



# The Pacific Coast Pipeline Site

Health and Ecological Study Conclusions and the Path Forward

Wildflowers in bloom on hillside  
of Pacific Coast Pipeline Site



## Dear Residents,

My name is Leslie Klinchuch and I am Chevron's project manager for the Pacific Coast Pipeline (PCPL) cleanup project. For the past six years, I have worked closely with the Fillmore community to keep you informed about the progress of our environmental cleanup.

Recently, we've heard questions and concerns about the potential health issues related to contamination at the site. We have developed this brochure to help answer these questions and we've also included information about the human health risk assessment conducted in 2010. These studies were done under U.S. Environmental Protection Agency (EPA) supervision to identify potential health impacts to nearby residents, future site users or the environment from contaminants at the site.

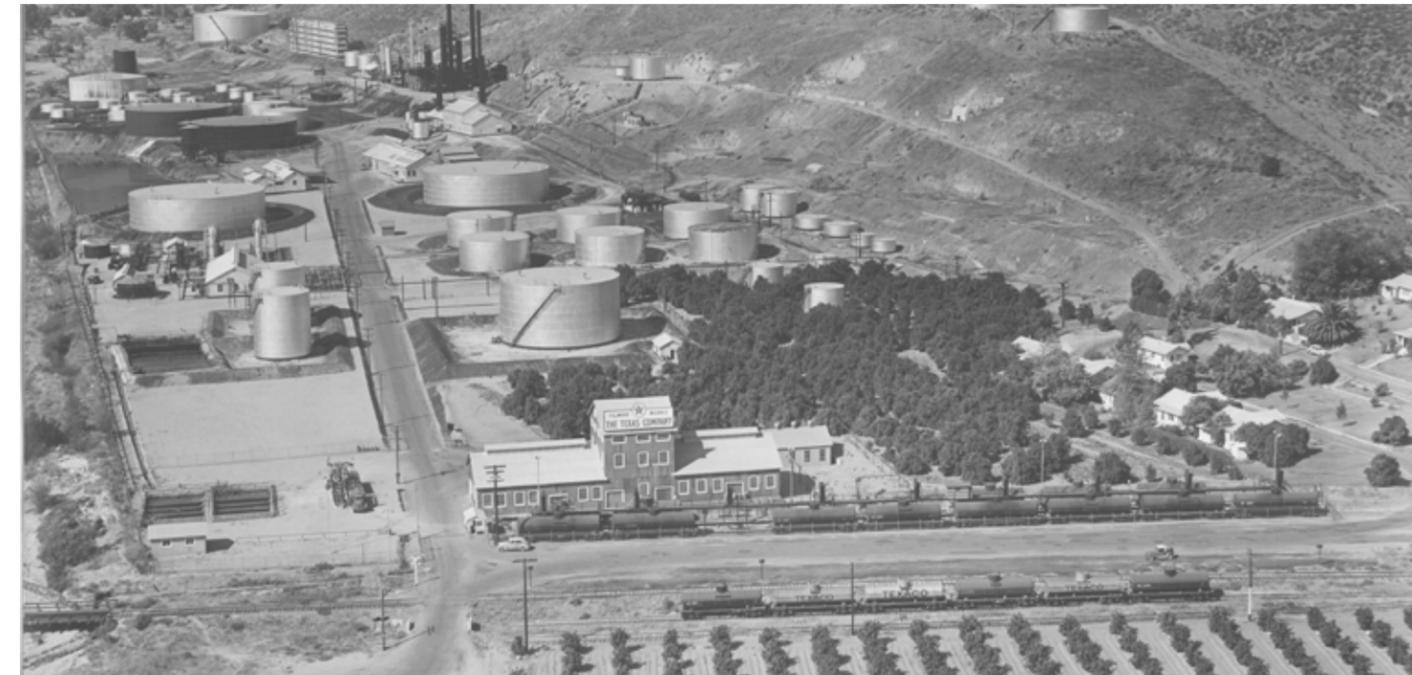
The PCPL property is familiar to most Fillmore residents as the vacant 56-acre property located at the eastern edge of town. From 1915 until 2002 the site was used first as a refinery (until 1950) and later as a crude oil storage and transfer facility. While the property is no longer in use, historic operations led to soil and groundwater contamination which require environmental cleanup, also known as remediation. We are working with the EPA to clean up the property and prepare it for future use.

