

Kahe Point: One passenger thrown from truck bed and hit by passing car.

8:20 a.m. Teenage boy killed, another hurt when car rolled over in Milliani. Advertiser graphic

the road in recent memory. "It was a crazy night, a crazy week," said Sgt. David Talon, a police traffic investigator.

a.m. near Niu Valley. A speeding sports car hit a temporary concrete lane divider on Kalaniana'ole Highway near Niu

## Closeup: Wartime Hawaii

# A hidden wonder on Red Hill



Advertiser photos by Carl Viti

Charlie Boerner, 83, who helped build the Red Hill fuel storage facility more than 50 years ago, made a return visit to the access tunnels and tanks yesterday.

## Giant tanks lying underground designated as national landmark

By Jon Yoshishige  
Advertiser Staff Writer

RED HILL — Fuel tanks on Oahu as tall as 25-story buildings soon will join the ranks of the Washington Monument, Hoover Dam and Golden Gate Bridge as national engineering landmarks.

The American Society of Civil Engineers has approved the Red Hill tanks for national recognition as a historic landmark in civil engineering. A dedication ceremony is planned for June.

Unlike the better-known Mainland marvels of civil engineering, Hawaii's landmark lies hidden — even to the thousands of motorists who stream by on Moanalua Freeway each day.

There are 20 capsule-shaped tanks within the Navy's Red Hill Underground Fuel Storage Facility, owned by Pearl Harbor's Fleet and



Boerner

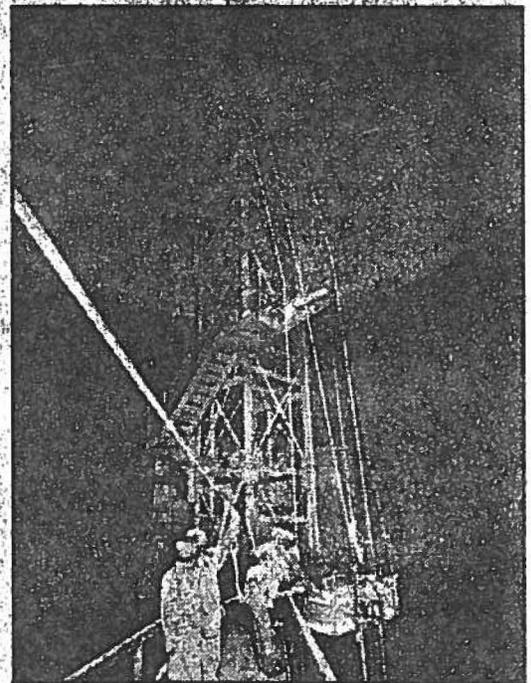
their bases. The lower tunnel extends to the underground pumphouse at Pearl Harbor — about 3½ miles away — and houses a two-car train that shuttles workers.

An empty tank is cavernous, with a darkness that swallows everything. There is just one entrance for workers — a doorway from the upper tunnel that leads to a narrow metal catwalk

See Tanks, Page A2

Industrial Supply Center. Each is separated by 100 feet of solid lava rock in the ridge between Halawa and Moanalua valleys.

Two dimly lighted tunnels run between the two rows of tanks, one near the tanks' tops and the other at



Inside one of the 100-foot-wide, 250-foot-tall subterranean tanks at Red Hill.

### What's Inside

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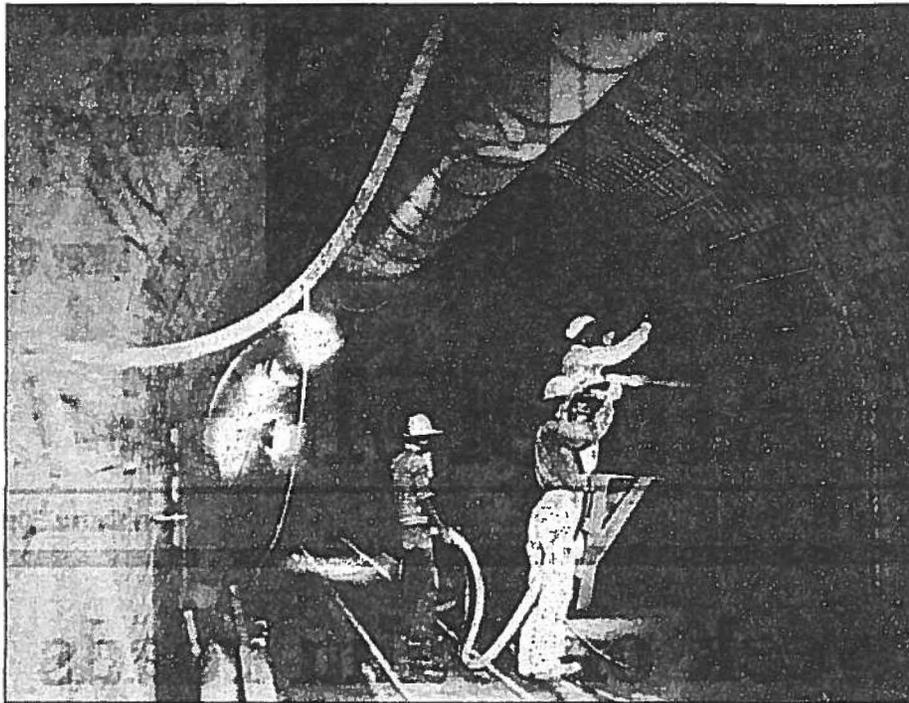
Greenspan is still worried about inflation



