



STATE OF DELAWARE
OFFICE OF SECRETARY OF STATE

I, ELISHA C. DUKES, Secretary of State of the State of Delaware, DO HEREBY CERTIFY that the above and foregoing is a true and correct copy of Certificate of Incorporation of the "AMERICAN CRYOGENICS, INC.", as received and filed in this office the twenty-fourth day of February, A. D. 1964, at 10 o'clock A. M.

IN TESTIMONY WHEREOF, I have hereunto set my hand and official seal at Dover this twenty-fourth day of February in the year of our Lord one thousand nine hundred and sixty-four.

ELISHA C. DUKES
Secretary of State

G. F. DOWNS
Ass't. Secretary of State

.....
" Secretary's Office "
" "
" 1855 Delaware 1793 "
.....

CERTIFICATE OF INCORPORATION

OF

AMERICAN CRYOGENICS, INC.

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FIRST: The name of the corporation is
AMERICAN CRYOGENICS, INC.

SECOND: Its principal office in the State of Delaware is located at No. 100 West Tenth Street, in the City of Wilmington, County of New Castle. The name and address of its resident agent is The Corporation Trust Company, No. 100 West Tenth Street, Wilmington, Delaware.

THIRD: The nature of the business, or objects or purposes to be transacted, promoted or carried on are:

1. To manufacture, produce, sell and distribute liquid or compressed gases, including, but not limited to, oxygen, nitrogen, acetylene and argon.
2. To manufacture, produce, sell and distribute welding supplies and any and all types of equipment suitable for use in storing, handling or using the liquid or compressed gases dealt in.

3. To purchase or otherwise acquire the whole or any part of the property, assets, business, good will and rights, and to undertake or assume the whole or any part of the bonds, mortgages, franchises, leases, contracts, indebtedness, guaranties, liabilities and obligations of any person, firm, association, corporation or organization, and to pay for the same or any part or combination thereof in cash, shares of the capital stock, bonds, debentures, debenture stock, notes and other obligations of this corporation or otherwise, or by undertaking and assuming the whole or any part of the liabilities or obligations of the transferor; and to hold or in any manner dispose of the whole or any part of the property and assets so acquired or purchased, and to conduct in any lawful manner the whole or any part of the business so acquired and to exercise all the powers necessary or convenient in and about the conduct, management and carrying on of such business.

4. To purchase, apply for, register, obtain or otherwise acquire, and to hold, own, use, operate, develop and introduce, and sell, lease, assign, pledge or in any manner dispose of and in any manner deal with and contract with reference to letters patent, patents,

patent rights, patented processes, designs and similar rights, copyrights, trade-marks, trade-names and similar rights granted by the United States or any other Government or country, or any interest therein, or any inventions, and to acquire, own, use, or in any manner dispose of any and all inventions, improvements, and processes, labels, designs, marks, brands or other rights, and to work, operate or develop the same.

5. To acquire by purchase, subscription or otherwise, and to receive, hold, own, guarantee, sell, assign, exchange, transfer, mortgage, pledge or otherwise dispose of or deal in and with any of the shares of the capital stock, or any voting trust certificates in respect of the shares of capital stock, script, warrants, rights, bonds, debentures, notes, trust receipts, and other securities, obligations, choses in action and evidences of indebtedness or interest issued or created by any corporations, joint stock companies, syndicates, associations, firms, trusts or persons, public or private, or by the government of the United States of America, or by any foreign government, or by any state, territory, province, municipality or other political

subdivision or by any governmental agency, and as owner thereof to possess and exercise all the rights, powers and privileges of ownership, including the right to execute consents and vote thereon, and to do any and all acts and things necessary or advisable for the preservation, protection, improvement and enhancement in value thereof.

6. To promote or to aid in any manner, financially or otherwise, any corporation or association of which any stocks, bonds or other evidences of indebtedness or securities are held directly or indirectly by this corporation; and for this purpose to guarantee the contracts, dividends, stocks, bonds, notes and other obligations of such other corporations or associations; and to do any other acts or things designed to protect, preserve, improve or enhance the value of such stocks, bonds or other evidences of indebtedness or securities.

7. To organize or cause to be organized under the laws of the State of Delaware, or of any other state, district, territory, province or foreign government, a corporation or corporations for the purpose of accomplishing any or all of the ob-

jects for which this corporation is organized, and to dissolve, wind up, liquidate, merge or consolidate any such corporation or corporations or to cause the same to be dissolved, wound up, liquidated, merged or consolidated.

8. To enter into, make and perform contracts of every kind and description with any person, firm, association, corporation, municipality, county, state, body politic or government or colony or dependency thereof.

9. To borrow or raise moneys for any of the purposes of the corporation and, from time to time, without limit as to amount to draw, make, accept, endorse, execute and issue promissory notes, drafts, bills of exchange, warrants, bonds, debentures and other negotiable or non-negotiable instruments and evidences of indebtedness, and to secure the payment of any thereof and of the interest thereon by mortgage upon or pledge, conveyance or assignment in trust of the whole or any part of the property of the corporation, whether at the time owned or thereafter acquired, and to sell, pledge or otherwise dispose of such bonds or other obligations of the corporation for its corporate purposes.

10. To make loans to any person, firm or corporation, either with or without security.

11. To have one or more offices, to carry on all or any of its operations and business and without restriction or limit as to amount to purchase or otherwise acquire, hold, own, mortgage, sell, convey, or otherwise dispose of real and personal property of every class and description in any of the States, Districts, Territories or Colonies of the United States, and in any and all foreign countries, subject to the laws of such State, District, Territory, Colony or Country.

12. To do all and everything necessary, suitable and proper for the accomplishment of any of the purposes or the attainment of any of the objects or the furtherance of any of the powers hereinbefore set forth, either alone or in association with other corporations, firms or individuals, and to do every other act or acts, thing or things, incidental or appurtenant to or growing out of or connected with the aforesaid business or powers or any part or parts thereof; and to have all the rights, powers and privileges now or hereafter conferred by

the laws of the State of Delaware upon a corporation organized under the General Corporation Law of the State of Delaware, or under any act amendatory thereof, supplemental thereto or in substitution therefor.

The foregoing clauses shall be construed both as objects and powers; and the foregoing enumeration of specific powers shall not be held to limit or restrict in any manner the powers of the corporation; and it is the intention that the purposes, objects and powers specified in each of the paragraphs of this Article Third of this Certificate of Incorporation shall, except as otherwise expressly provided, in no wise be limited or restricted by reference to or inference under the terms of any other clause or paragraph of this Article or of any other Article of this Certificate of Incorporation, but that each of the purposes, objects and powers specified in this Article and each of the Articles or paragraphs of this Certificate of Incorporation shall be regarded as independent purposes, objects and powers. Nothing herein contained shall be deemed to authorize the corporation to carry on any business or exercise any power or do any act which a corporation organized under the General Corporation Law of Delaware may not at the time law-

fully carry on, exercise or do.

FOURTH: The total number of shares of stock which the corporation shall have authority to issue is one thousand (1,000); all of such shares shall be without par value.

FIFTH: The minimum amount of capital with which the corporation will commence business is One Thousand Dollars (\$1,000).

SIXTH: The names and places of residence of the incorporators are as follows:

<u>Names</u>	<u>Residences</u>
S. H. Livesay	Wilmington, Delaware
F. J. Obara, Jr.	Wilmington, Delaware
A. D. Grier	Wilmington, Delaware

SEVENTH: The corporation is to have perpetual existence.

EIGHTH: The private property of the stockholders shall not be subject to the payment of corporate debts to any extent whatever.

NINTH: In furtherance and not in limitation of the powers conferred by statute, the board of directors is expressly authorized:

To make, alter or repeal the by-laws of the corporation.

To authorize and cause to be executed mortgages and liens upon the real and personal property of the corporation.

To set apart out of any of the funds of the corporation available for dividends a reserve or reserves for any proper purposes and to abolish any such reserve in the manner in which it was created.

From time to time to determine whether and to what extent, and at what times and places, and under what conditions and regulations, the accounts and books of this corporation (other than the stock ledger), or any of them, shall be open to inspection of stockholders; and no stockholder shall have any right of inspecting any account, book or document of this corporation except as conferred by statute, unless authorized by a resolution of the stockholders or directors.

By resolution or resolutions passed by a majority of the whole board, to designate one or more committees, each committee to consist of two or more of the directors of the corpor-

ation, which, to the extent provided in said resolution or resolutions or in the by-laws of the corporation, shall have and may exercise the powers of the board of directors in the management of the business and affairs of the corporation, and may have power to authorize the seal of the corporation to be affixed to all papers which may require it. Such committee or committees shall have such name or names as may be stated in the by-laws of the corporation or as may be determined from time to time by resolution adopted by the board of directors.

When and as authorized by the affirmative vote of the holders of a majority of the stock issued and outstanding having voting power given at a stockholders' meeting duly called for that purpose, or when authorized by the written consent of the holders of a majority of the voting stock issued and outstanding, to sell, lease or exchange all of the property and assets of the corporation, including its good will and its corporate franchises, upon

such terms and conditions and for such consideration, which may be in whole or in part shares of stock in, and/or other securities of, any other corporation or corporations, as its board of directors shall deem expedient and for the best interests of the corporation.

This corporation may in its by-laws confer powers upon its directors in addition to the foregoing, and in addition to the powers and authorities expressly conferred upon them by the statute.

TENTH: Meetings of stockholders may be held without the State of Delaware, if the by-laws so provide. The books of the corporation may be kept (subject to any provision contained in the statutes) outside of the State of Delaware at such place or places as may be from time to time designated by the board of directors or in the by-laws of the corporation.

ELEVENTH: The corporation reserves the right to amend, alter, change or repeal any provision contained in this Certificate of Incorporation, in the manner now or hereafter prescribed by statute, and all rights conferred upon stockholders herein are granted subject to this reservation.

