss over contamination will get them all kicked out of public housing.

Despite this occasional harassment, Anderson, who had a nine-pound tumor removed from her stomach nine years after moving to Midway, continues to protest. "I'm just tired of waking up with a headache," says Anderson who describes living with nosebleeds, rashes, and recurrent cysts during her residence at Midway. When it gets cold, she is afraid to turn on the heat because the furnace will suck more toxins into her home. "I'd love to move but I can't afford to," she says. Despite many setbacks, Anderson still

holds out hope for relocation: "God will touch the hearts of the officials, bring them to the negotiating table, and cause them to treat us as humans regardless of our race." She just hopes she will be moved and compensated before she dies, she adds.

Mary Tanner is another resident activist who has lived at Midway for thirty years and raised five children there. One of her children almost died when she was a baby because she couldn't breathe properly and had to be taken to the hospital and revived. The doctors said she had not gotten enough oxygen to the brain and in later years she had to attend special educational programs. Another of Tanner's daughters, who grew up at Midway, later gave birth to a boy who is blind. Tanner's own health has been impaired with chronic bronchitis, heart palpitations, and shortness of breath. She also describes her nerves as bad and worries that when she goes to sleep she will stop breathing and die.

Maria Downing has also lived at Midway for 30 years and raised four kids there. Downing has severe headaches and corneal ulcers, a condition she describes as "having pins poked in your eyes."<sup>9</sup> She has one daughter, born brain damaged two years before moving to Midway, who has many seizures a day while in residence at Midway; and a son with partial facial paralysis who has one eye weaker and smaller than the other. He also had breathing problems and coughed up blood, she adds. She has another daughter, 19, with breathing problems, who keeps fainting and experiences joint pain. "Look, I'm stuck here. These people need to help us so we can take our kids to the doctor. They need to move us because it [the contamination] is under our units," she says. "These people are liable for knowingly exposing us. We want permanent relocation and compensation because we are sick and not able to work," she concludes.



**Maria Downing**

*Photo: Steve Lerner*



## **Soil and Air Sampling**

Over a 15-year period, soil and air sampling at Midway Village and Bayshore Park has been extensive: nine investigations were launched and some 800 samples were taken and analyzed. In a paper reviewing the data obtained during this period, Dr. Charles Salocks, Staff Toxicologist at the California Environmental Protection Agency's Office of Health Hazard Assessment, Integrated Risk Assessment Branch, reveals that PAHs were found in many soil samples along with cyanide.

Among the findings of these reports were the following: Out of 35 soil samples taken in 1989 PAHs were found in all of 35 samples and cyanide in 5 samples. In June 1990 PAHs were found in 10 of 14 samples taken while digging a drainage trench; PAHs in the soil ranged from near zero to 72 ppm. In 1992, 69 of 70 soil samples contained PAHs in the top two inches of soil; benzene and diesel range petroleum products were also found. In a 2000 test of 426 soil samples PAHs were found in both surface and underground oils with the deeper samples showing higher concentrations. In May, 1993 169 samples were taken. Subsurface samples ranged from non-detectable to 629 ppm PAHs; surface samples ranged from 0.022 ppm to 169 ppm PAHs. In 2001, 9 of 60 samples exceeded screening levels for PAHs. From 2001 to 2002 high levels of PAHs were found in the floor of excavated areas and naphthalene, a carcinogen, was found in soils being removed from the site. In 2002 naphthalene was found in the air at the Midway Village Housing Office.<sup>10</sup>

Following all this testing, the author of this report concluded that the site had been thoroughly characterized and analyzed. Salocks concedes that there are some PAH concentrations in the soil beneath resident homes and beneath the excavated areas that contain PAH concentrations above 10 ppm target cleanup goals. Opportunities for short-term exposure may still exist and the "lateral and vertical (depth and breadth) of contamination has not been completely mapped, he adds. Despite these caveats, Salocks concludes that opportunities for PAH exposure at concentrations above target cleanup goals "has been largely eliminated, and as a consequence any risks to human health have been eliminated as well." A report from the federal Agency for Toxic Substances and Disease Registry (ATSDR) comes to a similar conclusion: "ATSDR believes the soil cleanup levels [at Midway Village] to be protective of public health. Therefore, additional sampling, beyond what is being proposed in the near future, does not appear warranted."<sup>11</sup> Bottom line: It's safe to live at Midway Village.

