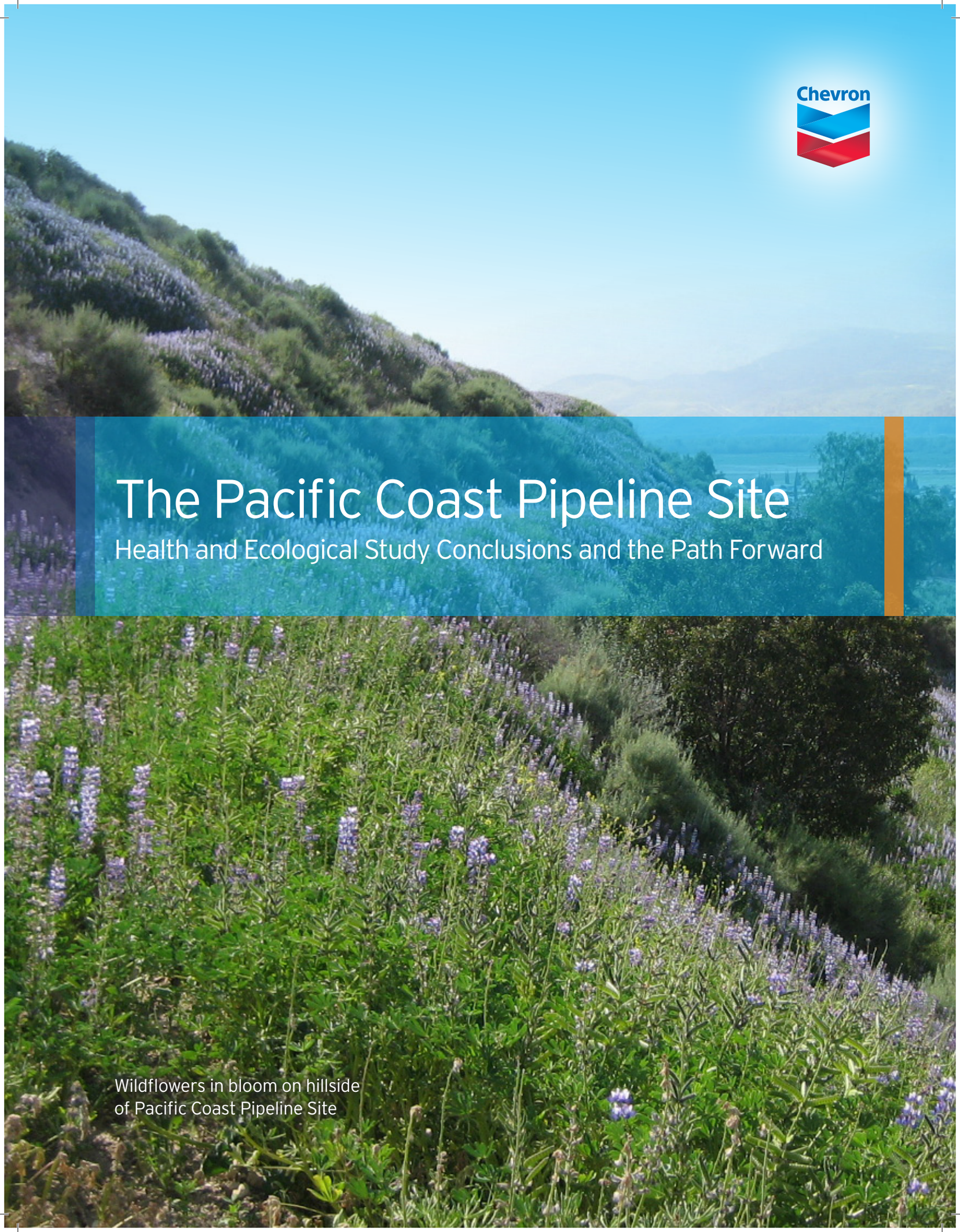
The Pacific Coast Pipeline Site

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 eight years, I have worked closely with the Fillmore community to keep you informed about the progress of our environmental cleanup.

We've heard questions and concerns about 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 assessments conducted. 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 email me at pcplsite@chevron.com or call me at (661)632-1408.