WE, THE UNDERSIGNED, being each of the incorporators hereinbefore named for the purpose of forming a corporation in pursuance of the General Corporation Law of the State of Delaware, do make this certificate, hereby declaring and certifying that the facts herein stated are true, and accordingly have hereunto set our hands and seals this 24th day of February, A. D. 1964.

S. H. Livesay (SEAL)

F. J. Obara, Jr. (SEAL)

A. D. Grier (SEAL)

STATE OF DELAWARE)
COUNTY OF NEW CASTLE) SS

BE IT REMEMBERED, That on this 24th day of February, A. D. 1964 personally came before me, a Notary Public for the State of Delaware, S. H. Livesay, F. J. Obara, Jr. and A. D. Grier, all of the parties to the foregoing Certificate of Incorporation, known to me personally to be such, and severally acknowledged the said certificate to be the act and deed of the signers respectively and that the facts therein stated are truly set forth.

GIVEN under my hand and seal of office the day and year aforesaid.

Howard K. Webb
Notary Public

" Howard K. Webb "
" Notary Public "
" Appointed June 26, 1962 "
" State of Delaware "
" Term 2 Years "
#####

Received for Record

February 24th, A. D. 1964.

Leo J. Dugan, Jr., Recorder.

STATE OF DELAWARE :
: SS.:
NEW CASTLE COUNTY :

Recorded in the Recorder's Office
at Wilmington, in Incorporation Record ,
Vol. Page &c., the 24th day of
February, A. D. 1964.

Witness my hand and official seal.

Leo J. Dugan, Jr.
Recorder.

Recorder of Deeds Office
New Castle Co. Del.
Mercy - Justice

STATE OF DELAWARE

Office of Secretary of State

I, EUGENE BUNTING, Secretary of State of the State of Delaware, do hereby certify that the above and foregoing pages numbered from 1 to 6, both numbers inclusive, is a true and correct copy of Certificate of Incorporation of the "AMERICAN CRYOGENICS, INC.", as received and filed in this office the twenty-fourth day of February, A.D. 1964, at 10 o'clock A.M.;

And I do hereby further certify that the above and foregoing pages numbered from 1 to 3, both numbers inclusive, is a true and correct copy of Certificate of Amendment of the "AMERICAN CRYOGENICS, INC.", as received and filed in this office the thirteenth day of December, A.D. 1968, at 10 o'clock A.M.;

And I do hereby further certify that the above and foregoing pages numbered from 1 to 3, both numbers inclusive, is a true and correct copy of Certificate of Amendment of the "AMERICAN CRYOGENICS, INC.", as received and filed in this office the twenty-fourth day of November, A.D. 1970, at 9 o'clock A.M.

IN TESTIMONY WHEREOF, I have hereunto set my hand
and official seal at Dover this twelfth day of
April in the year of our Lord one thousand nine
hundred and seventy-one.



Eugene Bunting
Secretary of State

CERTIFICATE OF AMENDMENT
OF
CERTIFICATE OF INCORPORATION

AMERICAN CRYOGENICS, INC., a corporation organized and existing under and by virtue of the General Corporation Law of the State of Delaware, DOES HEREBY CERTIFY.

FIRST: That the Board of Directors of said corporation by the unanimous written consent of its members, filed with the minutes of the board, adopted a resolution proposing and declaring advisable the following amendment to the Certificate of Incorporation of said corporation:

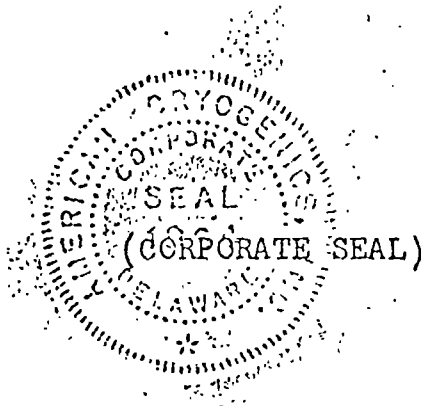
RESOLVED, that the Certificate of Incorporation of AMERICAN CRYOGENICS, INC. be amended by changing the Article thereof numbered "FIRST" so that, as amended, said Article shall be and read as follows:

"The name of the corporation is LIQUID AIR INC."

SECOND: That in lieu of a meeting and vote of stockholders have given unanimous written consent to said amendment in accordance with the provisions of section 228 of The General Corporation Law of the State of Delaware.

THIRD: That the aforesaid amendment was duly adopted in accordance with the applicable provisions of Sections 242 and 228 of The General Corporation Law of the State of Delaware.

IN WITNESS WHEREOF, said AMERICAN CRYOGENICS, INC. has caused its corporate seal to be hereunto affixed and this certificate to be signed by Pierre Salbaing, its Chairman of the Board of Directors, and attested by M.F.N. Prendergast, its Assistant Secretary, this 6th day of November, 1970.



AMERICAN CRYOGENICS, INC.

By _____
Chairman of the Board of
Directors

ATTEST:

By _____
Assistant Secretary

STATE OF CALI-
FORNIA
COUNTY OF SAN
FRANCISCO

SS.:

BE IT REMEMBERED that on this 6th day of November, 1970,
personally came before me a Notary Public,

Pierre Salbaing, Chairman of the Board of Directors of AMERICAN
CRYOGENICS, INC., a corporation of the State of Delaware, and he
duly executed said certificate before me and acknowledged the said
certificate to be his act and deed and the act and deed of said
corporation and the facts stated therein are true; and that the
seal affixed to said certificate and attested by the Assistant
Secretary of said corporation is the common or corporate seal of
said corporation.

IN WITNESS WHEREOF, I have hereunto set my hand and seal
of office the day and year aforesaid.

Virginia E. Meadows

(SEAL)

SAN FRANCISCO, CALIFORNIA
OFFICIAL SEAL
VIRGINIA E. MEADOWS
NOTARY PUBLIC, CALIFORNIA
CITY & COUNTY OF SAN FRANCISCO
My Comm. Expires July 12, 1974

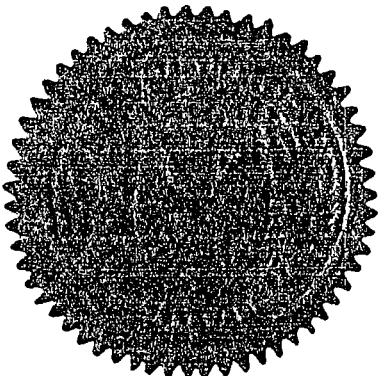


State
of
DELAWARE

Office of SECRETARY OF STATE

I, Glenn C. Kenton *Secretary of State of the State of Delaware,*
do hereby certify that the above and foregoing is a true and correct copy of
Certificate of Amendment of the "LIQUID AIR INC.", as received and filed in this office
the sixteenth day of December, A.D. 1980, at 10 o'clock A.M.

In Testimony Whereof, *I have hereunto set my hand*
and official seal at Dover this fifteenth *day*
of July *in the year of our Lord*
one thousand nine hundred and eighty-one.



Glenn C. Kenton

Glenn C. Kenton, Secretary of State

F. 6

CERTIFICATE OF AMENDMENT
OF
CERTIFICATE OF INCORPORATION
OF
LIQUID AIR INC.

LIQUID AIR INC., a corporation organized and existing under and by virtue of the General Corporation Law of the State of Delaware, DOES HEREBY CERTIFY:

FIRST: That the Board of Directors of said Corporation, by the unanimous written consent of its members, filed with the minutes of the Board, adopted resolutions proposing and declaring advisable the following amendment to the Certificate of Incorporation of said Corporation:

RESOLVED, that, subject to the approval of the sole stockholder of the Corporation, the name of the Corporation be changed to "LAI HOLDINGS INC." and that Article "FIRST" of the Certificate of Incorporation of the Corporation, as heretofore amended, be amended to read as follows:

"FIRST: The name of the Corporation is LAI HOLDINGS INC."

SECOND: That in lieu of a meeting and vote of stockholders, the sole stockholder has given its written consent to said amendment in accordance with the provisions of Section 228 of the General Corporation Law of the State of Delaware.

THIRD: That said amendment was duly adopted in accordance with the provisions of Section 242 of the General Corporation Law of the State of Delaware.

FOURTH: That the capital of said Corporation shall not be reduced under or by reason of said amendment.

IN WITNESS WHEREOF, Liquid Air Inc. has caused its corporate seal to be hereunto affixed and this Certificate to be signed by Pierre Salbaing, its Chairman, and attested by John N. Baird, its Secretary, this 4th day of December 1980.

LIQUID AIR INC.

P.S. By *Pierre Salbaing*
Pierre Salbaing, Chairman

[Corporate Seal]

Attest: *John N. Baird*
John N. Baird - Secretary

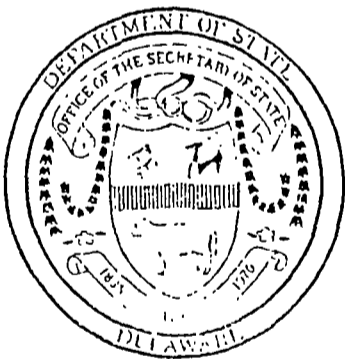


State of DELAWARE



Office of SECRETARY OF STATE

I, Glenn C. Kenton, Secretary of State of the State of Delaware,
do hereby certify that the attached is a true and correct copy of
Certificate of Amendment
filed in this office on November 30, 1981.



Glenn C. Kenton

Glenn C. Kenton, Secretary of State

BY: *M. Tow*

DATE: November 30, 1981.

CERTIFICATE OF AMENDMENT

OF

RESTATED

CERTIFICATE OF INCORPORATION

FILED

NOV 30 1981

10Am

William C. Keaton
SECRETARY OF STATE

LAI HOLDINGS INC., a corporation organized and existing under and by virtue of the General Corporation Law of the State of Delaware, DOES HEREBY CERTIFY:

FIRST: That the Board of Directors of said corporation, by the unanimous written consent of its members, filed with the minutes of the board, adopted a resolution proposing and declaring advisable the following amendment to the Restated Certificate of Incorporation of said corporation:

RESOLVED, that the Restated Certificate of Incorporation of LAI HOLDINGS INC. be amended by changing the First Article thereof so that, as amended, said Article shall be and read as follows:

"FIRST: The name of the corporation is LAI Properties, Inc."