We are also working with the City of Fillmore on revitalization plans for the property. The current plan includes a mix of commercial, industrial and open space uses. The development of the site will be a multi-year process that will include preparation of an environmental impact report (EIR). The Fillmore community will be invited to participate throughout the phases of the revitalization process.

If you have questions or comments about this project, the cleanup plan or future uses I would be happy to hear from you. Please e-mail me at [pcplsite@chevron.com](mailto:pcplsite@chevron.com).

Sincerely,

Leslie Klinchuch  
Chevron Project Manager



FILLMORE WORKS 1941. HISTORICAL PHOTOS COURTESY OF FILLMORE HISTORICAL MUSEUM

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# Overview & General Questions

The Pacific Coast Pipeline (PCPL) property is located along the eastern border of the City of Fillmore in Ventura County, California. For over 80 years the property operated as a refinery and as a crude oil pumping station where petroleum products were used, produced and stored. Over many years, chemicals seeped into the soil and groundwater.

## How is the site contaminated?

Many years of industrial activity at the site led to soil and groundwater contamination. Environmental studies found petroleum-related chemicals like benzene and toluene in groundwater, and lead and naphthalene in soil on the property. This site does not currently pose a threat to human health. However, some areas of the site need additional cleanup prior to long-term use of the property.

## Where is the contamination?

Most of the chemicals are located on or beneath the property. However, there are two benzene groundwater plumes that extend under the neighborhood to the west (See Groundwater Flow figure on the next page). The impacted groundwater is not a source of drinking water for this community. The groundwater is located too deep to pose a health risk to residents living close to the site.

### What are VOCs?

Volatile organic compounds, or VOCs, are commonly found in paints, cleaning supplies, glues and fuels.

Benzene and toluene are two VOCs found in oil and petroleum products. These chemical constituents of petroleum have seeped into and contaminated groundwater under the PCPL site.

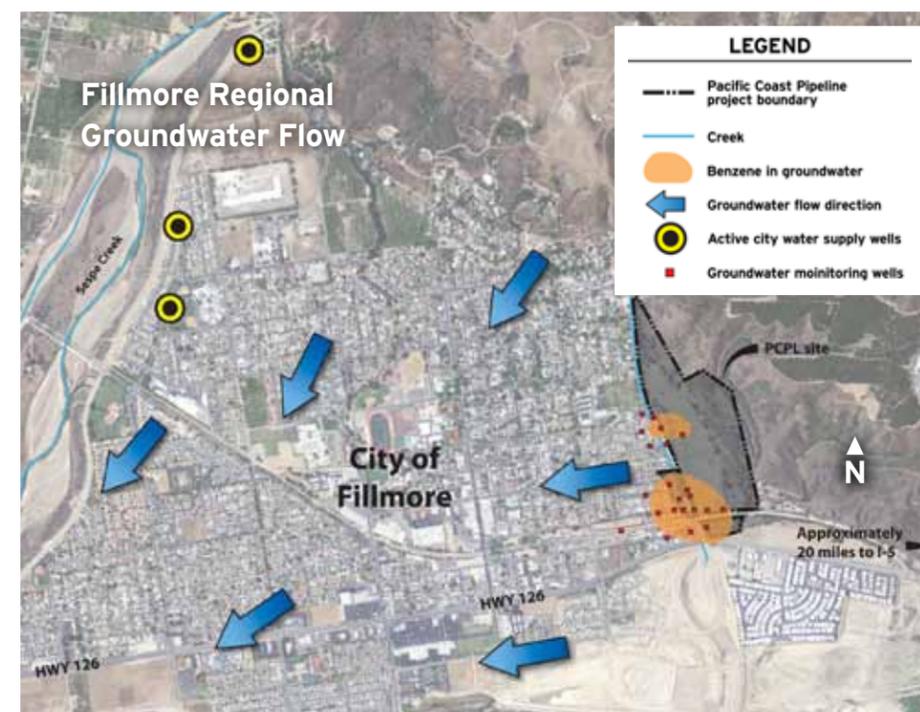
### What are PAHs?