## Aloha Tower's wait for Japanese tourists to

By Stu Glauberman

a number of other op



Navy photo

In this historic view, workers spray concrete onto the walls of a tunnel connecting the fuel storage tanks beneath Red Hill.

### Red Hill's engineering marvel

Construction on the Red Hill Underground Fuel Storage Facility began on Dec. 26, 1940 and was completed on Sept. 28, 1943. The total cost of the project was \$43 million and involved 3,300 workers at its peak activity. 17 workers lost their lives.

The fuel tanks are so large that they dwarf tall buildings. Each one holds 300,000 barrels (1 barrel=42 gallons).

# Tanks: Engineering wonder here designated as national landmark

## FROM PAGE ONE

some 17 stories from the tank's bottom.

Workers wear hard hats and an elaborate harness with a short safety line that they hook to a cable. They also wear reflective vests "so we can find the body in the dark if you fall," one worker cackled at a nervous visitor.

Chuck Noyes said the darkness makes his job a little easier.

"Being in the tank is a little different than being on a building," said Noyes, a construction quality control manager for civilian contractor Aman Environmental Construction.

"Because it's dark, it doesn't seem like you're 17 stories up right now," he said, peering over the side of the catwalk into the inky black.

To a first-time visitor, it is still a dizzying height. A tiny light at the bottom of the tank

## CALLING ALL HANDS

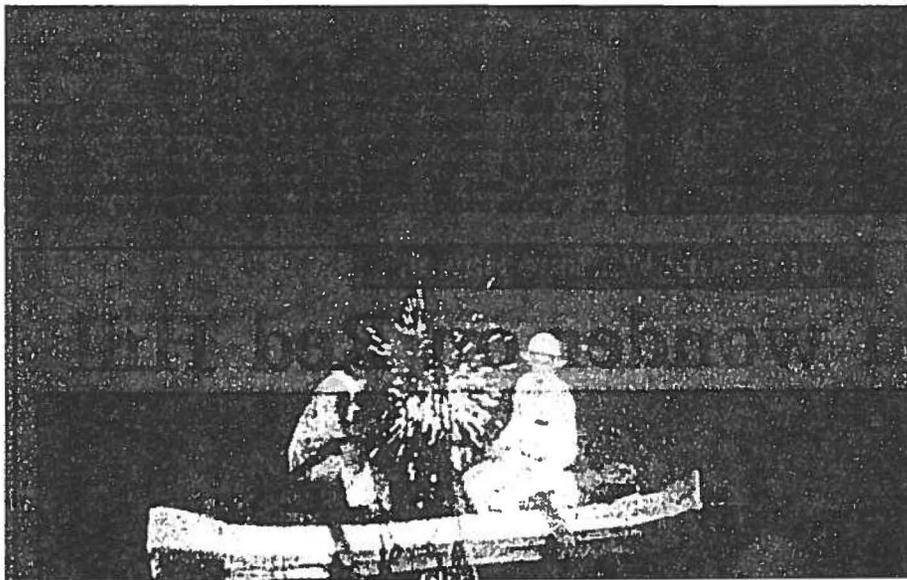
A dedication ceremony recognizing the Red Hill fuel facility as a National Historic Civil Engineering Landmark has been planned for June 24 and the Navy wants folks who helped build it to attend.