SECOND: That in lieu of a meeting and vote of stockholders, the stockholders have given unanimous written consent to said amendment in accordance with the provisions of section 228 of the General Corporation Law of the State of Delaware.

THIRD: That the aforesaid amendment was duly adopted in accordance with the applicable provisions of sections 242 and 228 of the General Corporation Law of the State of Delaware.

IN WITNESS WHEREOF, said LAI HOLDINGS INC. has caused this certificate to be signed by Thomas E. Slattery its President, and attested by John N. Baird, its Secretary, this 18th day of November, 1981.

LAI HOLDINGS INC.

By *Thomas E. Slattery*
Thomas E. Slattery, President

ATTEST:

By *John N. Baird*
John N. Baird, Secretary

RECEIVED FOR RECORD

NOV 30 1981

LEO J. DUGAN, Jr., Recorder

Office of the Secretary of State

I, EDWARD J. FREEL, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF AMENDMENT OF "LAI PROPERTIES, INC.", CHANGING ITS NAME FROM "LAI PROPERTIES, INC." TO "AIR LIQUIDE AMERICA CORPORATION", FILED IN THIS OFFICE ON THE EIGHTH DAY OF DECEMBER, A.D. 1993, AT 9:01 O'CLOCK A.M.



A handwritten signature in cursive script, reading "Edward J. Freel".

Edward J. Freel, Secretary of State

DICE 00025

0608019 8100

960146655

AUTHENTICATION:

DATE:

7953736

05-21-96

12-8-93

**CERTIFICATE OF AMENDMENT
OF
CERTIFICATE OF INCORPORATION
OF
LAI PROPERTIES, INC.**

LAI PROPERTIES, INC., a corporation organized and existing under and by virtue of the General Corporation Law of the State of Delaware, **DOES HEREBY CERTIFY:**

FIRST: That the Board of Directors of said corporation, by the unanimous written consent of its members, filed with the minutes of the board, adopted a resolution proposing and declaring advisable the following amendment to the Certificate of Incorporation of said corporation:

RESOLVED, that the Certificate of Incorporation of LAI Properties, Inc. be amended by changing the first Article thereof so that, as amended, said Article shall be and read as follows:

"FIRST: The name of the corporation is Air Liquide America Corporation."

SECOND: That in lieu of a meeting and vote of stockholders, the stockholders have given unanimous consent to said amendment in accordance with the provisions of section 228 of the General Corporation Law of the State of Delaware.

THIRD: That the aforesaid amendment was duly adopted in accordance with the applicable provisions of Sections 242 and 228 of the General Corporation Law of the State of Delaware.

IN WITNESS WHEREOF, said LAI Properties, Inc. has caused this certificate to be signed by Robert Cadieux, its President, and attested by John N. Baird, its Secretary, this 1st day of December, 1993.

LAI PROPERTIES, INC.

BY: G. B. Alexander
G. B. Alexander, Vice President

ATTEST:

John N. Baird
John N. Baird, Secretary

Delaware

PAGE 1

The First State

I, HARRIET SMITH WINDSOR, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF CONVERSION OF "AIR LIQUIDE AMERICA CORPORATION", CHANGING ITS NAME FROM "AIR LIQUIDE AMERICA CORPORATION" TO "AIR LIQUIDE AMERICA L.P.", FILED IN THIS OFFICE ON THE TWENTY-FIFTH DAY OF SEPTEMBER, A.D. 2002, AT 2 O'CLOCK P.M.

AND I DO HEREBY FURTHER CERTIFY THAT THE EFFECTIVE DATE OF THE AFORESAID CERTIFICATE OF CONVERSION IS THE FIRST DAY OF OCTOBER, A.D. 2002.



0608019 8100

020597850

Harriet Smith Windsor

Harriet Smith Windsor, Secretary of State

AUTHENTICATION: 2003085


DATE: 09-25-02

DICE 00027

STATE OF DELAWARE
CERTIFICATE OF CONVERSION FROM A
CORPORATION TO A LIMITED PARTNERSHIP
PURSUANT TO SECTION 266 OF THE DELAWARE
GENERAL CORPORATION LAW AND SECTION 17-217 OF THE
DELAWARE REVISED UNIFORM LIMITED PARTNERSHIP ACT

- 1) The name of the corporation immediately prior to filing this Certificate is Air Liquide America Corporation.
- 2) The date the Certificate of Incorporation was filed with the Secretary of State of Delaware is February 24, 1964.
- 3) The original name of the corporation as set forth in the Certificate of Incorporation is American Cryogenics, Inc.
- 4) The name of the limited partnership as set forth in its certificate of limited partnership is Air Liquide America L.P.
- 5) The conversion has been approved in accordance with the provisions of Section 266 of the Delaware General Corporation Law and Section 17-217 of the Delaware Revised Uniform Limited Partnership Act.
- 6) The effective date of this Certificate of Conversion shall be October 1, 2002.

AIR LIQUIDE AMERICA CORPORATION

By: 

Name: Pierre Dufour

Title: President and Chief Executive Officer

ALUSA GP, INC.
(Sole General Partner of Air Liquide
America L.P.)

By: 

Name: Pierre Dufour

Title: President and Chief Executive Officer

STATE OF DELAWARE
CERTIFICATE OF LIMITED PARTNERSHIP

- The Undersigned, for purposes of the conversion of Air Liquide America Corporation, a Delaware corporation, to a limited partnership pursuant to the Delaware Revised Uniform Limited Partnership Act, 6 Delaware Code, Chapter 17, does hereby certify as follows:
- First: The name of the limited partnership is Air Liquide America L.P.
- Second: The address of its registered office in the State of Delaware is 615 South Dupont Highway in the city of Dover.
The name of the Registered Agent at such address is Capitol Services, Inc.
- Third: The name and mailing address of each general partner is as follows:
ALUSA GP, Inc.
o/o Air Liquide America L.P.
2700 Post Oak Blvd.
Houston, TX 77056
- Fourth: The effective date of this Certificate of Limited Partnership shall be October 1, 2002.
- In Witness Whereof, the undersigned has executed this Certificate of Limited Partnership of Air Liquide America L.P. as of 18 September, 2002.

ALUSA GP, INC.
Sole General Partner

By: 

Name: Pierre Dufour

Title: President and Chief Executive Officer

FEB 4 1969 AT 8 A.M.

RAY E. LEE, Registrar-Recorder

5/20/34

Recording Requested By
AMERICAN CRYOGENICS, INC., a
Delaware corporation

And When Recorded Mail To
American Cryogenics, Inc.
1819 Peachtree Road, N. E.
Atlanta, Georgia 30308

DOCUMENTARY TRANSFER TAX \$ <u>NO TAX DUE</u>	
<i>L. Bennett</i>	Title Insurance and Trust Company
SIGNED - PARTY OR AGENT	FIRM NAME
As instructed by <i>P. Williams Jr.</i>	

Space Above This Line For Recorder's Use

Mail Tax Statements To
American Cryogenics, Inc.
1819 Peachtree Road, N. E.
Atlanta, Georgia 30308

D.T.T. \$ No Tax Due

CORPORATION GRANT DEED

FOR VALUABLE CONSIDERATION, receipt of which is hereby acknowledged,
CALIFORNIA OXYGEN COMPANY, a dissolved corporation of the State of California,
acting by and through the undersigned who are a majority of the Board of
Directors as constituted on the date of dissolution, hereby grants to
AMERICAN CRYOGENICS, INC., a corporation organized and existing under the laws
of the State of Delaware, the following described real property in the County
of Los Angeles, State of California:

PARCEL NO. 1:

That portion of the Colima Tract, in the Rancho Santa Gertrudes, in the city of Santa Fe Springs, county of Los Angeles, state of California, described as follows:

Commencing at a point in the center line of Dice Road, 40.00 feet northerly thereon from the center line of the right of way of the Pacific Electric Railway (as said right of way and Dice Road are shown on a map recorded in Book 3465 Page 135 of Deeds, Records of said county); thence along said center line of Dice Road, North 11° 54' 10" East 120.90 feet; thence South 83° 26' East 261.70 feet to the true point of beginning; thence North 1° 21' East 68.8 feet; thence North 83° 21' West 249.00 feet to the center line of said Dice Road; thence North 11° 54' 10" East along said center line 196.65 feet; thence South 83° 07' 50" East 340.15 feet; thence North 08° 26' 10" East 145.34 feet to the northerly line of the land described in Certificate of Title No. X-10800 on file in the office of the Registrar of Titles of said county; thence along said northerly line South 73° 50' 40" East 823.79 feet to the northwesterly line of the Southern Pacific Railroad right of way as said right of way was known on August 24, 1920;

SANTA FE SPRINGS

MAIL TAX STATEMENTS AS DIRECTED ABOVE

DICE 00030

thence thereon South 60° 48' 40" West 762.07 feet to the northerly line of said Pacific Electric Railway right of way; thence along said last mentioned northerly line North 78° 02' West 294.60 feet to a point distant South 78° 02' East 282.70 feet thereon from said center line of Dice Road; thence North 3° 15' East 147.25 feet to the true point of beginning.

EXCEPT therefrom the land described in the deed from Burdett Oxygen Company of Cleveland, Inc., a corporation, to C. W. Roberts, a married man, recorded April 21, 1954 in Book 44382 Page 402, Official Records.

ALSO EXCEPT therefrom that portion within said Dice Road conveyed to county of Los Angeles in fee simple for road purposes by deed recorded October 10, 1908 in Book 3465 Page 133 of Deeds.