## **Department of Toxic Substance Control**

The state regulatory official most intimately knowledgeable about the contamination at Midway Village is Barbara Cook, Branch Chief of North Coast Cleanup at California's Department of Toxic Substance Control (DTSC). Cook oversees the testing and cleanup of hundreds of sites such as the one at Midway Village where contaminants are discovered close to residential populations.

According to Cook, the pathways of exposure at Midway Village have been blocked. To help illustrate her point, she produced a large poster board map of every living unit at Midway Village, carefully numbered and labeled. The map is color coded and dotted with scores of testing sites where soil samples have been taken. Three levels of contamination are demarcated: the area shaded in blue indicates soils that were contaminated with high levels of PAHs; the yellow areas are for soils with lower levels of PAHs but which nevertheless required cleanup; the rest of the map is in white indicating no contamination above the standard.

Using the diagram, Cook makes a case that the most intense levels of contamination were in the southern portion of the complex along the fence line with PG&E. This makes sense, she points out, since the contaminated soil came from the facility. To deal with the higher levels of contamination several measures were taken. First, residents were offered a chance to move to vacant units elsewhere at the complex while the soil removal was being done. (Only one resident

availed herself of this opportunity, she notes.) Plastic coverings were placed over the windows of units near the excavation and dust suppression measures were used to reduce resident exposure. Then some 12,261 cubic yards or 11,000 tons of contaminated soil was dug up and removed from around the living units where contamination was discovered. In addition, two feet of topsoil from the 3.8-acre Bayshore Park, was also removed when a large flood control infrastructure improvement project was completed.

To further block possible pathways of exposure, clean fill was brought in to replace the soil that had been removed. New concrete patios and asphalt walkways and parking areas were laid down. And to discourage residents from planting anything in the soil, aboveground, redwood planter boxes were installed to further reduce the possibility of exposure.

Stepping back from the specific actions that were overseen by DTSC to cleanup the Midway site, Cook observes that sites such as these are problematic because it is harder to deal with contamination when housing has already been built on polluted soils than to clean up a bare site where new construction is proposed. Soils contaminated with PAHs are quite common in the San Francisco area, she notes. When new construction is in the works, a layer of contaminated soil is removed and then concrete, asphalt, and clean fill can block the pathway of contamination. It also helps that PAHs tend to stay where they are, adhere to soil particles, and do not dissolve easily in water. This keeps them from migrating far, she points out.

Starting in January 2007, DTSC will engage in a five-year review of the Midway Housing Complex cleanup action. At that time, Cook and other regulatory officials will determine if further steps are necessary to clean up the soil to protect public health. While she would not predict what action if any is anticipated, Cook noted that there are only a small number of units on the south side of the housing complex where there were previously high levels of contamination and that this would be a logical area to closely re-examine. Cook also revealed that just across the fenceline from this area an underground storage tank owned by PG&E had leaked contaminants into the soil. This contamination has been mapped and is being monitored as it migrates downhill, away from the housing complex, she adds.

Given the past heavy contamination of the soil in the southern part of Midway Housing complex and its proximity to the fenceline with PG&E where new contamination has been discovered, might the San Mateo Housing Authority decide to tear down some of the living units in this part of the complex? Cook said that any such decision would be up to the Housing Authority. She also observed that it was very difficult to find property in the Bay area where replacement subsidized housing might be built.

The real problem at Midway is that “there is a huge distrust issue” and some residents just don’t believe anything that regulatory officials tell them, she notes. “Some of the residents wanted me to provide them with a new house, money for compensation, and payment for medical expenses,” Cook recalls, “and I told them I couldn’t give that to them.”