If you or a family member worked on the project, call Lt. Matthew Martin, 471-2388, or Sandy Miller, 471-5086, both at Pearl Harbor.

much of it pineapple fields, from the Damon Estate.

The revolutionary idea to build the tanks vertically — not horizontally — came from the chief engineer of prime contractor Morrison-Knudsen and a consultant from the Aluminum Company of America, said Jim Gammon, superintendent of the Fleet and Industrial Center's Fuel Department.

The concept — hashed out over dinner at the Halekulani



continued to work on the Red Hill project.

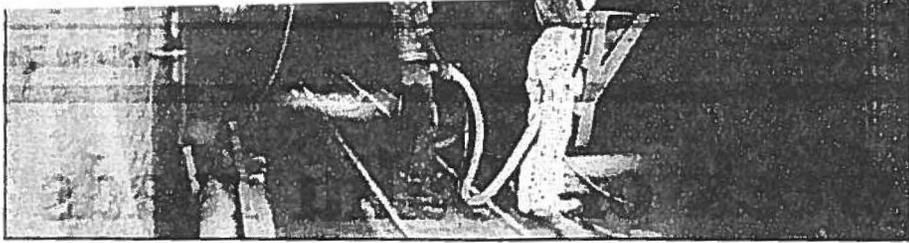
"We said if you take them away, you might as well shut the job down," Boerner said. "We knew from working before the war that they were fine people."

Work continued around the clock with Christmas as the only holiday.

The men used dynamite and picks to hollow out 20 vaults for the tanks, with much of the excavated rock used in construction jobs at Pearl Harbor. The vaults were lined with steel plating, and the gap between rock and steel filled with concrete.

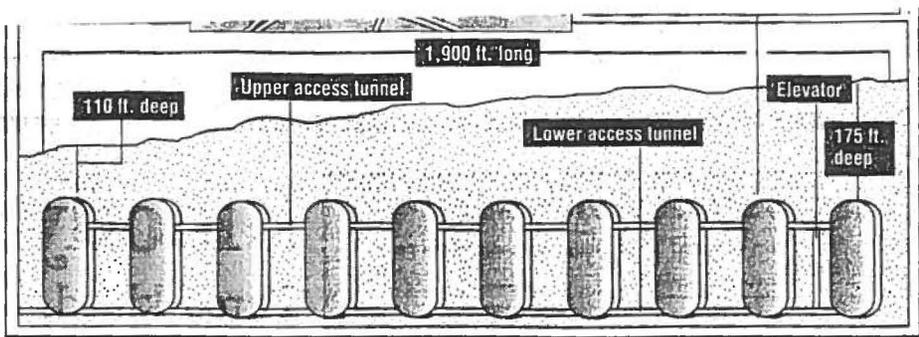
The tanks were built with a built-in leak-detection system, and tank levels and temperatures are monitored continuously, Gammon said.

Seventeen men died working on the fuel facility, which was completed in September 1943 — nine months early.



Navy photo

In this historic view, workers spray concrete onto the walls of a tunnel connecting the fuel storage tanks beneath Red Hill.



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"Because it's dark, it doesn't seem like you're 17 stories up right now," he said, peering over the side of the catwalk into the inky black.

To a first-time visitor, it is still a dizzying height. A tiny light at the bottom of the tank is enough to show just how far up it is. Suddenly, the fin-thick safety line doesn't seem like very much.

Facing the possibility of war, the fuel facility was ordered after a 1938 Navy report expressed grave concern over the adequacy and security of fuel stored in above-ground tanks at Pearl Harbor.

After a month-long search, the contractors chose Red Hill because it stretched from the Koolaus toward Pearl Harbor. The Navy bought the land,