PARCEL NO. 2:

That portion of the Colima Tract, Rancho Santa Gertrudes in the city of Santa Fe Springs, county of Los Angeles, state of California, described as follows:

Beginning at a point in the northerly line of the right of way of the Pacific Electric Railway, said line being the southerly line of the land described in certificate of title Y-11053 in the office of the Registrar of Titles of said county, distant thereon South 78°02' East, 163.50 feet from the intersection of said line with the center of Dice Road as same is shown on map of right of way of said Pacific Electric Railway, recorded in Book 3465 Page 135 of Deeds, records of said county; thence continuing along said northerly line of said right of way South 78° 02' East 119.20 feet; thence North 03° 15' East 147.25 feet to an angle point in the northerly line of said land described in said certificate Y-11053; thence along said northerly line of said land North 83° 26' West 118.02 feet; thence South 03° 15' West 136.02 feet to the point of beginning.

PARCEL NO. 3:

That portion of the Colima Tract, in the Rancho Santa Gertrudes, in the city of Santa Fe Springs, county of Los Angeles, state of California, described as follows:

Beginning at a point in the center line of Dice Road, distant 40 feet northerly thereon from its intersection with the center line of the right of way of the Pacific Electric Railway, as shown on a map of said right of way recorded in Book 3465 Page 135 of Deeds, records of said county; thence continuing along said center line of said Dice Road, North 11° 54' 10" East, 120.90 feet; thence South 83° 26' East 143.59 feet; thence South 3° 15' West, 136.02 feet to a point in the northerly line of the aforesaid right of way of the Pacific Electric Railway, said line being the southerly line of the land described in Certificate Y-11053 of the Registrar of Titles of said county; thence North 78° 02' West along said northerly line of said right of way and the southerly line of said registered parcel, 163.50 feet to the point of beginning.

EXCEPT therefrom that portion within, said Dice Road, conveyed to county of Los Angeles in fee simple for road pur-

poses, by deed recorded October 10, 1908 in Book 3465 Page 133 of Deeds.

PARCEL NO. 4:

That portion of the 236 acre parcel in the Colima Tract, Rancho Santa Gertrudes, in the city of Santa Fe Springs, county of Los Angeles, state of California, included within the following described boundaries:

Beginning at a point in the center line of Dice Road, 40 feet northerly thereon from the center line of the right of way of the Pacific Electric Railway (as said right of way and Dice Road are shown on map attached to and recorded with a deed recorded in Book 3465, Page 133 of Deeds); thence along the center line of said Dice Road, North 11° 54' 10" East 120.90 feet to the true point of beginning; thence South 83° 26' East 261.70 feet; thence North 1° 21' East 68.8 feet thence North 83° 21' West 249. feet to said center line of Dice Road; thence along said center line, South 11° 54' 10" West 69.18 feet to the true point of beginning.

EXCEPT therefrom that portion within said Dice Road, conveyed to County of Los Angeles, in fee simple for road purposes, by deed recorded October 10, 1908 in Book 3465 Page 133 of Deeds.

IN WITNESS WHEREOF, said corporation has caused its corporate name to be affixed hereto and this instrument to be executed by PIERCE E. MARKS, SR., PIERCE E. MARKS, JR., and JOHN P. COYNE, a majority of the Directors of said corporation on the date of dissolution.

DATED: January 24, 1969

CALIFORNIA OXYGEN COMPANY

By: [Signature]
By: [Signature]
By: [Signature]

STATE OF GEORGIA)
COUNTY OF RICHMOND) ss.

On January 6, 1969 before me, the undersigned, a Notary Public in and for said State, personally appeared PIERCE E. MARKS, ^{Jr.} known to me to be a Director of CALIFORNIA OXYGEN COMPANY, the corporation

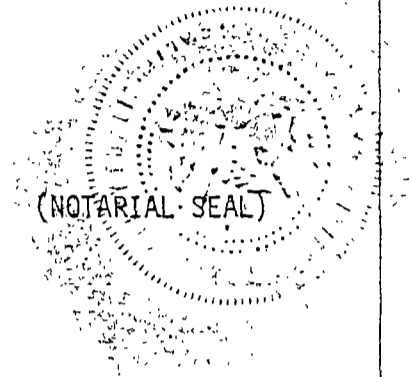
executed the within Instrument, known to me to be the persons who executed the within Instrument on behalf of the Corporation therein named, and acknowledged to me that such Corporation executed the within Instrument pursuant to its Bylaws or a resolution of its Board of Directors.

WITNESS my hand and official seal.

Signature Winfred Ford

WINFRED FORD
Name (Typed or Printed)

My Commission expires December 27, 1969

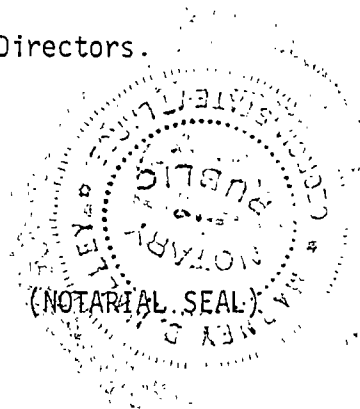


C

that executed the within Instrument, known to me to be the persons who executed the within Instrument on behalf of the Corporation therein named, and acknowledged to me that such Corporation executed the within Instrument pursuant to its Bylaws or a resolution of its Board of Directors.

WITNESS my hand and official seal.

Signature Marney D. Malley
Marney D. Malley
Name (Typed or Printed)

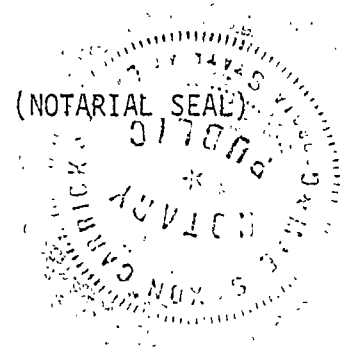


STATE OF GEORGIA)
) ss.
COUNTY OF FULTON)

On January 15, 1969 before me, the undersigned, a Notary Public in and for said State, personally appeared PIERCE E. MARKS, ^{SS.} known to me to be a Director of CALIFORNIA OXYGEN COMPANY, the corporation that executed the within Instrument, known to me to be the persons who executed the within Instrument on behalf of the Corporation therein named, and acknowledged to me that such Corporation executed the within Instrument pursuant to its Bylaws or a resolution of its Board of Directors.

WITNESS my hand and official seal.

Signature Maec Saxon Carrick
Maec Saxon Carrick
Name (Typed or Printed)



STATE OF CALIFORNIA)
) ss.
COUNTY OF San Diego)

On January 24, 1969 before me, the undersigned, a Notary Public in and for said State, personally appeared JOHN P. COYNE known to me to be a Director of CALIFORNIA OXYGEN COMPANY, the corporation that

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2202.18

JB 2327779

RECORDING REQUESTED BY)
AND WHEN RECORDED MAIL TO)
AIR LIQUIDE AMERICA CORP.,)
8832 Dice Road)
Santa Fe Springs, CA 90970)

RECORDED/FILED IN OFFICIAL RECORDS
RECORDER'S OFFICE
LOS ANGELES COUNTY
CALIFORNIA
2:41 PM DEC 23 1998

~~SURVEY MONUMENT FEE \$10. CODE 9~~

SPACE ABOVE THIS LINE FOR RECORDER'S USE

FEE \$42.00 (6)

A. F. N. F. CODE 94

GRANT DEED

The undersigned grantor declares: Documentary transfer tax is \$71.50 computed on the full value of the property conveyed less the value of liens and encumbrances remaining at the time of sale

(7)

NOTIFICATION SENT \$40

FOR VALUABLE CONSIDERATION, receipt of which is hereby acknowledged, DICE ROAD LLC, a Delaware limited liability company, hereby grants to AIR LIQUIDE AMERICA CORPORATION, a Delaware corporation, the real property located in the City of Santa Fe Springs, County of Los Angeles of California, consisting of that portion of the real property described on Exhibit 1 attached hereto (Existing Dice Road Property) which is included within the real property described on Exhibit 2 attached hereto (Proposed Air Liquide Parcel)

SUBJECT TO

- 1. Current taxes and assessments
- 2. All other matters of record or apparent.

8th IN WITNESS WHEREOF, grantor has executed this instrument as of the day of December, 1998

DICE ROAD LLC

By RCW Properties, LLC
a Delaware limited liability company
Managing Member

By. Ralph C. Wintrod
Ralph C. Wintrod, Managing Member

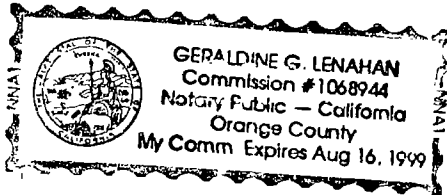
STATE OF CALIFORNIA)
)
COUNTY OF Orange)

98 2327779

SS

On December 8, 1998 before me, Geraldine G. Lenahan a Notary Public in and for said State, personally appeared Ralph C. Wintrede, personally known to me (~~or proved to me on the basis of satisfactory evidence~~) to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.