### **Chemist Wilma Subra Unconvinced of Safety at Midway Village**

Unable to convince regulatory officials that they should be relocated and compensated for damage done to their health, a group of residents at Midway Village contacted Wilma Subra, a chemist with extensive experience helping grassroots fenceline groups understand and respond to the complex technical and regulatory information that is generated once toxic testing is initiated.

Midway residents were fortunate to get help from Subra, who runs a chemistry laboratory and consulting business -- the Subra Company -- out of a modest office opposite a sugarcane field in New Iberia, Louisiana. With degrees in microbiology and chemistry, Subra was in a position to

provide not just technical assistance but also a consultation about how Midway residents could position themselves to win their struggle for compensation and relocation.

When it comes down to contentious confrontations between regulatory and corporate officials and small citizen groups, the credentials of the experts on each side is important. In this regard, Subra comes with an impeccable resume that includes a seven year term as Vice Chair of the Environmental Protection Agency's National Advisory Council for Environmental Policy and Technology, a five year stint on the National Advisory Committee of U.S. Representatives to the Commission for Environmental Cooperation, as well as being a member of the EPA's National Environmental Justice Advisory Council. It also doesn't hurt that her work with hundreds of fenceline communities around the country resulted in her receiving the McArthur Fellowship "Genius" Award.

After visiting Midway Village and attending meetings with regulatory agencies, Subra delved into the technical data generated by the numerous soil studies, reclamation efforts and regulatory findings. After digging through this voluminous material, she issued highly technical letters and memos to the various regulatory agencies and this input has now made its way into the five-year review deliberations about possible further action at Midway.

"These people [at Midway Village] should be relocated. No one should be made to live on top of contaminated soil," says Subra bluntly. To back up this assertion, she notes that the extensive remedial soil removals at Midway did not haul away dirt from beneath the homes of residents and that contaminated soils also remain under sidewalks and streets. This is critical because it means that contamination may be vaporizing out of the soil beneath the living units and accumulating in the indoor space where residents live. Furthermore, Subra contends that only 10 percent of the "primary contaminated area" at Midway Village was tested leaving the 90 percent of the area uncharacterized. This arrived at as a result of Subra's calculations, "has now gained traction" in subsequent discussions about what should be done at Midway, she adds.

Subra is convinced that testing of the surface and subsurface soils on the rest of the Midway Village grounds would find widespread contamination above the 10 ppm cleanup goal for PAHs. "The entire site has PAHs, mostly in excess of Remedial Standards, [10 ppm]" she continues. Not only is 90 percent of the site still untested and likely contaminated, even those areas that have been remediated are problematic because arbitrary limits were placed on the extent of clean up.

For example, in some areas an arbitrary decision was made to excavate to a depth of 2, 3, or 5 feet. When further sampling was done in the "floor" of these excavations, PAHs were found in concentrations up to 24 times the agreed upon cleanup standard, she notes. Logic would dictate that further excavation should be done until a depth was reached where the level of PAHs in the soil met the cleanup goal. Instead, officials decided to stop the excavation and fill in with clean fill, arguing that the clean backfill would block any possible pathways of exposure. But Subra is unconvinced and observes that in areas where soils were removed to a depth of 2, 3, and 5 feet, "deeper contaminated soils still exist under those areas."

Subra finds fault with the decisions to fill in excavations where concentrations of toxic PAHs exceeding the cleanup goal were found in the "sidewalls" of excavated areas. Instead of widening the area excavated, officials again decided to arbitrarily limit the area being remediated. As a result, when clean soils were backfilled into these excavated pits, the clean soil came into contact with contaminated soils both from beneath and from the sides. This left the possibility that "contaminants could migrate into the clean soils," Subra says.

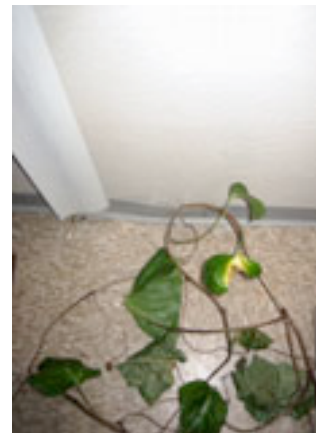
A monitoring program should be set up to "track the rate and quantity of movement" of surface and subsurface contaminants, Subra advises.<sup>12</sup> In addition, deeper sampling should be carried out around residences, even when shallower soil samples meet the standard, she adds. Soil at the residential complex should also be tested for PCBs, Subra argues, noting that old transformers filled with PCBs may have been repaired at the PG&E site and dumping or spillage

may have occurred. “The health of the community was not protected by such a limited scope [of both testing and cleanup],” she concludes.

