

METRO

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SECTION

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HIGHLIGHTS



HELPING HANDS: Dr. Koo Oh, above, is one of 22 people who will receive awards from the county's Human Relations Commission for fostering inter-ethnic understanding in their communities. **B5**

MAN SHOT TO DEATH: A 22-year-old Garden Grove man was killed after a barroom argument in Stanton turned violent, sheriff's investigators say. A suspect, also 22, from Riverside is in custody. **B8**

HUMAN BONES FOUND: Police need help to identify a man's skeletal remains that washed up in Newport Beach. Officials think the man could have been from Orange or Los Angeles County. **B8**

3 HURT IN COLLISION: A man was arrested and charged with drunk driving after he allegedly ran a red light in Buena Park, hitting a car and sending a man and two children to the hospital. **B8**

EDITORIALS

DISASTERS' BILLS: Homeowners in disaster-prone areas shouldn't be surprised when disaster strikes. When it does and they must rebuild, they can't expect government to always pick up the tab. **B6**

PLANNED CONCERT HALL: An expanded Performing Arts Center would be welcome evidence that the county's cultural life is keeping

EL TORO'S TOXIC MESS

Cleaning up hazardous materials at El Toro Marine Corps Air Station is a complicated and expensive process. Federal law dictates the base remove its toxic waste, caused in the past by such standard practices as draining jet fuel and other liquids into the soil and burying munitions. The military has cleaned up 85% of the contamination but still needs to remove 53 underground storage tanks and cap landfills, as well as clean contaminated ground water, including a giant plume that spread into Irvine. Here's where the problems were located around the base.



Sources: El Toro Marine Corps Air Station; Orange County Water District; California Environmental Protection Agency; Researched by APRIL JACKSON/Los Angeles Times

DAVID PUCKETT/ Los Angeles Times

There's Lots of Dirty Work Still to Be Done at El Toro Base

■ **Environment:** There's no debate that remaining hazardous wastes, contaminated landfills and buried fuel tanks must be cleaned up. How to do so is the question.

By JEAN O. PASCO
 and LORENZA MUÑOZ
 SPECIAL TO THE TIMES

SANTA ANA—The supercharged discussion about building a commercial airport at the El Toro Marine Corps Air Station usually focuses on noise, safety and traffic. Yet perhaps the greatest unknown at the base is not what might happen above the ground, but what could be underneath.

After spending more than \$200 million over 15 years to clean up the base, more must be done to rid the site of hazardous wastes, cover two large landfills and dispose of buried heavy fuel tanks.

But there is a dispute over how to seal off the two landfill sites, which have never been tested and have unknown buried contaminants. How well the landfills are taken care of could have consequences on public health and future uses for the base.

This week, military and airport officials will discuss cleanup issues. An overall El Toro briefing is scheduled at the Board of Supervisors' meeting Tuesday. And the El Toro Citizens Advisory Commission will talk about toxic cleanup on Thursday.

Until now, the cost and the burden of cleanup have been on the Department of the Navy, which owns the 55-year-old base. But if all goes according to plan, in July 1999, 3,700 acres of the facility will be turned over to the county, which will be responsible for developing the base and repairing environmental damage.

The military has pledged to clean up known contamination to the highest level, so that residential housing could be built there, in addition to a commercial airport.

Marine officials say 85% of the base's contaminated areas have been cleaned, which environmental officials do not dispute. The remaining 15% of the contami-

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EL TORO: Questions Remain

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nated property includes 12 acres containing the landfills, a mile-wide plume of tainted ground water and 53 underground storage tanks—containing jet fuel and oils—slated for removal.

The Marines plan to cover the landfills with 4 feet of earth, but environmental officials say that will not be sufficient because the county plans to build a golf course and a light industrial area next to the landfills and near the proposed commercial airport.

Environmental officials fear that if moisture comes in contact with the contaminants, methane gas could be released into the air. They have proposed that the military place a plastic liner on the landfill next to the golf course and an asphalt cap in the other landfill—something the military says it cannot afford to do.

"It doesn't do the community any good for the military to say, 'We have met our responsibility,'" said Greg Hurley, an Orange County environmental lawyer and co-chairman of the Restoration Advisory Board, which oversees the military cleanup. "What good is that if we can't use [the land]? They are trying to deal with this in a vacuum."

Considering that El Toro is on the federal Superfund list of most dangerous hazardous-waste dumps, county officials know they must clearly understand the environmental mess they could inherit and how that could affect their plans for development.

Officials remember the \$4 million the county spent unexpectedly to clean decades-old ground-water contamination found during the construction of the terminal that opened in 1991 at John Wayne Airport.