Sincerely,

Leslie Klinchuch
Chevron Project Manager

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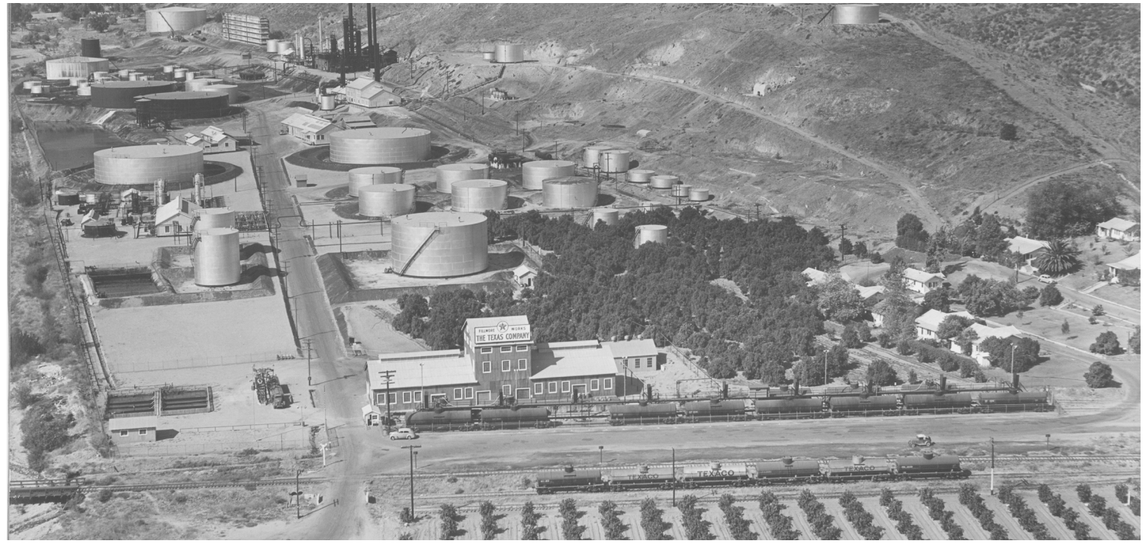


FILLMORE WORKS 1941. HISTORICAL PHOTOS COURTESY OF FILLMORE HISTORICAL MUSEUM

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.

PACIFIC COAST PIPELINE: THROUGH THE YEARS

1915

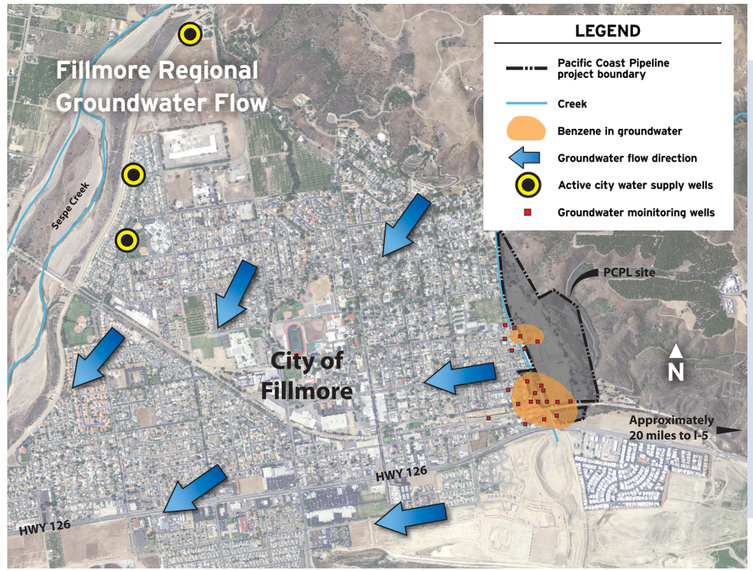
THE "VENTURA REFINERY" BEGINS OPERATION

1928

TEXACO ACQUIRES AND RENAMES REFINERY "FILLMORE WORKS"

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 or any groundwater contaminant plumes associated with the site. 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 state health standards.

How are the chemicals going to be cleaned up?

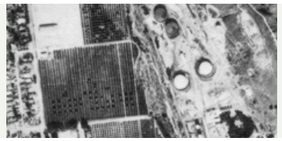
EPA selected the final remedies for the site in late September 2011. The contaminated soil will be excavated, consolidated and buried on-site, and capped to prevent future contact with people or the environment. Naturally occuring biodegradation of chemicals in groundwater will be closely monitored and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

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 were human health risk assessments conducted for the PCPL site?