Unlike Subra, Barbara Cook at the California Department of Toxic Substance Control is less concerned about PAHs being able to migrate through the clean soils that have been laid down as a cap over the contamination. PAHs do not migrate easily, she points out, nor are they easily soluble in water. As a result, the possibility of PAHs percolating up from beneath or traveling horizontally through the clean fill is remote, Cook says.

Subra is also concerned about the safety of the air inside the homes of residents given the high likelihood that the soil beneath them is still contaminated. Efforts to seal the houses off from the earth beneath them have been less than perfect, she continues. Subra is concerned that during renovations there was “an apparent lack of a process to seal wires and pipes where they enter homes.”<sup>13</sup> This creates a pathway for chemicals in the soil to vaporize and enter resident homes, she notes.

An ivy plant in the home of Irma Anderson, which has grown up from the soil beneath the house into a crack between the baseboard and the sub floor, suggests that there are air leaks between the area under the living units and the inhabited space above. “This [the ivy growing through the crack] is a completed pathway of exposure,” notes Subra, using the technical phrase that denotes the way in which inhabitants can be exposed to toxic chemicals in the soil beneath their homes as they vaporize and then out-gas into the rooms above where they are inhaled by residents.



Ivy entering the home of Irma Anderson  
Photo: Steve Lerner

Subra is also critical of the indoor air sampling that was done at Midway. State regulators concluded that there were not high enough levels of contaminants in the indoor air to cause alarm but Subra disagrees again: “The indoor air samples do not provide adequate data on which to evaluate health risks.” She advocates strongly for more indoor air testing below and in the homes of residents under a wider variety of weather and seasonal conditions. In addition, ongoing inspections at the Midway Village should be conducted by county Housing Authority inspectors to ensure that exposure pathways are sealed off. These inspections should be carried out in resident buildings, the Field Office, the Daycare Center, and at Bayshore Park, she suggests.

As for whether or not it is likely that Midway residents have already been harmed by exposure to PAHs, Subra has an informed opinion: “The health of the community is still being impacted by the contaminants on which they live.” PAHs “are toxic at very low concentrations,” she continues. The PAHs and VOCs identified in the air and contaminated soil at Midway are “known neurotoxins and they could be responsible for a wide range of the illnesses that residents are reporting” including problems with children’s eyes, light sensitivity, and people going blind; women reporting uterine cancer, infertility, and abnormal menstruation; chromosomal aberrations and birth defects. Residents have lived at Midway long enough that the latency periods for cancer and birth defects have already passed, Subra notes. As a result, she anticipates that a comprehensive health survey would likely detect elevated levels of cancer and birth defects. Based on her own observations, Subra thinks the health problems at Midway may be serious. She describes the community “as a neighborhood without grandmothers.... The majority of grandparents have died from medical conditions at a fairly young age. The medical problems have been attributed to the toxic chemicals on which they live,” she says.

As for what is likely to happen at Midway, Subra expects that the San Mateo Housing Authority and HUD may make further offers to move residents who want to leave Midway Village but she is unsure whether these offers will make it possible for residents to move into new housing

immediately and pay for the moving expenses. Furthermore, there is no guarantee that new residents will not be moved into vacated apartments, she says. One possibility is that PG&E could buy out living units as they are vacated and keep them empty and eventually tear them down in order to reduce their liability. But Subra thinks it is unlikely that PG&E will act until regulatory officials change their minds about the safety of living at Midway Village.