That is why, earlier this month, county staff hired an engineering firm to analyze the landfills. But whatever data the engineers gather won't be disclosed to the public. That's because county attorneys regard the information as a confidential part of an effort to determine the county's potential legal liability for cleaning up contamination.

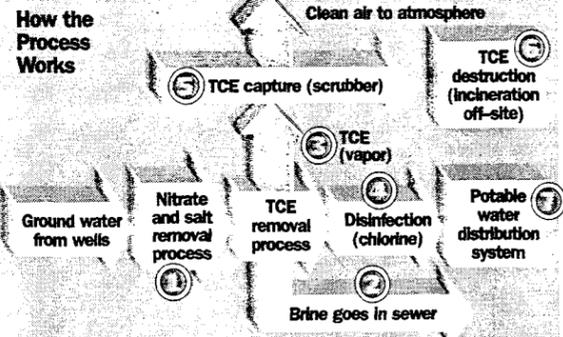
The contract created a political controversy because the engineer-

Seeking Cleanup Consensus

No overall decision has been reached on how to clean the ground water. The military is still negotiating with the county on the possible methods to clean up the plume that spread from the base into Irvine. Two methods, vapor extraction and tank removal, are being used to get rid of other toxics.

Desalter Project

Working with the Orange County Water District, the military is considering whether to co-finance a ground-water treatment plant in Irvine to clean the nitrates, salts and minerals in the water.



1. Water passes through membrane-like filter, removing salt and nitrates
2. Salt purged via sewer system to ocean
3. TCE rises with vapors
4. Chlorine added to water
5. TCE vapors captured
6. TCE incinerated off-site
7. Potable water dispensed through Irvine Water District

Advantages

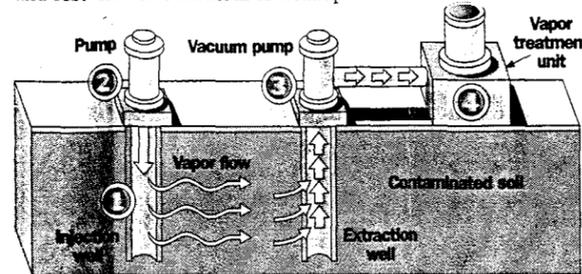
- Provides clean drinking water for 100 years
- Wells have been drilled

Disadvantages

- Treats only existing TCEs; does not eradicate source of contaminants
- Release of brine into ocean may affect sea life

Soil Vapor Extraction

This method extracts hazardous chemicals without permanently removing the soil. It is considered by experts to be one of the most efficient and cost-effective methods of cleanup.



1. Injection wells drilled into contaminated soil
2. Pump forces air through soil
3. Vacuum pump pulls noxious fumes into extraction well
4. Carbon filter system cleans contaminated vapors
5. Treated air released into atmosphere

Advantages

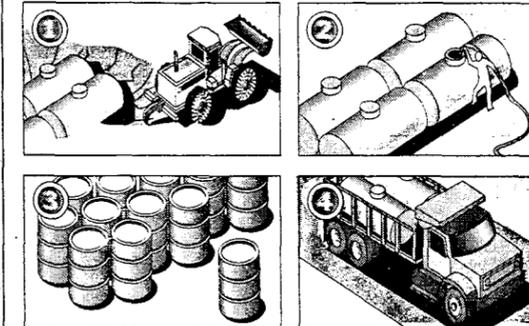
- Least expensive treatment of contaminated soil
- Known positive results
- Can be quickly implemented

Disadvantages

- Steam injection may be needed to remove heavy hydrocarbons; contaminated water must be disposed of
- Results can depend on accuracy of well samples

Underground Storage Tank Removal

Underground tanks filled with toxic wastes are known to leak or spill. They can deteriorate quickly and must be removed. They also can be refilled with sand and reburied.



1. Trenches are dug around tanks; cranes hoist them free
2. Tank emptied of all liquids, vapors or sludge
3. Wastes collected in barrels
4. Tanks transported to authorized hazardous waste dump; soil around removed tank transported to repository or treated with soil vapor extraction

Advantages

- Cost-effective
- Tanks can be recycled

Disadvantage

- Any residual contaminants in soil must be treated

Disposal

- 345 tanks have been removed
- 53 remain active

Hydrocarbons: Any of a large group of compounds composed only of hydrogen and carbon

Nitrates: Organic concentrate introduced in ground water and soil through use of fertilizers

