

GAO

Report to the Chairwoman, Subcommittee
on Military Installations and Facilities,
Committee on Armed Services, House of
Representatives

October 1992

DEFENSE LOGISTICS

DOD Addressing Concerns About Its Fuel Depot in Norwalk, California



147746



**National Security and
International Affairs Division**

B-247593

October 14, 1992

The Honorable Patricia Schroeder
Chairwoman, Subcommittee on Military
Installations and Facilities
Committee on Armed Services
House of Representatives

Dear Madam Chairwoman:

Since October 1987, the residents of the city of Norwalk, California, have been concerned about the potential dangers of the nearby Defense Fuel Support Point (DFSP). The potential dangers include catastrophic fire, explosion, ground contamination from leaking fuel, and economic hardship. On March 15, 1990, Norwalk's congressional representative asked the Department of Defense (DOD) to close the facility. In September 1990, you asked DOD to prepare a study detailing alternatives to DFSP Norwalk. That study was issued in July 1991, and subsequently you asked us to provide additional information on the study's results. During our review, DOD completed a second study, and we included it in our assessment.

We agreed with your office to (1) determine whether DOD's studies adequately considered alternatives and used appropriate criteria to assess them and (2) obtain information on how DOD addressed the concerns raised by the city. The scope and methodology for our review are described in appendix I. A July 1992 letter detailing the residents' concerns is contained in appendix II.

Results in Brief

DOD generally used sound criteria, assumptions, and analytical methods to identify and assess the three basic alternatives—maintaining the status quo, reducing operations, or closing the facility and developing an alternate supply route. The studies ruled out some of the alternatives as impractical and assessed the remaining alternatives in detail. Ultimately, DOD decided that retaining the facility and reducing the amount of fuel stored was the preferred alternative and did not pose an inordinate danger to residents.

Besides studying the alternatives, DOD took steps to address the safety and environmental issues raised by the city. For example, it commissioned studies assessing earthquake dangers and identifying the source, extent, and types of on-site and off-site contamination, together with actions, planned or implemented, to enhance safety and physical security, and clean

up contamination. DOD also responded in two instances to economic hardship alleged by an owner and a lender who wish to finance nearby property.

Background

DOD shares the 50-acre Norwalk facility with Santa Fe Pacific Pipelines, Inc. (SFPP),¹ the primary overland transporter of gasoline and jet fuel to the southwestern United States. For DOD, Norwalk serves primarily as a point for assembling sufficient quantities of military jet fuel to meet SFPP's requirements for accepting shipments into its pipeline. The fuel arrives at Norwalk through a DOD-owned pipeline that originates at another DOD facility in San Pedro, on the California coast. Some of the fuel enters the pipeline in San Pedro, where it arrives by ship; some enters the pipeline at various points along its 22-mile length, where fuel suppliers are located. Until the fuel is ready for transfer to SFPP's pipeline, DOD stores it in 12 storage tanks having a total capacity of 910,000 barrels. Once a week, DOD transfers the stored fuel to SFPP, which ships it to DOD's air bases in southern California, southern Nevada, and western Arizona. (See table 1 and figure 1.) Until June 30, 1992, DOD also transferred small quantities to other bases by tanker truck.

Table 1: Fuel Volumes Shipped Through the Norwalk Fuel Facility, Fiscal Years 1990 to 1993

	(Millions of barrels)			
	1990 ^a	1991	1992 ^b	1993 ^b
Number 4 jet propulsion fuel	7.8	4.9	4.9	3.5
Number 5 jet propulsion fuel	2.0	1.7	2.2	1.7
Total	9.8	6.6	7.1	5.2