Polycyclic aromatic hydrocarbons, or PAHs, are chemicals that are present in coal, oil and gasoline. They are also formed when food is charbroiled at high temperatures. Some PAHs are known to cause cancer.

Benzo(a)pyrene and naphthalene are two PAHs found in oil and petroleum products. Both chemicals are found at the PCPL site.

## Is the local drinking water safe?

Yes. Fillmore drinking water wells are located nearly a mile from the site and have not been affected by site activities. Drinking water for Fillmore is distributed by the City of Fillmore, which tests the water before it is delivered to residents to ensure it meets state and federal health standards. You can obtain more information by calling the city's Water Department at (805) 524-3701.



## HOW DO WE KNOW THE WATER IS SAFE?

- There are up to 22 monitoring wells that track the level and movement of benzene and other chemicals in the groundwater beneath the site. These wells are sampled routinely and results show benzene levels are decreasing.
- Groundwater is located 50 and 90 feet below ground.
- The groundwater containing benzene is not a source of drinking water for the City of Fillmore.
- The general groundwater flow is southwest.
- Fillmore drinking water comes from the Fillmore Aquifer. Drinking water distributed by the City of Fillmore meets States health standards.

## How are the chemicals going to be cleaned up?

EPA selected the final remedies for the site in late September 2011. The contaminated soil will be excavated, consolidated and buried on-site, and capped to prevent future contact with people or the environment. Naturally occurring biodegradation of chemicals in groundwater will be closely monitored and for part of the site, enhanced with multiple techniques known as air sparging and groundwater circulation.

## PACIFIC COAST PIPELINE: THROUGH THE YEARS

1915

THE "VENTURA REFINERY" BEGINS OPERATION



1928

TEXACO ACQUIRES AND RENAMES REFINERY "FILLMORE WORKS"



1950

REFINERY SHUT DOWN



1951

INFRASTRUCTURE DISMANTLED, LEAVING EIGHT ABOVE-GROUND STORAGE TANKS



# The Human Health Risk Assessment

Risk assessments are studies that evaluate the possibility that people, wildlife and plants might be at risk from exposure to contaminants. Results of a risk assessment can be used to identify effective and health-protective cleanup goals. Both human and ecological risk assessments were completed for the PCPL site to determine whether site contaminants pose a potential health risk to people, animals and plants.

## Why was a human health risk assessment conducted for the PCPL site?

A human health risk assessment was conducted to determine if chemicals remaining in soil and groundwater from historic operations at the site could pose a present or future risk to human health.

## Who conducted the site's risk assessments?

The human health and ecological risk assessments were included in the 2011 Remedial Investigation and Feasibility Study developed by URS Corporation, an environmental consulting firm. These studies and all the other environmental reports for the site have been developed under the direction of the EPA.

## What contaminants were evaluated in the human health risk assessment?

The human health risk assessment evaluated risk to human health from exposure to petroleum-related chemicals. The primary chemicals are polycyclic aromatic hydrocarbons (PAHs) and lead in soil, and benzene in soil vapor.

### What is soil vapor?

Soil vapor, or soil gas, is the air found in the space between soil particles. Soil vapor can enter buildings through cracks in floors and walls, and through openings where pipes and electrical wires go through the foundation. Soil vapor is a concern when it becomes contaminated by chemicals from soil or groundwater and impacts indoor air quality.

The study considered the different ways people could be exposed to chemicals at the site, for example:

- A current or future resident living nearby who may inhale outdoor air and dust from contaminated soil, or may inhale indoor air containing chemicals from impacted groundwater.
- A future commercial worker who may come in contact with surface soil by inhaling dust particles, swallowing small amounts of dust, and having skin contact with soil. The study also considered the potential for a commercial worker to inhale indoor air containing chemicals from the impacted groundwater when buildings are constructed on the site. The study assumes the commercial worker is at the site for 25 years.
- A construction worker who may come in contact with surface soil and deeper soil while doing excavation or trench-digging work. The study considered that this worker could be exposed to the chemicals by inhaling and swallowing dust and through skin contact with soil particles. The study assumes the worker will be onsite for one year, consistent with most construction project timelines.