Geraldine G. Lenahan
Notary Public in and for said State

(Seal)

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EXHIBIT 1
[EXISTING DICE ROAD PROPERTY]

PARCEL "A" (TWO PARCELS)
PARCEL 1:

THAT PORTION OF THE COLIMA TRACT, IN THE RANCHO SANTA GERTRUDES, IN THE CITY OF SANTA FE SPRINGS, AS SHOWN ON MAP FILED IN SUPERIOR COURT CASE NO 4367, COUNTY SURVEYOR'S MAP NO. CF-157, IN THE OFFICE OF THE SURVEYOR OF SAID COUNTY, WITHIN THE FOLLOWING DESCRIBED BOUNDARIES:

COMMENCING AT A POINT IN THE CENTER LINE OF DICE ROAD, 40.00 FEET NORTHERLY THEREON FROM THE CENTER LINE OF THE RIGHT OF WAY OF THE PACIFIC ELECTRIC RAILWAY, AS SAID RIGHT OF WAY AND DICE ROAD ARE SHOWN ON MAP RECORDED IN BOOK 3465 PAGE 135 OF DEEDS; THENCE NORTH 11°54'10" EAST ALONG THE CENTER LINE OF SAID DICE ROAD 120 90 FEET; THENCE SOUTH 83°26" EAST 261.70 FEET; THENCE NORTH 01°21" EAST 68 8 FEET, THENCE NORTH 83°21' WEST 249.00 FEET; THENCE NORTH 11°54'10" EAST ALONG THE CENTER LINE OF SAID DICE ROAD, 196.65 FEET TO THE TRUE POINT OF BEGINNING; THENCE SOUTH 83°07'50" EAST 340 15 FEET, THENCE NORTH 08°26'10" EAST 145.34 FEET TO THE NORTHERLY LINE OF THE LAND DESCRIBED IN CERTIFICATE OF TITLES NO X-10800 ON FILE IN THE OFFICE OF THE REGISTRAR OF TITLES OF SAID COUNTY, THENCE ALONG THE NORTHERLY BOUNDARY OF SAID LAND, NORTH 73°50'40" WEST 333.57 FEET TO THE CENTER LINE OF SAID DICE ROAD; THENCE ALONG LAST MENTIONED CENTER LINE, SOUTH 09°37'40" EAST 7.10 FEET TO AN ANGLE POINT IN SAID CENTER LINE; THENCE SOUTH 11°54'10" WEST 193 05 FEET TO THE TRUE POINT OF BEGINNING

PARCEL 2:

THAT PORTION OF THE RANCHO SANTA GERTRUDES, BEING ALSO PART OF THE TRACT FINALLY CONFIRMED TO TOMAS SANCHEZ COLIMA AND KNOWN AS THE COLIMA TRACT, IN THE CITY OF SANTA FE SPRINGS, DESCRIBED AS FOLLOWS:

BEGINNING AT THE FIRST ANGLE POINT IN THE CENTER LINE OF DICE ROAD, 40 FEET WIDE, SOUTHERLY OF SORENSON LANE, (NOW BURKE STREET) SAID ANGLE POINT BEING MARKED BY A COUNTY SURVEYOR'S CONCRETE MONUMENT AS SHOWN IN FIELD BOOK FT33-366, ON FILE IN THE OFFICE OF THE COUNTY SURVEYOR OF SAID LOS ANGELES COUNTY,

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THENCE ALONG SAID CENTER LINE OF DICE ROAD, NORTH 09°51'22" WEST 7.10 FEET; THENCE SOUTH 74°03'33" EAST 22.21 FEET TO A POINT IN THE EAST LINE OF SAID DICE ROAD, SAID POINT BEING MARKED BY A 2 INCH IRON PIPE AND BEING DISTANT NORTH 09°51'22" WEST 1.23 FEET FROM AN ANGLE POINT IN SAID EAST LINE OF DICE ROAD; THENCE ALONG A LINE WHICH PASSES THROUGH A 2 INCH IRON PIPE SET IN THE NORTHWESTERLY LINE OF THE RIGHT OF WAY 50 FEET WIDE, OF THE PACIFIC ELECTRIC RAILROAD, AS DESCRIBED IN DEED TO THE LONG BEACH, WHITTIER AND LOS ANGELES COUNTY RAILROAD COMPANY, RECORDED IN BOOK 378 PAGE 284 OF DEEDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, SOUTH 74°03'33" EAST 480.68 FEET TO THE TRUE POINT OF BEGINNING

THENCE AT RIGHT ANGLES NORTH 15°56'27" EAST 612.06 FEET TO A POINT IN THAT CERTAIN COURSE HAVING A LENGTH OF 1175.91 FEET IN THE SOUTHERLY BOUNDARY OF PARCEL 1, AS SHOWN ON THE MAP FILED IN BOOK 65 PAGE 38 OF RECORD OF SURVEYS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, THENCE NORTH 86°27'15" WEST ALONG SAID CERTAIN COURSE 677.58 FEET TO A 2 INCH IRON PIPE IN THE EASTERLY LINE OF DICE ROAD, 40 FEET WIDE, AS SAID PIPE AND ROAD ARE SHOWN ON SAID LAST MENTIONED MAP, THENCE ALONG SAID DICE ROAD, SOUTH 09°50'44" EAST 15.28 FEET TO AN ANGLE POINT THEREIN AND SOUTH 79°52'16" WEST 40.00 FEET TO AN ANGLE POINT THEREIN, THENCE ALONG SAID DICE ROAD, SOUTH 09°51'22" EAST 483.46 FEET TO SAID 2 INCH IRON PIPE IN THE EAST LINE OF DICE ROAD, THAT IS DISTANT NORTH 09°51'22" WEST 1.23 FEET FROM AN ANGLE POINT IN SAID EAST LINE OF DICE ROAD; THENCE ALONG SAID LINE WHICH PASSES THROUGH A 2 INCH IRON PIPE SET IN THE NORTHWESTERLY LINE OF SAID RIGHT OF WAY, 50 FEET WIDE, SOUTH 74°03'33" EAST 480.68 FEET TO THE TRUE POINT OF BEGINNING.

EXHIBIT 2

[Proposed Air Liquide Parcel]

PARCEL "B"

THAT PORTION OF THE COLIMA TRACT, IN THE RANCHO SANTA GERTRUDES, IN THE CITY OF SANTA FE SPRINGS, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS.

COMMENCING AT A POINT IN THE CENTER LINE OF DICE ROAD, 40 00 FEET NORTHERLY THEREON FROM THE CENTER LINE OF THE RIGHT OF WAY OF THE PACIFIC ELECTRIC RAILWAY (AS SAID RIGHT OF WAY AND DICE ROAD ARE SHOWN ON MAP RECORDED IN BOOK 3465 PAGE 135 OF DEEDS, RECORDS OF SAID COUNTY), THENCE ALONG SAID CENTER LINE OF DICE ROAD, NORTH 11°54'10" EAST 120 90 FEET, THENCE SOUTH 83°26' EAST 261 70 FEET TO THE TRUE POINT OF BEGINNING, THENCE NORTH 01°21' EAST 68.8 FEET; THENCE NORTH 83°21' WEST 249.00 FEET TO THE CENTER LINE OF SAID DICE ROAD; THENCE NORTH 11°54'10" EAST ALONG SAID CENTER LINE TO A POINT BEING 136.46 FEET SOUTHERLY, MEASURED ALONG SAID CENTERLINE FROM THE FIRST ANGLE POINT IN THE CENTERLINE OF SAID DICE ROAD, SAID POINT BEING SHOWN AS MARKED BY A COUNTY SURVEYOR'S CONCRETE MONUMENT AS SHOWN IN FIELD BOOK FT 33-0366 ON FILE IN THE OFFICE OF THE COUNTY SURVEYOR OF SAID COUNTY, THENCE SOUTH 86°16' 45" EAST 497 17 FEET TO THE WESTERLY LINE OF THE LAND DESCRIBED IN INSTRUMENT NUMBER 891, RECORDED APRIL 21, 1954 IN BOOK 44382 PAGE 402, OF OFFICIAL RECORDS, RECORDS OF SAID COUNTY, THENCE ALONG THE WESTERLY LINE OF LAST SAID INSTRUMENT NORTH 16°06' 40" EAST 35 42 FEET TO THE NORTHERLY LINE OF THE LAND DESCRIBED IN CERTIFICATE OF TITLE NO. X-10800 ON FILE IN THE OFFICE OF THE REGISTRAR OF SAID COUNTY; THENCE ALONG THE NORTHERLY LINE SOUTH 73°50' 40" EAST 823 79 FEET TO THE NORTHWESTERLY LINE OF THE SOUTHERN PACIFIC RAILROAD RIGHT OF WAY AS SAID RIGHT OF WAY WAS KNOWN ON AUGUST 24, 1920; THENCE SOUTH 60°48'40" WEST 762 07 FEET TO THE NORTHERLY LINE OF SAID PACIFIC RAILWAY RIGHT OF WAY; THENCE ALONG SAID LAST MENTIONED NORTHERLY LINE NORTH 78°02' WEST 294.60 FEET TO A POINT DISTANT SOUTH 78°02' EAST 282 70 FEET THEREON FROM SAID CENTER LINE OF DICE ROAD; THENCE NORTH 03°15' EAST 147.25 FEET TO THE TRUE POINT OF BEGINNING.

EXCEPT THEREFROM THE LAND DESCRIBED IN THE DEED FROM BURDETT OXYGEN COMPANY OF CLEVELAND, INC., A CORPORATION, TO C W ROBERTS, A MARRIED MAN, RECORDED APRIL 21, 1954 IN BOOK 44382 PAGE 402, OFFICIAL RECORDS.

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ALSO EXCEPT THEREFROM THAT PORTION WITHIN SAID DICE ROAD CONVEYED TO COUNTY OF LOS ANGELES IN FEE SIMPLE FOR ROAD PURPOSES BY DEED RECORDED OCTOBER 10, 1908 IN BOOK 3465 PAGE 133 OF DEEDS.

ALSO EXCEPT THEREFROM THE LAND CONVEYED TO JOHN G LOCKE AND JANYCE E LOCKE, HUSBAND AND WIFE AS COMMUNITY PROPERTY, AS TO AN UNDIVIDED ONE-THIRD (1/3) INTEREST, ROBERT O. BERG AND DONNA M. BERG, HUSBAND AND WIFE AS COMMUNITY PROPERTY, AS TO AN UNDIVIDED ONE-THIRD (1/3) INTEREST, AND ARNOLD ROSENTHAL AND PEARL ROSENTHAL, HUSBAND AND WIFE AS JOINT TENANTS BY DEED RECORDED DECEMBER 12, 1975 AS INSTRUMENT NO. 4550, OFFICIAL RECORDS, DESCRIBED AS FOLLOWS:

BEGINNING AT THE MOST SOUTHERLY CORNER OF THE LAND SHOWN ON SAID MAP NO. CF-157, THENCE NORTH 60°48'40" EAST ALONG THE SOUTHEASTERLY BOUNDARY OF SAID LAND, 85.52 FEET TO A POINT OF CUSP WITH A TANGENT CURVE CONCAVE NORTHWESTERLY AND HAVING A RADIUS OF 372.24 FEET; THENCE SOUTHWESTERLY ALONG SAID CURVE, THROUGH A CENTRAL ANGLE OF 15°15'39", AN ARC DISTANCE OF 103.05 FEET TO ITS INTERSECTION WITH THE SOUTHERLY BOUNDARY OF SAID LAND; THENCE SOUTH 78° 02' 00" EAST, ALONG SAID SOUTHERLY BOUNDARY, 21.53 FEET TO THE POINT OF BEGINNING, CONTAINING AN AREA OF 362 SQUARE FEET MORE OR LESS.