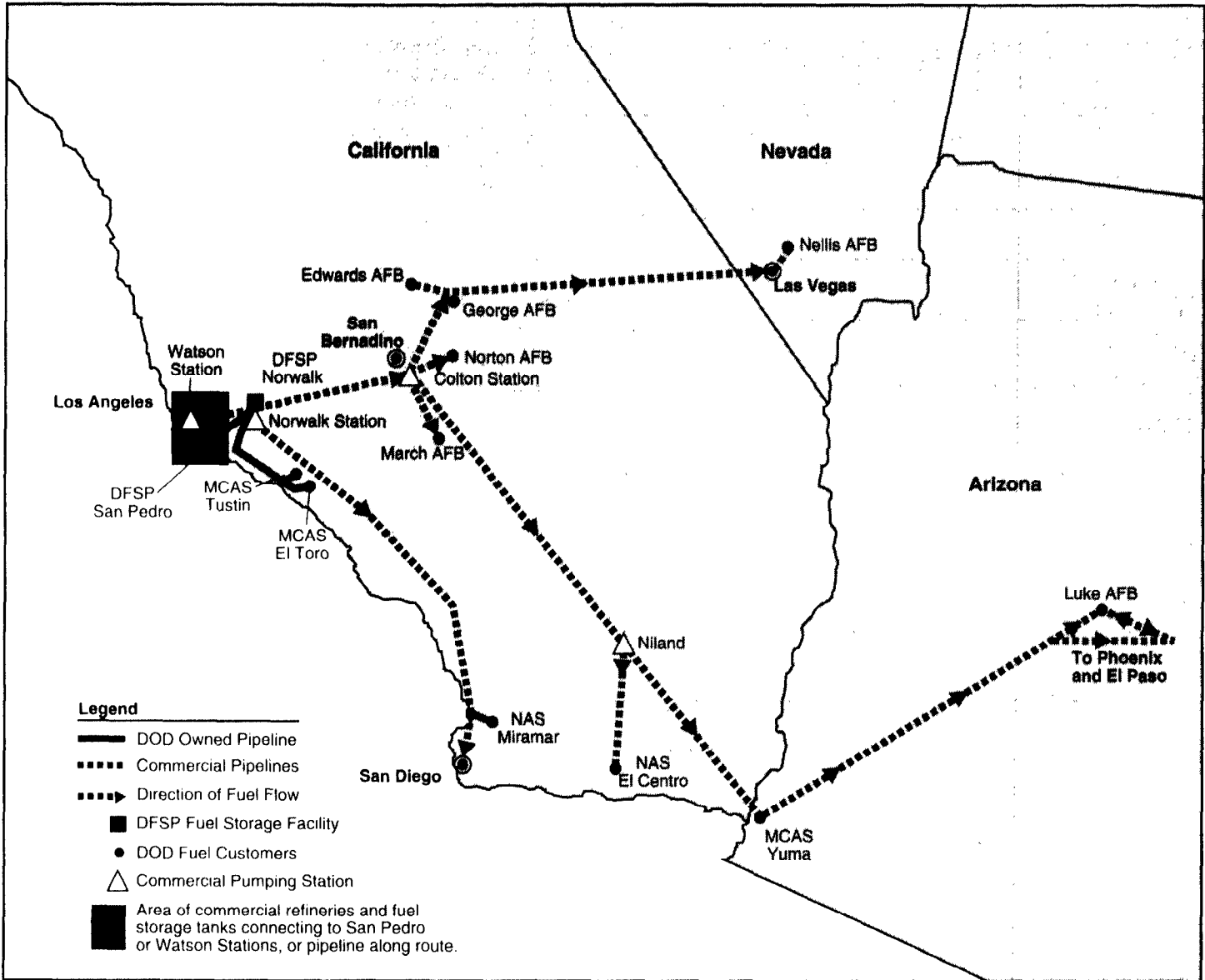
Note: 1 barrel = 42 gallons

^aIncludes nearly 1.6 million barrels of number 4 jet propulsion fuel for an Arizona base that has been served from Texas since fiscal year 1991 due to more favorable contract rates.

^bFiscal year 1992 and 1993 volumes based on estimates provided by Defense Fuel Region - West, San Pedro, California.

¹DOD granted SFPP a 2-acre easement until 2005 for a booster pumping station and pipeline operations. SFPP stores no fuel at Norwalk.

Figure 1: DOD and Commercial Pipelines, Major Storage and Pumping Stations, and Military Destinations for Fuel Shipped by Pipeline Through the Norwalk Facility



DOD is a relatively minor customer of SFPP, accounting for about 7 percent of the annual fuel volume shipped through SFPP’s Norwalk facility. For SFPP, Norwalk serves primarily as a “booster station.” Because fuel gradually loses its velocity as it moves along a pipeline, pumping stations are needed at various points to keep the fuel flowing to its destination.