“Who should be held accountable [for health problems resulting from contamination at Midway Village] is a big question,” Subra observes. “Should it be the Housing Authority for not warning residents? Should it be PG&E? Should it be the health and environmental agencies for not warning the Housing Authority and the community? There is a long list of parties that could be held responsible,” she adds. In the end, the smart thing to do may be to move the people out, find them new housing, demolish Midway Village, cap the contamination there and keep people off it, she continues. “If the housing units are judged to be unhealthy, then demolition of the units followed by soil cover may be performed. But that is a long way off,” she concludes. In other words, “don’t hold your breath” for a solution any time soon.

### **Health Studies**

In the absence of state or federal sponsored comprehensive health studies at Midway Village, some residents did their own health survey by going door to door in the housing complex. They found what they considered high levels of disease and early deaths. Some made their own list of ills they suspect were caused by exposure to toxic chemicals coming out of the PG&E facility and printed it up as a handout sheet: “As a result of this exposure to 300 toxins, many carcinogens, the community suffers numerous illnesses which include cancer, tumors (brain, stomach, breast), respiratory/breathing problems, asthmas, miscarriages, sterility, birth abnormalities/disabilities in children, learning disabilities, skin growths, discolorations, and rashes, chronic bloody noses, neurological disorders, heart abnormalities, digestive disorders, unexplained loss of hair, seizures, and death.”<sup>14</sup>

However, none of the anecdotal reports or resident-run surveys are considered objective, scientific data on which regulatory officials and judges are willing to base a decision. So where are the medical studies of the health of Midway residents? The answer is that there is no government-sponsored study of this exposed population but that there were some unpublished health surveys which suggest that there may indeed be health problems associated with contamination at Midway; and that more comprehensive and carefully controlled surveys are warranted.

The only professional health survey of Midway residents was done in February 1996 by Dr. Rosemarie Bowler, Ph.D., MPH, professor of Psychology at San Francisco State University. Her study was initiated at the request of the Midway Village Residents Association and was subsequently funded by the Boccardo Law firm, which represented the residents in a lawsuit.

With the help of six graduate students, Bowler’s staff was able to contact 138 of the 153 households at Midway Village. Of the 138 households contacted, 58 households completed questionnaires, 28 received the questionnaires but never completed them, and 16 were willing to participate but could not for a variety of reasons including language problems or short length of residence. When compared with a control group of Oakland residents, Midway residents who completed the questionnaire were 6.7 times more likely to have skin rashes and 1.5 times as likely to report acute bronchitis. These medical problems are consistent with exposure to PAHs, Bowler notes.

Midway residents also reported higher levels of anemia, asthma, allergies, and psychiatric disorders than did residents in the control group in Oakland. In a “matched pair” analysis, Midway residents reported symptoms in 11 of 13 categories 1.5 times more often than those in Oakland. Statistically higher levels of symptom reporting were found in 7 of 13 categories including

dermatological (6.8 times), respiratory (6.6 times), sensory (6.1 times), gastrointestinal (5.7 times) neurological (4.7 times), headaches/chemical sensitivity (4.5 times) and cardiovascular (2.6 times).<sup>15</sup> Bowler's study also found that 48 percent of residents who responded report growing gardens and 32 percent report eating out of their gardens.

"The results of the study suggest heightened symptoms, illnesses, and medication use for the residents of Midway Village. The findings are consistent with the effects of chemical exposure as shown in previous studies by the principle investigator and in the literature," Bowler writes. There is also an exposure/symptom relationship with those who reported greater exposure generally reporting more symptoms, she continues. "In conclusion, this study suggests an association of PNA [PAH] exposure and the health status of Midway Village residents and that indeed these residents of Midway Village have been adversely impacted by the presence of toxic chemicals in the soil of Midway Village."<sup>16</sup>

Just how useful is this study, which was never published or peer reviewed? The quality of the study was called into question during subsequent lawsuits by Dr. Marc Schenker, MD, MPH, chair of the University of California at Davis, Department of Public Health Sciences. Schenker found many deficiencies in Bowler's study noting that it was not peer reviewed, it had inadequate control groups, it failed to examine former residents, and it had an inadequate discussion section.