OA983370 158/1+

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RECORDING REQUESTED BY)
AND WHEN RECORDED MAIL TO)
DICE ROAD LLC)
4675 MacArthur Court, Suite 430)
Newport Beach, CA 92660)

RECORDED/FILED IN OFFICIAL RECORDS
RECORDER'S OFFICE
LOS ANGELES COUNTY
CALIFORNIA
2:41 PM DEC 23 1998

SURVEY MONUMENT FEE \$10. CODE 99 FEE \$42 N

SPACE ABOVE THIS LINE FOR RECORDER'S USE

A. F. N. F. CODE 94

GRANT DEED

The undersigned grantor declares: Documentary transfer tax is \$71.50 computed on the full value of the property conveyed less the value of liens and encumbrances remaining at the time of sale.

FOR VALUABLE CONSIDERATION, receipt of which is hereby acknowledged, AIR LIQUIDE AMERICA CORPATION, a Delaware corporation, hereby grants to DICE ROAD LLC, a Delaware limited liability company, the real property located in the City of Santa Fe Springs, County of Los Angeles of California, , consisting of that portion of the real property described on Exhibit 1 attached hereto (Existing Air Liquide Property) which is included wiithin the real property described on Exhibit 2 attached hereto (Proposed Dice Road Parcel)

SUBJECT TO.

- 1 Current taxes and assessments.
- 2 All other matters of record or apparent.

10th IN WITNESS WHEREOF, grantor has executed this instrument as of the day of December, 1998

AIR LIQUIDE AMERICA CORPATION

By: [Signature]
Name: John Bred
Title: Vice President

NOTIFICATION SENT-SAC

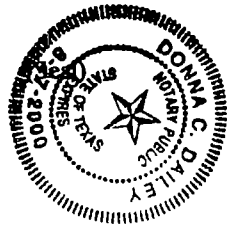
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STATE OF TEXAS)
)
COUNTY OF Harris) ss.

On December 10th 1998 before me, Donna C. Daley, a Notary Public in and for said State, personally appeared Tommy Baird, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument

WITNESS my hand and official seal.

Donna C. Daley
Notary Public in and for said State



98 2327780

EXHIBIT 1
[EXISTING AIR LIQUIDE PROPERTY]

PARCEL "B"

THAT PORTION OF THE COLIMA TRACT, IN THE RANCHO SANTA GETRUDES, IN THE CITY OF SANTA FE SPRINGS, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS

COMMENCING AT A POINT IN THE CENTER LINE OF DICE ROAD, 40 00 FEET NORTHERLY THEREON FROM THE CENTER LINE OF THE RIGHT OF WAY OF THE PACIFIC ELECTRIC RAILWAY (AS SAID RIGHT OF WAY AND DICE ROAD ARE SHOWN ON MAP RECORDED IN BOOK 3465 PAGE 135 OF DEEDS, RECORDS OF SAID COUNTY), THENCE ALONG SAID CENTER LINE OF DICE ROAD, NORTH 11°54'10" EAST 120.90 FEET, THENCE SOUTH 83°26" EAST 261.70 FEET TO THE TRUE POINT OF BEGINNING, THENCE NORTH 01°21' EAST 68.8 FEET, THENCE NORTH 83°21" WEST 249.00 FEET TO THE CENTER LINE OF SAID DICE ROAD, THENCE NORTH 11°54'10" EAST ALONG SAID CENTER LINE 196.65 FEET, THENCE SOUTH 83°07'50" EAST 340.15 FEET, THENCE NORTH 08°26'10" EAST 145.34 FEET TO THE NORTHERLY LINE OF THE LAND DESCRIBED IN CERTIFICATE OF TITLE NO. X-10800 ON FILE IN THE OFFICE OF THE REGISTRAR OF SAID COUNTY, THENCE ALONG THE NORTHERLY LINE SOUTH 73°50'40" EAST 823.79 FEET TO THE NORTHWESTERLY LINE OF THE SOUTHERN PACIFIC RAILROAD RIGHT OF WAY AS SAID RIGHT OF WAY WAS KNOWN ON AUGUST 24, 1920, THENCE SOUTH 60°48'40" WEST 762.07 FEET TO THE NORTHERLY LINE OF SAID PACIFIC RAILWAY RIGHT OF WAY, THENCE ALONG SAID LAST MENTIONED NORTHERLY LINE NORTH 78°02' WEST 294.60 FEET TO A POINT DISTANT SOUTH 78°02' EAST 282.70 FEET THEREON FROM SAID CENTER LINE OF DICE ROAD, THENCE NORTH 03°15' EAST 147.25 FEET TO THE TRUE POINT OF BEGINNING

EXCEPT THEREFROM THE LAND DESCRIBED IN THE DEED FROM BURDETT OXYGEN COMPANY OF CLEVELAND, INC., A CORPORATION, TO C.W. ROBERTS, A MARRIED MAN, RECORDED APRIL 21, 1954 IN BOOK 44382 PAGE 402, OFFICIAL RECORDS

ALSO EXCEPT THEREFROM THAT PORTION WITHIN SAID DICE ROAD CONVEYED TO COUNTY OF LOS ANGELES IN FEE SIMPLE FOR ROAD PURPOSES BY DEED RECORDED OCTOBER 10, 1908 IN BOOK 3465 PAGE 133 OF DEEDS.

DICE 00043

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ALSO EXCEPT THEREFROM THE LAND CONVEYED TO JOHN G LOCKE AND JANYCE E. LOCKE, HUSBAND AND WIFE AS COMMUNITY PROPERTY, AS TO AN UNDIVIDED ONE-THIRD (1/3) INTEREST, ROBERT O. BERG AND DONNA M. BERG, HUSBAND AND WIFE AS COMMUNITY PROPERTY, AS TO AN UNDIVIDED ONE-THIRD (1/3) INTEREST, AND ARNOLD ROSENTHAL AND PEARL ROSENTHAL, HUSBAND AND WIFE AS JOINT TENANTS BY DEED RECORDED DECEMBER 12, 1975 AS INSTRUMENT NO. 4550, OFFICIAL RECORDS, DESCRIBED AS FOLLOWS:

BEGINNING AT THE MOST SOUTHERLY CORNER OF THE LAND SHOWN ON SAID MAP NO. CF-157; THENCE NORTH 60°48'40" EAST ALONG THE SOUTHEASTERLY BOUNDARY OF SAID LAND 85.52 FEET TO A POINT OF CUSP WITH A TANGENT CURVE CONCAVE NORTHWESTERLY AND HAVING A RADIUS OF 372.24 FEET, THENCE SOUTHWESTERLY ALONG SAID CURVE, THROUGH A CENTRAL ANGLE OF 15°15'39", AN ARC DISTANCE OF 103.05 FEET TO ITS INTERSECTION WITH THE SOUTHERLY BOUNDARY OF SAID LAND, THENCE SOUTH 78°02'00" EAST, ALONG SAID SOUTHERLY BOUNDARY, 21.53 FEET TO THE POINT OF BEGINNING, CONTAINING AN AREA OF 362 SQUARE FEET MORE OR LESS.

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EXHIBIT 2
[PROPOSED DICE ROAD PARCEL]

PARCEL "A"

THAT PORTION OF THE RANCHO SANTA GERTRUDES, BEING ALSO PART OF THE TRACT FINALLY CONFIRMED TO TOMAS SANCHEZ COLIMA AND KNOWN AS THE COLIMA TRACT, IN THE CITY OF SANTA FE SPRINGS, DESCRIBED AS FOLLOWS:

BEGINNING AT THE FIRST ANGLE POINT IN THE CENTER LINE OF DICE ROAD, 40 FEET WIDE, SOUTHERLY OF SORENSON LANE, (NOW BURKE STREET) SAID ANGLE POINT BEING MARKED BY A COUNTY SURVEYOR'S CONCRETE MONUMENT AS SHOWN IN FIELD BOOK FT33-366, ON FILE IN THE OFFICE OF THE COUNTY SURVEYOR OF SAID LOS ANGELES COUNTY, THENCE ALONG SAID CENTER LINE OF DICE ROAD, NORTH 09°37'40" WEST 7 10 FEET, THENCE SOUTH 73°50'40" EAST 22 21 FEET TO A POINT IN THE EAST LINE OF SAID DICE ROAD, SAID POINT BEING MARKED BY A 2 INCH IRON PIPE AND BEING DISTANT NORTH 09°37'40" WEST 1.23 FEET FROM AN ANGLE POINT IN SAID EAST LINE OF DICE ROAD, THENCE ALONG A LINE WHICH PASSES THROUGH A 2 INCH IRON PIPE SET IN THE NORTHWESTERLY LINE OF THE RIGHT OF WAY, 50 FEET WIDE, OF THE PACIFIC ELECTRIC RAILROAD, AS DESCRIBED IN DEED TO THE LONG BEACH, WHITTIER AND LOS ANGELES COUNTY RAILROAD COMPANY, RECORDED IN BOOK 378 PAGE 284 OF DEEDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, SOUTH 73°50'40" EAST 480 68 FEET TO THE TRUE POINT OF BEGINNING