The most recent 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 most recent 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 assessments evaluated risk to human health from exposure to petroleum-related chemicals. The primary chemicals evaluated in the most recent assessment 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.

1952

FACILITY BECOMES A CRUDE OIL PUMPING STATION

1969

RESIDENTIAL DEVELOPMENT INCREASES NEAR SITE

1980

REGIONAL WATER QUALITY CONTROL BOARD REQUESTS ENVIRONMENTAL STUDY

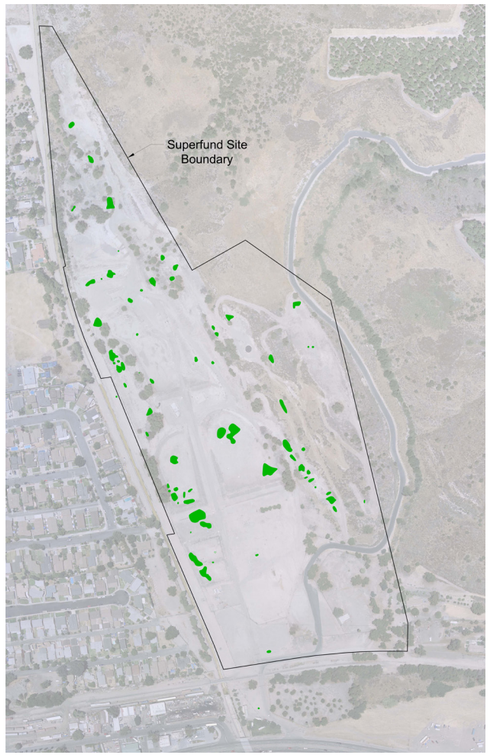
What was evaluated in the human health risk assessment?

The recent 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 assessments?

Results have consistently showed there is no health risk to nearby residents. 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 lead and PAHs in isolated areas of soil on site, and in limited locations, benzene, ethylbenzene and naphthalene in soil vapor.

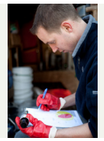


REMEDIATION AREAS

TECHNICIAN PERFORMING ROUTINE INSPECTION AT ONE OF SEVEN AIR MONITORING STATIONS

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. Studies conducted since the 1980s looked at the potential for residents to breathe dust from the site or inhale indoor air containing chemicals moving upward from the groundwater. In 1984, a survey of air quality found no impacts from the site. Potential for airborne exposure to the public was further assessed in 1986, 1987 and 1991, including outdoor air samples collected over multiple days, upwind and downwind of the site. Each study showed that the levels of chemicals in dust were so low that they did not change outdoor air quality in the neighborhood. Another study completed 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 and concrete foundation removals in 2011 and 2012, to verify that contaminants are not leaving the site in dust. Most importantly, we follow an EPA-approved dust mitigation and suppression plan that includes spraying water on active work areas and employing other best practices to contain dust. If the conditions are too windy to control dust, we stop our work until conditions improve.

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.

1992
EPA DIRECTS GROUNDWATER CLEANUP PLAN; INITIAL EFFORTS REDUCE BENZENE CONCENTRATIONS IN GROUNDWATER BY OVER 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

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 evaulated in this study is included in the proposed cleanup plan.

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

In 2011 and 2012, we excavated and removed old pipelines, concrete foundations and other remaining infrastructure at the site. The next step is implementing EPA's cleanup plan for the remaining contamination to get the site ready for reuse. Final cleanup activities should 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 on 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

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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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EPA Project Manager
(415) 972-3171
hadlock.holly@epa.gov

Jackie Lane
EPA Community Involvement Manager
(415) 972-3236
lane.jackie@epa.gov

Project Website
www.FillmoreWorks.com

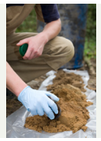
Community Outreach

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 at www.epa.gov/region09/pacificcoastpipeline and www.fillmoreworks.com. In addition, we provide 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

2012
35 CONCRETE FOUNDATIONS AND 12 MILES OF UNDERGROUND PIPELINE REMOVED

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