But is Schenker's critique fair? "Often experts get paid to do these reviews," observes Dr. Kaye H. Kilburn, the former Ralph Edington Professor of Medicine at the University of Southern California's Keck School of Medicine. Kilburn describes Schenker -- with whom he had dealings in that past while he was an editor of the Archives of Environmental Health from 1986 to 2006 -- as being adverse to this kind of small health survey. "Nothing appears more preposterous upon first observation than a new truth," he notes.

In her own defense, Bowler says that Schenker held her health study at Midway to an impossible standard given that it was carried out on a shoe-string budget with a staff of six graduate students. "It was like comparing apples and oranges: this was not a National Institute of Health epidemiological study with \$500,000 in funding," she observes. "It was a small health survey," she says, but it had adequate controls and an acceptable methodology. Bowler says she became discouraged when the judge sided with Schenker in the lawsuit and never ended up publishing the study because she was involved in other work. But it is still a good study and at the very least provides enough evidence of adverse health impacts to suggest that a more comprehensive health survey is warranted, she adds.

Asked if it was possible that Midway residents were experiencing disproportionately high levels of disease, PG&E spokesperson Doss says that while he is no medical expert, every medical expert who has studied the residents say that "this is not the case. Everything I know leads me to believe that the area is safe and no additional efforts are needed."

### **Resident DNA Tests**

After watching men in protective gear test and remove large quantities of contaminated soil from around their living units (while leaving contaminated soil untouched beneath their homes), residents of Midway Village became understandably alarmed. Wanting to know if they had been poisoned, in June 1999, 58 residents had blood samples drawn and tested for chromosomal abnormalities. The 34 minors and 24 adults had their blood subjected to two DNA tests: chromosome aberrations (CA) and sister chromatid exchange (SCE). The chromosome aberration tests registered 32 of 34 minors and 19 of 24 adults as "abnormal."<sup>17</sup> Residents were worried by these findings because some medical studies suggest that these genetic defects can make people more prone to cancer and other illness, a local newspaper noted.<sup>18</sup> The paper mistakenly attributed the testing to the Agency for Toxic Substances and Disease Registry

(ATSDR), a part of the U.S. Department of Health and Human Services. In fact it was done by a small medical clinic that has since gone out of business.

Officials at ATSDR were understandably upset when they heard that these genetic tests were attributed to them, notes PG&E spokesperson Doss. At the request of Midway residents, ATSDR subsequently reviewed these tests, which they found seriously flawed. For one thing there was no indication as to what constituted normal, above normal or abnormal levels, notes ATSDR environmental health specialist Timothy Walker; nor was there any effort to take into account the “normal variability in the population.” In summary, the ATSDR review found “the DNA data are inadequate to assess current levels of exposure to PAHs at the site.” Furthermore, the data cannot “predict adverse health effects for individuals living at Midway Village.”<sup>19</sup> What the ATSDR report did not hazard an opinion about was whether or not the results of this genetic testing were grounds for a more comprehensive health survey at Midway Village to answer resident’s concern over the presence of chemical contamination on the site and the high anecdotal reports of cancer and birth defects.

## **Lawsuits**

Two lawsuits were instigated by residents who wanted to be compensated for harms done to them by exposure to toxic chemicals at the Midway Housing Complex. Some 250 residents of Midway joined a class action lawsuit against the federal government for endangering their health and asked for \$1.25 million in compensation. It was dismissed on the grounds of federal immunity.

The second lawsuit began in July 1991, when 55 residents of Midway sued the Housing Authority, San Mateo Housing Authority, and PG&E for failing to protect their health. According to PG&E official Doss, who was deposed during the course of the five and a half year lawsuit, some 25 residents were examined at San Francisco Hospital, the University of California Medical Center, and the University of California at San Francisco. They were given physicals by medical examiners and the results of these examinations were reviewed by occupational health experts, epidemiologists, and learning specialists. These experts found “that no one had been injured by exposure to the relatively low levels” of PAHs, Dole claims.