THENCE AT RIGHT ANGLES NORTH 16°09'20" EAST 612 06 FEET TO A POINT IN THAT CERTAIN COURSE HAVING A LENGTH OF 1175.91 FEET IN THE SOUTHERLY BOUNDARY OF PARCEL 1, AS SHOWN ON THE MAP FILED IN BOOK 65 PAGE 38 OF RECORD OF SURVEYS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, THENCE NORTH 86°14'22" WEST ALONG SAID CERTAIN COURSE 677 58 FEET TO A 2 INCH IRON PIPE IN THE EASTERLY LINE OF DICE ROAD, 40 FEET WIDE, AS SAID PIPE AND ROAD ARE SHOWN ON SAID LAST MENTIONED MAP; THENCE ALONG SAID DICE ROAD, SOUTH 09°37'51" EAST 15 28 FEET TO AN ANGLE POINT THEREIN AND SOUTH 80°05'09" WEST 40 00 FEET TO AN ANGLE POINT THEREIN, THENCE ALONG SAID DICE ROAD, SOUTH 09°38'29" EAST 483 46 FEET TO SAID 2 INCH IRON PIPE IN THE EAST LINE OF DICE ROAD, THAT IS DISTANT NORTH 09°37'40" WEST 1.23 FEET FROM AN ANGLE POINT IN SAID EAST LINE OF DICE ROAD, THENCE ALONG SAID LINE WHICH PASSES THROUGH A 2 INCH IRON PIPE SET IN THE NORTHWESTERLY LINE OF SAID RIGHT OF WAY, 50 FEET WIDE, NORTH 73°50'40" WEST 22 21 FEET TO THE CENTERLINE OF SAID DICE ROAD; THENCE SOUTH 9°51'22" EAST ALONG THE CENTERLINE OF SAID DICE ROAD 7 10 FEET TO SAID ANGLE POINT IN SAID DICE ROAD, THENCE SOUTH 11°54'10" WEST ALONG THE CENTERLINE OF SAID DICE ROAD 136 46 FEET, THENCE SOUTH 86°16'45" EAST 497 17 FEET TO THE WESTERLY LINE OF THE LAND DESCRIBED

DICE 00045

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IN INSTRUMENT NUMBER 891, RECORDED APRIL 21, 1954 IN BOOK 44382 PAGE 402, OF OFFICIAL RECORDS, RECORDS OF SAID COUNTY; THENCE ALONG THE WESTERLY LINE OF LAST SAID INSTRUMENT NORTH 16D 06' 40" EAST 35.42 FEET TO THE SAID LINE WHICH PASSES THRU A 2 INCH IRON PIPE, SAID LINE ALSO BEING THE NORTHERLY LINE OF THE LAND DESCRIBED IN CERTIFICATE OF TITLE NO. X-10800 ON FILE IN THE OFFICE OF THE REGISTRAR OF SAID COUNTY; THENCE ALONG LAST SAID LINE SOUTH 73D50'40" EAST 4.21 TO THE TRUE POINT OF BEGINNING.

DOCUMENT 05/0+

WHEN RECORDED:
MAIL TO:

322

AMERICAN CYROGENICS, INC.
3832 DICE ROAD
SANTA FE SPRINGS, CALIFORNIA 90670
ATTN: MR. P. A. ZEDDIK

RECORDED IN OFFICIAL RECORDS
OF LOS ANGELES COUNTY, CALIF.
FOR TITLE INSURANCE & TRUST CO.
FEB 26 1970 AT 8 A.M.
RAY E. LEE, Registrar-Recorder

RKD464211231

same as above

SOUTHERN PACIFIC TRANSPORTATION COMPANY, a Delaware corporation, herein termed "Grantor", hereby grants to AMERICAN CRYOGENICS, INC., a corporation, herein termed "Grantee", the following described real property in the City of Santa Fe Springs, County of Los Angeles, State of California, to-wit:

PARCEL 1:

That portion of the 236 acre tract of land known as the Colima Tract, in the Rancho Santa Gertrudes, in the City of Santa Fe Springs, County of Los Angeles, State of California, allotted to Jose Sanchez Colima and Nicholas S. Colima, by decree of partition entered in Case No. 2542 of the District Court of the 17th Judicial District of said county, described as follows:

Beginning at a point in the southeasterly line of the land described in the deed from Nicholas S. Colima to Jose S. Colima, recorded in Book 15, Page 414 of Deeds, in the office of the county recorder of said county, distant 198 feet, more or less, southerly from the northeast corner thereof, said point being also the northeast corner of the land conveyed in the deed from Jose Sanchez Colima and wife, to Leander Sleeper and Sarah Sleeper, his wife, recorded in Book 15, Page 420 of said Deeds; thence along the northerly line of the land so conveyed to said Sleeper and his wife, North 73°30' West to its intersection with the southeasterly line of the 50-foot wide strip of land described in the deed to the Long Beach, Whittier and Los Angeles County Railroad Company, recorded in Book 391, Page 53 of said Deeds; thence southwesterly along said southeasterly line to its intersection with the northerly boundary of the 100-foot wide strip described in the Deed to H. E. Huntington, Trustee, recorded in Book 2927, Page 14 of said Deeds; thence easterly along said northerly boundary to its intersection with said southeasterly line of the land described in said Deed recorded in Book 15, Page 414 of Deeds; thence North 39°30' East along said southeasterly line to the point of beginning.

EXCEPTING therefrom that portion thereof lying southerly of a line that is parallel with and distant southerly 30 feet, measured at right angles, from that certain course, and its easterly prolongation, having a length of 441.12 feet, in the southerly boundary of the real property, described in the deed to C. W. Roberts, recorded on April 21, 1954, as Document No. 891, in Book 44382, page 402, of Official Records, in the office of said county recorder.

Mail tax statements to:

SAME AS ABOVE

(Name)

(Address)

(Zip Code)

322

15.40
Ruben Garcia, Will...

BK D4642 P 232

ALSO EXCEPTING therefrom that portion thereof lying easterly of the centerline of that certain strip of land, 80 feet wide, described in the deed of easement to the City of Santa Fe Springs, recorded on May 21, 1965, as Document No. 3632, in Book D-2913, page 716, of said Official Records, said centerline being more particularly described therein as follows:

Beginning at the southerly terminus of that certain course having a bearing and length of South 3°19'35" West 515.92 feet in the center line of Sorensen Avenue, as shown on County Surveyors Map No. B-2263, on file in the office of the Engineer of said county; thence South 3°42'47" West, along the southerly prolongation of said certain course, 232.15 feet to the beginning of a tangent curve, concave westerly and having a radius of 800.00 feet; thence southerly and southwesterly along said curve, through a central angle of 36°54'06", an arc distance of 515.25 feet; thence tangent to said curve South 40°36'53" West, 188.97 feet to the beginning of a tangent curve concave easterly and having a radius of 800.00 feet; thence southerly along said curve, through a central angle of 35°00'00", an arc distance of 488.69 feet; thence tangent to said curve South 5°36'53" West, 865.74 feet to a point of tangency in the northwesterly and northerly continuation of that certain curve having a radius of 1000 feet and an arc length of 201.69 feet in the center line of Sorensen Avenue, 80 feet wide, as shown on the map of Tract No. 27623, recorded in Book 706, pages 55, 56 and 57 of Maps, in the office of said county recorder; thence southerly and southeasterly along said continuation and along said certain curve, through a central angle of 55°54'59", an arc distance of 975.93 feet to the southeasterly terminus of said certain curve.

ALSO EXCEPT an undivided one-half interest in and to all oil, gas, and other hydrocarbon substances and the minerals, in, under, and that may be produced from said land for a period of 10 years from the date hereof, or for so long thereafter as any oil, gas, minerals, or other hydrocarbon substances are being produced from said land or from any Community Oil and Gas Lease of which said land is a part, but without right of entry, however, to a depth of 500 feet, as reserved by Russell E. Harrison and Hilda H. Harrison, husband and wife, in Deed recorded July 1, 1955.

RESERVING therefrom the remaining undivided one-half interest of all oil, gas, and other hydrocarbon substances in and under said land that may be produced below a plane 500 feet below the surface thereof but without the right of entry upon such surface above said 500 foot plane, as reserved in the Deed from John B. Rauen and Agnes E. Rauen, husband and wife, recorded March 10, 1958.

ALSO RESERVING all rights of reversion of the reservation of Russell E. Harrison and Hilda H. Harrison, husband and wife, by Deed recorded July 1, 1955 as provided in the Deed last above mentioned.

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BK04642PG233

ALSO EXCEPT all right, title and interest in and to oil, gas, and other hydrocarbon substances in or under said land, as conveyed to John B. Rauen, a married man, by deed recorded September 15, 1959 in Book D-602, Page 521, Official Records, but without the right of entry upon the surface or subsurface of said land except below a depth of 500 feet below the surface thereof.

The hereinabove described Parcel 1 contains an area of 4,456 square feet.

PARCEL 2:

That certain strip or parcel of land, lying, being and situate in the City of Santa Fe Springs, County of Los Angeles, State of California, described in deed to the Long Beach, Whittier, and Los Angeles County Railroad Company, recorded on February 15, 1888, in Book 391, page 53, of Deeds, in the office of the County Recorder of said county, said land being described in said deed as follows:

"A strip or tract of land fifty feet wide, lying equally on each side of the located line of the Long Beach, Whittier and Los Angeles County Railroad Company's Railroad where the same is located through the land of the said party of the first part situated between the town of 'Fulton Wells' or 'Santa Fe Springs' and the town of 'Whittier' and adjoining the lands of John H. Martin, Sanchez, Hall and others, being more particularly described as follows, to wit:

Commencing for the same at a point on the center line of said Railroad where said center line intersects the westerly boundary line of said land of said party of the first part at or near Engineer's Station number One Hundred and Seventy Nine plus Forty One (179+41) and running thence in a northeasterly direction along said center line of said Railroad, embracing a strip of land twenty five feet wide on each side of said center line to the northerly boundary line of said land at or near Engineers' Station number One Hundred and Ninety-Five plus Thirty Six (195+36) a distance of One Thousand five hundred and ninety five (1595) feet, more or less.