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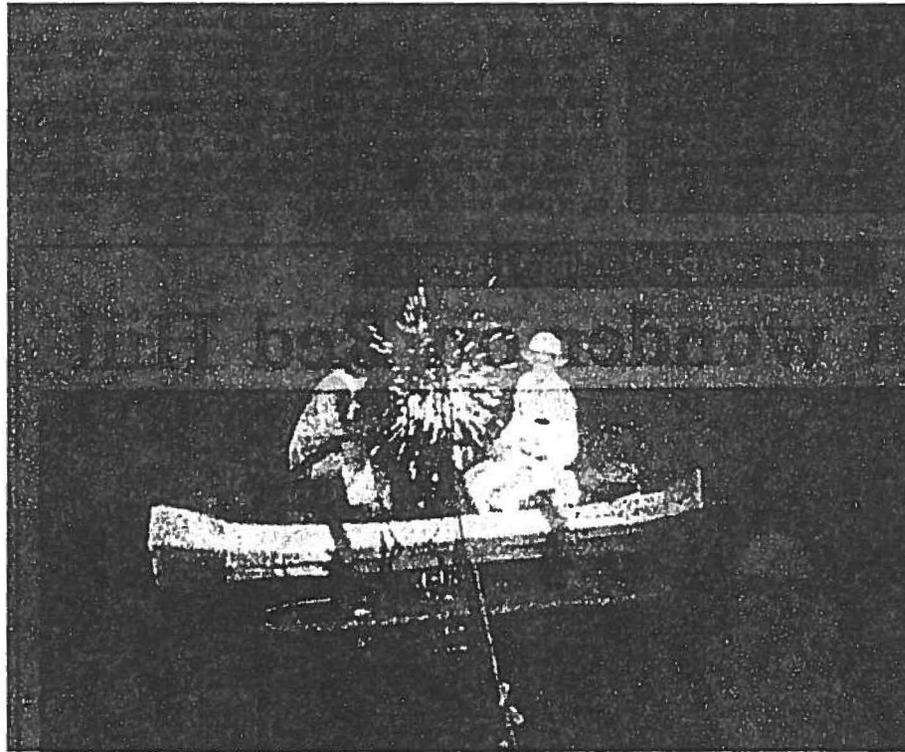
The revolutionary idea to build the tanks vertically — not horizontally — came from the chief engineer of prime contractor Morrison-Knudsen and a consultant from the Aluminum Company of America, said Jim Gammon, superintendent of the Fleet and Industrial Center's Fuel Department.

The concept — hashed out over dinner at the Halekulani — would make construction easier, reduce costs and shorten construction time, he said.

Construction began the day after Christmas in 1940 with a workforce that peaked at more than 3,000 people. Many came from California gold mines and East Coast coal mines.

"They were a rough and tumble bunch," said Charlie Boerner, who came to work on the project from New York in 1941 at age 30. Now 83, he lives in Hana, Maui.

About 1,500 workers lived in



Navy photo

Workers in a canoe weld shut a leak in the wall of a water-flooded fuel tank.

a camp at the site, and ate at a mess hall there. There also was a recreation center and gambling hall, Gammon said.

The attack the Navy feared came on Dec. 7, 1941, but amazingly, the giant above-ground fuel tanks at Pearl were untouched. Although not trusted to work at defense-related jobs elsewhere, Japanese Americans

continued to work on the Red Hill project.

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The men used dynamite and picks to hollow out 20 vaults for the tanks, with much of the excavated rock used in construction jobs at Pearl Harbor. The vaults were lined with steel plating, and the gap between rock and steel filled with concrete.

The tanks were built with a built-in leak-detection system, and tank levels and temperatures are monitored continuously, Gammon said.

Seventeen men died working on the fuel facility, which was completed in September 1943 — nine months early.

"This was all done under martial law and it was total blackout," Boerner said. "That's what caused most of the accidents."

From World War II through the Persian Gulf War, the Red Hill tanks have supplied Pearl Harbor, Barbers Point Naval Air Station and Hickam Air Force Base with jet fuel and diesel for ships.

"(And) as far as we know," Gammon said. "If we keep them up and pay attention to them, their life expectancy is unlimited."

### GETTING IT STRAIGHT

We want to correct any errors we publish. If you spot one, please contact Executive Editor John Hollon, P.O. Box 3110, Honolulu 96802 (525-8099), or call the City Desk (525-8090).

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## Trench fever, old war illness, reappears among homeless

### Associated Press

BOSTON — Trench fever, a scourge of soldiers in both world wars, has reappeared among homeless alcoholics.

The illness is spread by lice and was especially common

in New York City during the 1940s. The attack the Navy feared came on Dec. 7, 1941, but amazingly, the giant above-ground fuel tanks at Pearl

Two reports on the disease were published in today's issue of the New England Journal of Medicine. Dr. David H. Spach and colleagues from the Uni-

versity of California, San Francisco, reported that the disease was found in a reasonably large itinerant population, we have no idea.

Trench fever is caused by a variety of bacteria called Bartonella quintana. The illness

to the bacteria. They found that a significant proportion have also been infected.

"It is possible that the cluster that occurred in 1993 involved a much larger number of patients, and we only saw the