Fuel has been stored at Norwalk since the 1920s. Since 1987, however, the residents of Norwalk have expressed concern over several issues—the possibility that the facility might explode, its ability to withstand a major earthquake, physical security, hydrocarbon contamination of soil and groundwater from leaking fuel, and nearby homeowners' difficulty in obtaining financing or listing their property with real estate agents. Groundwater contamination was detected in December 1989. In March 1990, Norwalk's congressional representative asked DOD to close the facility. Subsequently, DOD studied alternatives to the facility's operations and investigated groundwater contamination.

DOD Identified Alternatives for Providing Fuel to Military Customers

DOD completed two studies—one by a consultant in July 1991 and an update in May 1992—describing alternatives for satisfying the basic mission of efficiently and economically supplying fuel to air bases. To be considered, alternatives had to meet the basic criteria of being feasible and implementable, having access to fuels' pipelines, and fulfilling all environmental and regulatory requirements.

The studies were conducted in two stages. First, the alternatives meeting the criteria were examined to determine their feasibility. Then cost estimates were developed for the alternatives that were considered feasible. Eventually, the studies concluded that keeping the facility open at full or reduced operations was the least costly of the feasible alternatives.

DOD Had Reasonable Cause for Eliminating Alternatives

The first study ruled out some alternatives as not feasible; however, because of changed market conditions, certain aspects of the discarded alternatives were reconsidered in the second study. Our discussions with industry representatives and our examination of DOD's mission requirements suggest that the elimination of those alternatives was justified.

The most radical alternative was to abandon pipeline transportation of fuel and supply the air bases by tanker truck. The study reasonably concluded that adding an estimated 87,000 truck and trailer loads of fuel annually to southern California's highways would aggravate congestion and impair traffic safety, while posing a threat to significant populations enroute. According to petroleum industry representatives and literature, pipelines are the safest—as well as the most economical and efficient—mode for transporting large quantities of jet fuel overland over long distances.

Another option discarded by DOD was to purchase or lease land to build a new facility at a more remote site that could connect with SFPP's pipeline. A possible site would be at SFPP's fuel storage facility in Watson, California. However, an SFPP official said no land is available there to construct tanks for DOD's fuels, because the surrounding area is completely developed.

DOD also eliminated an option that would allow it to supply southwestern air bases through another SFPP pipeline from the east. This alternative would require SFPP to disrupt its operations by reversing the flow of fuel into California to supply DOD customers. SFPP was unwilling to incur this cost for the benefit of DOD's business, and its position remained unchanged during our review.

Economic Assessment Was Applied Equitably

The remaining, feasible alternatives included maintaining the status quo; continuing to operate Norwalk, but reducing capacity to the minimum needed to satisfy SFPP's requirements; shifting Norwalk's operations to San Pedro, which would involve building increased storage there and an 8-mile pipeline to SFPP's nearest pumping facility at Watson; and contracting with suppliers to ship fuel directly to customers. The last two alternatives would still maintain DOD's pumping facility at Norwalk, but would eliminate fuel storage there.

DOD's analysis showed that the first two of these alternatives was more economical than the last two. For example, the second study estimated the cost of alternatives to remaining at Norwalk over a 28-year project life at about \$25 million, compared to about \$36 million for moving operations to DFSP San Pedro and about \$56 to \$68 million for contracting with interested commercial suppliers for all fuel needs. (See app. III.)

We reviewed the standard model DOD used to perform the economic analysis and found it generally acceptable and appropriate. The costs considered in both studies (where applicable) were contractor fees, maintenance and repair, new construction and capital improvements, utilities, administrative and quality surveillance, tank construction, demolition and cleanup, pipeline construction, pump upgrade, and environmental impact reviews.

The DOD studies discussed environmental implications for any alternatives requiring construction of new tanks and pipelines. Although the studies did not assess in depth the environmental implications of keeping Norwalk

open, DOD conducted other studies addressing environmental concerns and incorporated the results into its assessment of the existing facility.

DOD Is Acting to Address the City's Concerns

Besides studying the alternatives to Norwalk, DOD responded to the residents' concerns by acting to minimize the danger of fire, explosion, or contamination. According to a DOD official, DFSC has responded to nearby property financial concerns by providing information on the extent of off-site contamination. However, city officials believe that the facility continues to pose an ongoing threat to the surrounding neighborhood. Given this belief, they would like the facility closed. A letter detailing the city's concerns is in appendix II.