In 1994, the judge dismissed the lawsuit for lack of what he saw as credible evidence proving that residents had been harmed by contamination at Midway. The case never went to trial. The judge ruled that residents had failed to provide concrete evidence that their illnesses were caused by pollution from the PG&E facility. Another lawsuit was dismissed in August 1997 by a judge in San Mateo County Superior Court, McMillan writes.<sup>20</sup> The case was appealed and the ruling upheld.

As far as PG&E spokesperson Doss is concerned that ended the legal dispute. However, despite having won a dismissal of the suit, PG&E offered confidential cash settlements to a number of residents. Some took them and others didn’t. Residents report the settlements were between a few hundred and a few thousand dollars. “We were not paying for injuries because it was not established that there were any,” Dole explains. But the company did pay undisclosed amounts for what Dole terms “psychological stress.”

After the suit was dismissed PG&E tried to intimidate outspoken residential critics of the company into ceasing to make statements alleging that the neighboring industry was making them ill, claims long-time resident Irma Anderson. PG&E representatives threatened residents with \$250,000 lawsuits if they continued to defame the company, Anderson recalls. “But we were already broke so we told them to bring it on.”

Dole denies that PG&E threatened vocal critics after the lawsuit was settled and describes this allegation as another urban legend. “It continues to be a puzzlement to us that these kinds of rumors get traction,” he adds. “We tried to be good neighbors.” During the five and a half years of



the lawsuit PG&E officials could “not talk to the people who were suing us,” he continues. The settlements were offered because “people had been subjected to anxiety. This is a hot button issue” where people felt threatened in their own homes, he adds.

Having lost the lawsuit, a group of Midway residents turned to state and federal regulators for relief. “They gave us the run-around,” former resident Lula Bishop reports. The Housing Authority would point to PG&E, PG&E would point to the Navy and the Department of Toxic Substance Control. No one wanted to take responsibility, she continues. “So many people became sick and disabled that we wanted not just to be moved to other public housing, we wanted to be compensated for the damage done to us,” she continues. “We wanted lifetime medical and financial aid and housing. Those were our demands...but it never happened.” Stymied once again, LaDonna Williams wrote a letter to then-President William Clinton, who ordered that Midway Village be reinvestigated by federal regulators. A new study was done of the soil and a clean-up was done of the childcare center and park but not under the housing units, she notes.



**Playground at Midway**

*Photo: Steve Lerner*

## **GreenAction**

In some ways Midway is worse than other fence-line communities located adjacent to obvious chemical hazards, observes Bradley Angel, executive director of GreenAction, a Bay Area environmental justice group. “It is rare that you come into a community where people come up to you -- a complete stranger -- and lift up their shirt or roll up their pant-legs to show you their rashes,” he says. “The situation in Midway was absolutely outrageous in terms of corporate environmental racism and widespread disease among the residents,” he continues. “These people were living on top of a toxic time bomb. There were superfund level, cancer-causing chemicals here and no testing was done of the soils under these people’s homes or under the daycare center.”

Angel has worked with grassroots fence-line groups exposed to chemicals from nearby plants for over twenty years. For 11 years he was Southwest Toxics Coordinator for GreenPeace USA. When GreenPeace directors decided to get out of grassroots organizing, Angel and a number of his colleagues founded GreenAction to carry on the work and Midway was one of their first major campaigns. To Angel, the situation at Midway was familiar having worked in a series low-income and heavily-minority communities located next to hazardous waste sites and heavily polluting industries

State regulatory officials maintain that they have removed the contamination through excavation and remedial work, he continues, “but we say they have removed only some of the problem and that people are still getting sick. This is a state superfund site and every time they do testing of the soil they find more hotspots. That should tell them that there is a serious problem still remaining. We argue that residents should be moved out and compensated,” he asserts. To make this point, Angel and others at GreenAction worked with Midway residents to organize at least ten civil disobedience actions where they blocked PG&E trucks that were hauling contaminated soil away from the grounds of the Midway Housing Complex. They argued that it was unsafe to excavate toxic wastes while residents were still on site exposed to dust from the removal operations. And they contended that no amount of excavation would make the site safe to live upon.