## What were the results of the human health risk assessment?

Results showed there is no health risk to nearby residents under current site conditions. However, more cleanup is needed in order to protect future workers who may come in contact with the site as a result of future development activities. Most of the potential risk is attributed to the high levels of lead and PAHs in soil, and in limited locations, benzene, ethylbenzene and naphthalene in soil vapor.



TECHNICIAN PERFORMING ROUTINE INSPECTION AT ONE OF SEVEN AIR MONITORING STATIONS

1952

FACILITY BECOMES A CRUDE OIL PUMPING STATION

1969

RESIDENTIAL DEVELOPMENT INCREASES NEAR SITE



1980

REGIONAL WATER QUALITY CONTROL BOARD REQUESTS ENVIRONMENTAL STUDY

1983

TEXACO COMPLETES ENVIRONMENTAL STUDY AND FINDS CONTAMINATED SOIL AND GROUNDWATER



1986

TEXACO EXCAVATES 38,000 TONS OF WASTE MATERIAL AND CONTAMINATED SOIL FROM THE SITE

1989

EPA PLACES THE SITE ON SUPERFUND LIST



**Does the site pose a health risk to the community?**

No. The study looked at the potential for residents to breathe dust from the site or inhale indoor air containing chemicals moving upward from the groundwater. In 1991, outdoor air samples were collected over multiple days, upwind and downwind of the site. The results showed that the levels of chemicals in dust were so low that they did not change outdoor air quality in the neighborhood. Another study in 2007 looked into the potential for vapors from chemicals in the groundwater plumes to migrate into residents' homes. This study found that the amount of chemicals in soil vapor was too low to pose a threat to residents living nearby. Continuous outdoor air monitoring is conducted during major site activities, such as the pipeline removal in 2011, to verify that contaminants are not leaving the site in the dust.

**If the hillside is made available someday for open space with public access, will it be safe for recreational use?**

Yes. Once the final cleanup plan is approved and implemented, lead and PAHs in shallow soil will be reduced to levels that are safe for sensitive populations, including children.

# The Ecological Risk Assessment

An ecological risk assessment studies the risk to plants and animals from exposure to contaminants. The results of the ecological study are used to help guide decisions about cleanup and future uses of the site.

**What areas of the site were evaluated in the ecological risk assessment?**

The ecological risk assessment focused on a 15-acre hillside on the eastern portion of the site. This area was studied because it is the only area of the site that has vegetation and could sustain ecological habitats for wildlife.

**What plants and animals were evaluated in the study?**

Plants and animals that might use this area of the site include terrestrial plants, worms, animals that eat worms (i.e. robins and shrews), herbivores (i.e. squirrels, voles and doves), omnivores (i.e. mice, raccoons, sparrows and lizards), and top-level predators (i.e. hawks, foxes, and coyotes).

The study also considered special-status species commonly found in the Fillmore area, such as the Pallid Bat, Hoary Bat, and two-striped garter snake. The study concluded that these species are unlikely to be found at the site, because it does not provide adequate habitat conditions for these species.

**What chemicals were evaluated in the ecological study?**

The study evaluated potential ecological risks from exposure to PAHs and lead. Chemicals in this study are mainly found in soil where plants, worms, birds and mammals may be exposed.

**How are the plants and animals exposed to chemicals in the environment?**

Plants can be exposed to soil chemicals through root absorption. Animals can be exposed by skin or coat contact. Birds and mammals can also be exposed by eating surface soil or smaller animals in the food chain. Burrowing mammals, on the other hand, can be exposed through ingestion of soil up to six feet deep. The groundwater is located too deep to be a concern for plants or animals.

**What were the results of the study?**

The study found that lead, PAHs, naphthalene and toluene pose a potential risk to ecological receptors. The 15-acre parcel evaluated in this study is included in the proposed cleanup plan.