Safety Enhancements Are Underway

DOD's June 1989 earthquake safety study recommended structural, electrical, and mechanical repairs and upgrades to the facility, especially the fuel tanks. DOD has completed some of this work. For example, the water tank for fire fighting has been reinforced. DOD plans to contract for the remaining repairs and upgrades in November 1992.

DOD and the county fire department² since 1989 identified only minor physical security and fire fighting problems. For example, DOD's 1989 physical security inspection recommended better gate access controls, which, according to a DOD official, were subsequently implemented. Norwalk's physical security and fire fighting practices appear similar to those in place at SFPP's nearby Watson fuel storage facility.

DOD also undertook to reduce the hazardous material being handled at the facility. For example, tank truck shipments were diverted to DFSP San Pedro, beginning July 1, 1992. Further, DOD has determined that it needs to store no more than 480,000 barrels of fuel to meet SFPP's pumping rates and is reducing storage accordingly. Finally, although the decision was unrelated to the safety study, DOD will replace one jet fuel type with a less volatile mixture in 1993. DOD plans to close the facility's five perimeter tanks at the time of the fuel type change, thus expanding the buffer zone surrounding the facility.

²The Los Angeles County Fire Department, not the facility contractor, is responsible for fire fighting activities at the Norwalk facility.

Contamination Assessment and Cleanup Efforts Continue

Tests by a contractor in December 1989 identified hydrocarbons and other petroleum-based contaminants in three of five existing monitoring wells. As a result, DOD, the facility contractor, and SFPP have each contracted for additional tests involving soil borings and installation of 84 more on-site and off-site monitoring wells, to identify the source, extent, and type of contamination. The Regional Water Quality Control Board, a regulatory arm of the state government, is coordinating the testing for contamination. Once all studies are complete, it will approve necessary cleanup efforts.

The monitoring and testing has identified three areas of contamination. According to board officials, two of these areas are minor because they are not large and involve old spills that can be easily cleaned up. The third area, near DFSP's pumping and truck-loading facilities and SFPP's pumping station, is major, new, and extends under several nearby residences south of DFSP Norwalk. At this area, on-site cleanup is underway, while off-site cleanup awaits completion of tests to determine the extent, type, and source of contamination.

According to DOD and board officials, preliminary findings indicate that the DOD storage tanks are not the likely source of the contamination. The contaminant is about 80 percent gasoline-related products, of the type SFPP handles for some commercial customers, whereas DFSP Norwalk handles only jet fuel products. However, tests to identify the actual source of this contamination, including exposing SFPP's underground pipes and connections to check for leakage, were not yet complete by the end of our review.

Regardless of the source of contamination, DOD officials state they are committed to the cleanup necessary for on-site and off-site contamination. However, SFPP would be assessed for its fair share of cleanup costs, should current tests determine SFPP is wholly or partially responsible for the contamination.

Board officials are pleased with the progress being made to identify the extent of contamination and develop cleanup plans. They, as well as Environmental Protection Agency (EPA) officials, say the contamination does not pose a danger to the city's drinking water supplies. They noted that the hydrocarbon and other contaminants float atop the water table and most likely will not penetrate the table or the thick layer of clay between the water table and Norwalk's water supply aquifer. EPA's 1990 analysis did not find sufficient justification for including DFSP Norwalk on its superfund list of priority cleanup areas.

Further, it appears that if DOD were to shut down its operations at Norwalk, the danger of contamination may not appreciably diminish, because SFPP most likely would retain its pumping station. SFPP officials emphasized the importance of the facility as a booster point for its shipments to commercial customers in the southwestern United States. They said that as a public utility, SFPP has condemnation authority to retain its operation, should DOD close and dispose of the facility.³ Furthermore, a city official stated that the city is not concerned about SFPP's operations because they are mainly underground, unlike DOD's above-ground storage tanks.

Information Provided in Instances of Financial Hardship

According to a DOD official, a homeowner and lender have notified DFSC of potential financing problems. Thus far DOD is ordering an environmental contamination assessment of the homeowner's property and has provided the lender with information about the extent of off-site contamination.

DOD and City of Norwalk Comments

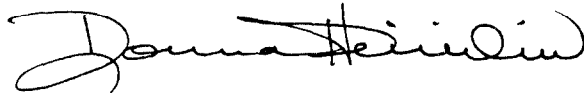
DOD officials reviewed a draft of this report and agreed the report was a fair, thorough assessment of DOD actions regarding the Norwalk facility.