At one point state and federal regulatory officials promised residents and GreenAction activists that they would conduct testing underneath the subsidized housing units and the day care center but they never carried through on their promise, Angel claims. As a result of this and other lies,

there is zero trust among residents about official efforts to clean up the site. "It is both racist and reckless endangerment to place families over soils contaminated with super-fund levels of chemicals. I think it is also criminal," Angel continues. "This was a toxic cover up," he adds.

"Midway Housing Complex has to be closed. No one should live there. Government officials should not be gambling with these people's lives," Angel concludes. While much of the protest has died down at Midway, Angel thinks that eventually residents will win their struggle. "The final chapter on Midway has not yet been written," he predicts.

© Steve Lerner 2007

*Steve Lerner is Research Director at Commonwealth, a non-profit located in northern California that focuses on environmental health issues.*

*This story and others like it can be found on the Collaborative on Health and the Environment website at: [www.HealthandEnvironment.org](http://www.HealthandEnvironment.org).*



**The Collaborative on Health and the Environment**  
PO Box 316, Bolinas, CA 94924  
[Info@HealthandEnvironment.org](mailto:Info@HealthandEnvironment.org)  
[www.HealthandEnvironment.org](http://www.HealthandEnvironment.org)

---

## ENDNOTES

- <sup>1</sup> Martin Kuz, "What Lies Beneath," San Francisco Weekly, December 20-26, 2006, p.18.
- <sup>2</sup> Melissa McMillan, "Midway Village Housing Complex: A Struggle for Environmental Justice," GreenAction website: [www.greenaction.org/midway/](http://www.greenaction.org/midway/)
- <sup>3</sup> Charles Salocks, Ph.D., D.A.B.T., "Review of the 2001 Investigation and Cleanup of Midway Village Residential Complex in Daly City, California," Review Draft, February, 2006. Reviewed by David Siegel, Ph.D., Chief, Integrated Risk Assessment Branch, Office of Health Hazard Assessment, at the California Environmental Protection Agency.
- <sup>4</sup> Agency for Toxic Substances and Disease Registry, Division of Health Assessment and Consultation, "Health Consultation: Midway Village Site, Daly City, San Mateo County, California" April 8, 1999, p.2.
- <sup>5</sup> McMillan, op. cit.
- <sup>6</sup> Kuz, op. cit., p.18.
- <sup>7</sup> Kuz, op. cit., p.20.
- <sup>8</sup> Kuz, op. cit., p.22.
- <sup>9</sup> Kuz, op. cit., p.20.
- <sup>10</sup> These statistics were compiled from two sources. First, Agency for Toxic Substances and Disease Registry, Division of Health Assessment and Consultation, "Health Consultation: Midway Village Site, Daly City, San Mateo County, California" April 8, 1999, p. 3. And from "Review of the 2001 Investigation and Cleanup of the Midway Village Complex in Daly City California by Charles Salocks.
- <sup>11</sup> Agency for Toxic Substances and Disease Registry, Division of Health Assessment and Consultation, "Health Consultation: Midway Village Site, Daly City, San Mateo County, California" April 8, 1999, p.5.
- <sup>12</sup> Wilma Subra, "Comments on the Review of the 2001 Investigation and Cleanup of Midway Village Residential Complex in Daly City, California, Draft Review, February 2006. Comments submitted February 13, 2006.
- <sup>13</sup> Wilma Subra, "Midway Village and Bayshore Park Site – Review of Documents Provided as Background Information," January 2, 2006.
- <sup>14</sup> Midway Village/PG&E Fact Sheet," undated, written by Midway residents.
- <sup>15</sup> Rosemarie Bowler, PhD, M.P.H., "Health Survey of Midway Village Residents Exposed to PNAs," San Francisco State University, Department of Psychology, July 19, 1996. p. 44.
- <sup>16</sup> Bowler, *ibid*, pp. 44-45.
- <sup>17</sup> McMillan, op. cit.
- <sup>18</sup> The San Francisco Chronicle, January 19, 2000.
- <sup>19</sup> Timothy Walker, "Health Consultation: Midway Village Site, Daly City, San Mateo County, California," June 21, 1999, p.3.
- <sup>20</sup> McMillan, op. cit., p.3.