1992

EPA DIRECTS GROUNDWATER CLEANUP PLAN; INITIAL EFFORTS REDUCE BENZENE CONCENTRATIONS IN GROUNDWATER BY 90%

2001

CHEVRON CORPORATION MERGES WITH TEXACO

2002

PUMPING STATION CLOSED DOWN. MOST OF THE REMAINING FACILITIES ARE REMOVED. GROUNDWATER CLEANUP SYSTEMS REACH EFFECTIVE LIMIT AND ARE SHUT DOWN WITH APPROVAL FROM EPA; CONDITIONS REMAIN STABLE AFTER SHUTDOWN

2003

ONGOING GROUNDWATER MONITORING SHOWS THAT NATURAL BREAKDOWN OF CHEMICALS CONTINUES TO REDUCE BENZENE LEVELS IN GROUNDWATER

2004

LAST STORAGE TANK REMOVED

2006

CHEVRON, WITH APPROVAL FROM EPA, BEGINS A SERIES OF SHALLOW SOIL INVESTIGATIONS

## Next Steps

This summer, we excavated and removed old pipelines and other remaining infrastructure at the site. During the removal activities, we sprayed work areas with water to minimize dust. Additionally, we sampled the air to ensure that dust didn't contain chemicals from the site that could reach the nearby neighborhood. The excavation activities were paused in mid-October and will resume next year. The next step is implementing EPA's cleanup plan for the remaining contamination to get the site ready for reuse. Final cleanup activities will likely begin in 2013 following agency approval of engineering plans. We will continue to keep you informed about these and future planned activities.

## Fillmore Works Property Development

Chevron is currently working with the City and plans to develop the PCPL site into a project that creates a gateway for the eastern end of Fillmore. The development project will be called "Fillmore Works". The name will reflect the history of the property and its place in the Fillmore community. The development is envisioned to be a mix of commercial, industrial and open space with hiking trails. It will offer new employment opportunities, complement the existing character of the town and provide outdoor enjoyment for local residents.

Revitalizing and improving this site will be a multi-year process that will include preparation of an environmental impact report (EIR) and approval by numerous regulatory and permitting agencies. The community is invited and will have multiple opportunities to participate in the development process.

Chevron works closely with federal, state and local organizations and agencies to return the property to beneficial use for the Fillmore Community

- U.S. Environmental Protection Agency
- California Department of Toxic Substances Control
- California Water Resources Control Board
- Ventura County Air Pollution Control District
- Ventura County Public Works Agency
- Ventura County Resource Management Agency
- Ventura County Watershed Protection District
- City of Fillmore
- Local Agency Formation Commission

## Contact Us

We are committed to keeping you informed about the status and proposed activities at the Fillmore site. If you have questions, comments or concerns about this project, please contact Chevron or EPA:

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### Project Website

[www.FillmoreWorks.com](http://www.FillmoreWorks.com)

## Community Outreach

Chevron understands the importance of keeping residents, government agencies and interested community members informed about our operations at the Fillmore PCPL site, and we welcome your participation.

Over the years we have conducted site tours, hosted meetings and briefed the Fillmore City Council and San Cayetano School teachers, staff and parents about our project. Information is provided online ([www.epa.gov/region09/pacificcoastpipeline](http://www.epa.gov/region09/pacificcoastpipeline)) and included in local newspapers (English and Spanish). In addition, we provide frequent mailings to nearby property owners and City and agency officials to keep them informed about our progress.

There will be additional opportunities for public participation as the project progresses over the next few years. If you are not currently receiving information from Chevron and would like to be added to our community outreach list, please contact Leslie Klinchuch at the phone or email address provided.

## 2007

CHEVRON COMPLETES EVALUATION OF THE POTENTIAL FOR VAPOR INTRUSION INTO RESIDENCES NEAR THE TWO GROUNDWATER CONTAMINATION AREAS. EVALUATION, REVIEWED AND APPROVED BY THE EPA, SHOWED NO RISK



## 2010

EPA DIRECTS REMEDIAL INVESTIGATION AND FEASIBILITY STUDY (RI/FS) INCLUDING HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT, FOR THE PURPOSE OF CHOOSING FINAL SOIL AND GROUNDWATER REMEDIES

## 2011

HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT INFORMATION SHARED WITH RESIDENTS



## 2011

CHEVRON INTRODUCES PROPOSAL FOR SITE REVITALIZATION





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