We also discussed the results of our review with a city of Norwalk official, who agreed the reported data was accurate. However, he believes DOD's assessment of alternatives should have emphasized to a greater extent the concerns of nearby residents. He acknowledged that DOD has taken positive steps to address the city's concerns and reduce dangers, as well as improving communications with the city about its activities. However, he added that despite DOD's actions, an unquantifiable risk to nearby residents remains, and that the city's letter (see app. II) details the reasons why the city continues to want the facility closed.

³Under California's Public Utilities Act, a pipeline corporation may condemn any property necessary for the construction and maintenance of its pipeline.

Please contact me on (202) 275-8412 if you or you staff have any questions concerning this report. Major contributors to this report are listed in appendix IV.

Sincerely,

A handwritten signature in black ink, appearing to read "Donna Heivilin". The signature is fluid and cursive, with a large initial "D" and a long, sweeping underline.

Donna M. Heivilin,
Director, Logistics Issues

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Abbreviations

DOD	Department of Defense
DFSP	Defense Fuel Supply Point
DFSC	Defense Fuel Supply Center
EPA	Environmental Protection Agency
SFPP	Santa Fe Pacific Pipelines, Inc.

Scope and Methodology

We conducted our work at the Defense Logistics Agency's Defense Fuel Supply Center (DFSC) headquarters, Alexandria, Virginia; its Defense Fuel Region West, San Pedro, California; Norwalk DFSP; the Office of the Deputy City Manager, Norwalk; DOD's Energy Policy Office, Washington, D.C.; the Western Division of the Naval Facilities Engineering Command, San Bruno, California; and the state of California's Los Angeles Regional Water Quality Control Board, Monterey Park.

To identify how feasible alternatives were developed, we interviewed representatives from the defense agencies listed above, a DOD consultant, and the city of Norwalk. We also collected available documentation.

To determine whether the studies used adequate and appropriate criteria to identify and assess feasible alternatives, we discussed the criteria and the analytical tools used with DFSC and contractor personnel. We also reviewed literature on the petroleum processing industry to determine standards for transporting and storing jet fuel and for related safety issues. We solicited information from representatives of the petroleum industry, such as a commercial pipeline operator, fuel suppliers and customers, and industry associations. As a basis for comparison, we also contacted companies or individuals responsible for fuel support operations for several airports in southern California to find out how they managed fuel requirements.

To determine how DOD addressed the city's concerns, we reviewed various studies and DOD, city, and other documents to identify the issues and collected information on studies and inspections about physical security, fire, and earthquake dangers, soil and groundwater contamination, and DOD contamination cleanup plans. We also queried DOD, the Regional Water Quality Control Board, and city officials to determine what problems existed and whether planned and implemented actions were reasonable and appropriate.

To assess property owners' selling and financing concerns, we talked to DOD and city of Norwalk officials about actions DOD is taking to assist affected property owners.

We conducted our review from January 1992 to August 1992 in accordance with generally accepted government auditing standards.

Letter From City of Norwalk

ROBERT J. ARTHUR
Mayor

GRACE F. NAPOLITANO
Mayor Pro Tempore

JUDITH BRENNAN
Councilwoman

MICHAEL MENDEZ
Councilman

LUIGI A. VERNOLA
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City Manager



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July 22, 1992

Ms. Alexandra Y. Martin
Senior Evaluator
U.S. General Accounting Office
301 Howard Street, Suite 1200
San Francisco, CA 94105-2241

Dear Ms. Martin:

This letter is in response to your letter of June 25, 1992, and a subsequent phone call from Mr. Mosso on July 14, 1992.

With respect to your question regarding concerns that the City believes have not been addressed by DOD, those concerns are as follows:

1. The security of the facility from the standpoint of a **catastrophic fire** caused by earthquake, sabotage, accident or other cause. The DOD has indicated to us that they would have to rely on local fire suppression resources (i.e., County Fire Department) in the event of a major fire incident at the facility. The City does not believe that these resources will be adequate and/or available in the event of a major earthquake. The City believes that the tank farm should be self-sufficient in terms of its ability to handle a catastrophic fire.
2. The security of the facility from the standpoint of **unauthorized entry** into the facility. Presently, the facility is surrounded by chain link fencing and barbed wire, with no ongoing monitoring system (human or electronic) to detect an unauthorized breach of the property borders. The periodic patrols of the facility by DFSP personnel are considered inadequate by the City for a 60+ acre site.
3. The **"human" costs** that the facility poses for the surrounding neighborhood, such as anxiety and stress, due to the ongoing threat to lives and property which the facility represents in the event of an accident at the facility. Although not easily quantified, these human costs are very real, as demonstrated by the neighborhood's sustained concern about the facility at community meetings.
4. The **health risks** to nearby residents, schoolchildren, and users of the adjacent