Organic solvents: Cleaning fluids that naturally break down in environment

Polychlorinated biphenyls (PCBs): Used as fungicides and insecticides

Tetrachloroethylene (PCE): Commonly used in dry-cleaning, and as a metal parts degreaser; found to cause liver cancer in mice

Trichloroethylene (TCE): Probable

human carcinogen found in paint removers, metal part degreasers and typewriter correction fluid
Total petroleum hydrocarbons: A measure of the concentration of all petroleum constituents present

in water, soil or air
Volatile organic compounds (VOCs): Chemicals that readily evaporate into gases when exposed to air; includes tetrachloride, chloroform, PCE and TCE

Sources: El Toro Marine Corps Air Station; Mission Geoscience Inc.; Orange County Water District; California Environmental Protection Agency; Researched by APRIL JACKSON/Los Angeles Times

DAVID PUCKETT/ Los Angeles Times

ing firm was hired by county officials without the knowledge or approval of the Board of Supervisors. Supervisor Todd Spitzer questioned why the work—which will cost up to \$100,000 this year—was authorized without the board's blessing. The board generally must review contracts of more than \$25,000.

Spitzer argued that elected officials and the public must be made aware of the hazards the landfills could pose before the Marines turn the property over to the county.

"The more difficult it is for us to address this [contamination] issue, the more difficult it will be to decide what sort of land uses can be developed at the base," said Spitzer, a staunch airport opponent.

Beside dealing with the landfills, the Navy is working with the

federal Environmental Protection Agency to begin soil cleanup to remove "volatile organic solids"—chemicals that readily evaporate into gases when exposed to the air—from the base, said Tom Huetteman, Navy section chief of the EPA's Superfund division.

Federal and state environmental agencies are working with the Orange County Water District to build a treatment plant in Irvine to clean up a 3½-mile plume of contaminated ground water roughly under the Irvine neighborhood of Woodbridge. Though the contaminated area is not a source of drinking water, the Marines have pledged to clean it up to potable levels.

Nearly 10 years ago, the plume was found to contain trichloroethylene (TCE), a toxic solvent used by the Marines to degrease aircraft.

As recently as the 1970s, there were no laws against dumping hazardous chemicals into the ground at the base. For many years, that's how jet fuel, used motor oil and metal were disposed of, as well as potentially cancer-causing industrial solvents, polychlorinated biphenyls (PCBs) and low-level radioactive waste.

Over the years, the Marines' record of dealing with environmental contamination has been mixed.

The El Toro base was cited twice since its designation in 1990 as a Superfund site for illegal handling of hazardous waste. In 1990, base officials, including Brig. Gen. D.V. Shuter, protested responsibility for the TCE contamination in Irvine, saying there was no scientific evidence to link the ground water contamination with the base.

In July 1993, the Marines were ordered to pay a \$80,500 fine by the California EPA for their second citation for mishandling hazardous waste.

Military officials are in the process of determining where contaminated sites might be based on dumping records and other archival information, Huetteman said.

"The military takes a pretty comprehensive look at all of the potential problem areas," he said. "We're looking for permanent remedies for the things we find. We don't want to have problems 20 or 30 years from now."

But Hurley, of the Restoration Advisory Board, said many communities nationwide have suffered through the costly and difficult problem of discovering new contamination after they take owner-

ship from the military and begin their own projects.

"It's inevitable that when you go on there, we are going to have contamination that we didn't know about," he said. "Lots of bases that have been redeveloped have contamination across unknown contamination. The list is endless."

But while the EPA is satisfied with the military's solution to clean up the soil, the biggest environmental unknowns at the base are the landfills.

Because there appears to be no ground-water contamination or vapor escaping from the dump the Marines plan to cap the landfills with a 4-foot soil cover, lesser remedy than asphalt or concrete covers, or synthetic liners.

State EPA officials say a membrane layer would add \$500,000 to

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the \$5.2 million the military will spend on the golf course landfill. An asphalt layer would cost about \$1 million more.

There hasn't been any actual bore-hole testing of the landfill because it is considered too dangerous—with the potential for unknown toxic vapors to be released into the air, officials say.

California EPA officials say that once the Marines relinquish the base, the county must prove that it will take care of any potential problems with the landfills.

"They must show us how they can control the irrigation and show us how it would not disturb" the contaminants, said Tayseer Mahmoud of the EPA's Department of Toxic Substances Control. "They would be responsible in that case."

On Tuesday, military officials plan to discuss their cleanup efforts before the supervisors. On Thursday, Gary Proctor, an attorney who heads both the Airport Land Use Commission and the El Toro Citizens Advisory Commission, which advises the board on the base conversion, will address the toxics issue at a commission meeting.