Ms. Alexandra Martin
July 22, 1992; Page 2

park from the contamination problem at the facility. It is known, based on test results, that so-called "free product" exists in the groundwater beneath the facility. Not enough is known about the hydrogeology of this area to conclude that there is no potential for this contamination to enter the drinking water supply. Several of the compounds found in the free product are known carcinogens (for example, benzene and 1,2 DCA).

5. **The reduction in property values** of surrounding properties which may now be occurring due to the identified hazardous waste problems on and off-site. It is the City's position that any property owners whose properties have been adversely affected by the contamination problems at the facility should be indemnified by DOD for any loss in property values.

With respect to concern #5, the City has received several anecdotal reports from property owners near or adjacent to the DOD facility reporting difficulty in selling, financing, and/or refinancing their properties due to the contamination problems at the DOD facility. Those who have contacted the City are the following:

Reported difficulty in refinancing home.

Home in probate sale; difficulty selling without expensive tests. Also difficulty in refinancing home.

Adjacent property owner, claimed he was suing Federal Government over contamination problem and impact on his property.

Adjacent property owner, representing limited partnership attempting to construct apartments on property. Unable to obtain clearance to construct apartments due to contamination. Unable to secure financing.

As of this date, we are unaware of any actions taken by the DOD to compensate property owners for damage caused to their properties by the facility.

**Appendix II
Letter From City of Norwalk**

Ms. Alexandra Martin
July 22, 1992; Page 3

With respect to your question concerning actions the City would like to see DOD take if the tank farm remains open, the City responds as follows: in the short-term, the City would like to see the contamination problem resolved as quickly as possible. Definition of the extent of contamination should proceed more quickly, and cleanup of contamination should occur immediately thereafter. Until the source of the contamination is located, it is the City's position that all operations at the facility should cease.

In the long-term, the City would like to see the facility relocated out of the City of Norwalk to a more suitable location. At this time, there is no long-term scenario under which the City would accept the facility remaining within the City of Norwalk. In support of this position, I have attached a document certifying the results of an advisory ballot measure placed before the voters in April of this year. This document indicates that 87.9% of the voters supported the City's current position with respect to removal of the tank farm from Norwalk.

I hope the information provided here is useful. Please let me know if I can be of any further assistance.

Sincerely,



Daniel E. Keen
Deputy City Manager,
Management Services

Cost Assessment of Feasible Alternatives

Table III.1: Estimated Project Life Cost
(in millions)^a

		1991 Study	1992 Study	
			10% rate ^b	4.6% rate ^b
Option 1:	Maintain status quo	\$16.4	\$15.8	\$25.8
Option 2:	Reduce Norwalk storage to minimum	^c	15.2	24.6
Option 3:	End storage at Norwalk			
(3a)	Contract for direct delivery of fuel ^d	91.1	36.3	55.8
(3b)	Relocate storage to San Pedro ^e	69.7	28.6	36.3

^aThe first study estimated costs over a 25-year life cycle beginning in fiscal year 1992. The second study estimated similar costs over a 28-year project life comprised of a 3-year lead time and a 25-year economic life beginning in fiscal year 1993.

^bThe second study used two different discount rates to assess cost under differing assumptions about inflation. (The discount rate is the interest rate used to relate present and future dollars.) We believe the 4.6 percent rate is more realistic.

^cThis option was not assessed during the first study.

^dDuring the second study, three potential contractors indicated interest, resulting in estimated alternative costs of \$55.8, \$56.6, and \$68.1 million, respectively. The figure in the table represents the lowest estimate received.

^eThe cost difference between the two studies reflects varying assumptions. Study 1 anticipates building all new tankage and constructing a new 22-mile pipeline to DFSP Norwalk. Study 2 anticipates relying partly on existing tankage, plus constructing an 8-mile pipeline to SFPP's nearest pumping station at Watson.

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