EXCEPTING therefrom that portion thereof lying southerly of a line that is parallel with and distant southerly 30 feet, measured at right angles, from that certain course, and its easterly prolongation, having a length of 441.12 feet, in the southerly boundary of the real property, described in the deed to C. W. Roberts, recorderd on April 21, 1954, as Document No. 891, in Book 44382, page 402, of Official Records, in the office of said county recorder.

ALSO EXCEPTING therefrom that portion thereof lying easterly of the centerline of that certain strip of land, 80 feet wide, described in the deed of easement to the City of Santa Fe Springs, recorded on May 21, 1965,

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as Document No. 3632, in Book D-2913, page 716, of said Official Records, said centerline being more particularly described therein as follows:

BKD4642 P.C. 234

Beginning at the southerly terminus of that certain course having a bearing and length of South 3°19'35" West 515.92 feet in the center line of Sorensen Avenue, as shown on County Surveyors Map No. B-2263, on file in the office of the Engineer of said county; thence South 3°42'47" West, along the southerly prolongation of said certain course, 232.15 feet to the beginning of a tangent curve, concave westerly and having a radius of 800.00 feet; thence southerly and southwesterly along said curve, through a central angle of 36°54'06", an arc distance of 515.25 feet; thence tangent to said curve South 40°36'53" West, 188.97 feet to the beginning of a tangent curve concave easterly and having a radius of 800.00 feet; thence southerly along said curve, through a central angle of 35°00'00", an arc distance of 488.69 feet; thence tangent to said curve South 5°36'53" West, 865.74 feet to a point of tangency in the northwesterly and northerly continuation of that certain curve having a radius of 1000 feet and an arc length of 201.69 feet in the center line of Sorensen Avenue, 80 feet wide, as shown on the map of Tract No. 27623, recorded in Book 706, pages 55, 56 and 57 of Maps, in the office of said county recorder; thence southerly and southeasterly along said continuation and along said certain curve, through a central angle of 55°54'59", an arc distance of 975.93 feet to the southeasterly terminus of said certain curve.

The hereinabove described Parcel 2 contains an area of 8,847 square feet.

Parcels 1 and 2

Excepting therefrom that portion of said ~~property~~ ^{property} lying below a depth of five hundred (500) feet measured vertically from the contour of the surface thereof.

Subject to easements, covenants, conditions, reservations and restrictions of record.

Grantee hereby covenants as follows:

- (1) That the exterior walls of all buildings erected on the above-described property shall be of concrete, masonry, brick or equally substantial construction.
- (2) All buildings to be located as required by local codes and ordinances. In any case, the building set-back lines shall be not less than Thirty-five (35ft.) from the street lines. This area may be used for landscaping and/or parking purposes.
- (3) Outside storage will be permitted only if adequately screened by location of building and/or construction of a masonry type block wall.

The preceding covenants may be enforced by any and all of the

BK04642 PG 235

available legal and equitable remedies, including, but not limited to, injunction, declaratory relief, specific performance and action to abate a nuisance by the Grantor, or its successors or assigns, who shall have the right to recover Grantor's reasonable attorney's fees from Grantee, or its successors in title, in connection with any such action to enforce these covenants. Grantee, by its acceptance hereof, waives any right it might otherwise have to claim that any of such remedies are unavailable. These covenants are for the benefit of the land conveyed hereby and shall be binding upon the successors in title of Grantee.

IN WITNESS WHEREOF, Grantor has caused these presents to be executed this 19th day of December, 1969.

SOUTHERN PACIFIC TRANSPORTATION COMPANY

By [Signature]
(Title) VICE PRESIDENT

Attest [Signature]
Assistant Secretary

DOCUMENTARY 15.40
[Notary Seal]

STATE OF CALIFORNIA,
City and County of San Francisco ss.

On this 16th day of December in the year One Thousand Nine Hundred and Sixty Nine
before me, John E. Jurgens, a Notary Public in and for the City and County of San Francisco, State of California, personally appeared
R. K. McRae and C. F. Hill

JOHN E. JURGENS
NOTARY PUBLIC-CALIFORNIA
PRINCIPAL PLACE OF BUSINESS IN
CITY AND COUNTY OF
SAN FRANCISCO

My Commission Expires June 13, 1973

known to me to be the Vice President & Gen'l Sec'y
of the corporation described in and that executed the within instrument, and also known to me to be the persons who executed it on behalf of the corporation therein named and they acknowledged to me that such corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal at my office in the City and County of San Francisco, the day and year in this certificate first above written.

Corporation

[Signature]
Notary Public in and for the City and County of San Francisco, State of California.

My Commission Expires June 13, 1973

7-30-70

RECORDED IN OFFICIAL RECORDS
OF LOS ANGELES COUNTY, CALIF.
FOR TITLE INSURANCE & TRUST CO.
AUG 30 1970 AT 8 A.M.
RAY E. LEE, Registrar-Recorder

Recording Requested By:

FOIA ex 6, Personal Privacy

When Recorded Mail To:

FOIA ex 6, Personal Privacy

SEE 8 6 1/2 0

Mail Tax Statements To:

FOIA ex 6, Personal Privacy

DOCUMENTARY TRANSFER TAX 1/2%
-- COMPUTED ON FINAL VALUE OF PROPERTY CONVEYED
-- AND PREPARED ON FINAL VALUE (FOR LISTS AND
SCHEDULES) REMAINING AT TIME OF SALE.
Arthur Logan Title Insurance & Trust Co.
Registrar of Deeds and Agent Determining Tax First Book

GRANT DEED

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged, AMERICAN CRYOGENICS, INC., a corporation, hereby grants to FOIA ex 6, Personal Privacy the following described real property in the County of Los Angeles, State of California:

PARCEL 1:

That portion of the 230 acre tract of land known as the Colima Tract, in the Rancho Santa Gertrudes, in the City of Santa Fe Springs, County of Los Angeles, State of California, allotted to Jose Sanchez Colima and Nicholas S. Colima, by decree of partition entered in Case No. 2542, of the District Court of the 17th Judicial District of said county, described as follows:

Beginning at a point in the southeasterly line of the land described in the deed from Nicholas S. Colima to Jose S. Colima, recorded in Book 10, Page 414 of Deeds, in the office of the County Recorder of said county, distant 100 feet, more or less, southerly from the northeast corner thereof, said point being also the northeast corner of the

Mail Tax Statements as directed above

land conveyed in the deed from Jose Manches Collima and wife, to Leander Sleeper and Sarah Sleeper, his wife, recorded in Book 18, Page 420 of said Deeds; thence along the northerly line of the land so conveyed to said Sleeper and his wife, North 73° 30' West to its intersection with the southeasterly line of the 50 foot wide strip of land described in the deed to the Long Beach, Whittier and Los Angeles County Railroad Company, recorded in Book 381, Page 53 of said Deeds; thence southwesterly along said southeasterly line to its intersection with the northerly boundary of the 100 foot wide strip described in the deed to H. B. Huntington, Trustee, recorded in Book 2927, Page 14 of said Deeds; thence easterly along said northerly boundary to its intersection with said southeasterly line of the land described in said deed recorded in Book 18, Page 414 of Deeds; thence North 39° 30' East along said southeasterly line to the point of beginning.

EXCEPTING therefrom that portion thereof lying southerly of that certain course, and its easterly prolongation, having a length of 441.12 feet, in the southerly boundary of the real property, described in the deed to C. W. Roberts, recorded on April 21, 1954, as Document No. 881, in Book 44382, Page 402, Official Records, in the office of said County Recorder.

ALSO EXCEPTING therefrom that portion thereof lying easterly of the centerline of that certain strip of land, 80 feet wide, described in the deed of easement to the City of Santa Fe Springs, recorded on May 21, 1955, as Document No. 3632, in Book D 2813, Page 718, of said Official Records, said centerline being more particularly described therein as follows:

Beginning at the southerly terminus of that certain course having a bearing and length of South 3° 19' 36" West 515.92 feet in the centerline of Sorenson Avenue, as shown on County Surveyor's Map No. H-2203, on file in the office of the Engineer of said county; thence South 3° 42' 47" West, along the southerly prolongation of said certain course, 232.15 feet to the beginning of a tangent curve, concave westerly and having a radius of 800.00 feet; thence southerly and southwesterly along said curve, through a central angle of 30° 54' 08", an arc distance of 515.25 feet; thence tangent to said curve South 40° 36' 53" West, 188.97 feet to the beginning of a tangent curve concave easterly and having a radius of 800.00 feet; thence southerly along said curve, through a central angle of 35° 00' 00", an arc distance of 488.08 feet; thence tangent to said curve South 5° 36' 53" West, 866.74 feet to a point of tangency in the northwesterly and northerly continuation of that certain curve having a radius of 1000 feet and an arc length of 201.08 feet in the centerline of Sorenson Avenue, 80 feet wide, as shown on the map of Tract No. 27823, recorded in Book 708, Pages 55, 56 and 57 of Maps, in the office of said County Recorder; thence southerly and southeasterly along said continuation and along said certain curve, through a central angle of 55° 54' 08", an arc distance of 975.83 feet to the southeasterly terminus of said certain curve.

ALSO EXCEPT an undivided one-half interest in and to all oil, gas and other hydrocarbon substances and the minerals, in, under, and that may be produced from said land for a period of 10 years from

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date hereof, or for so long thereafter as any oil, gas, minerals, or other hydrocarbon substances are being produced from said land or from any Community Oil and Gas Lease of which said land is a part, but without right of entry, however, to a depth of 500 feet, as reserved by Russell E. Harrison and Hilda H. Harrison, husband and wife, in deed recorded July 1, 1955, in Book 48258, Page 424, Official Records, Instrument No. 1326.

RESERVING therefrom the remaining undivided one-half interest of all oil, gas and other hydrocarbon substances in and under said land that may be produced below a plane 500 feet below the surface thereof, but without the right of entry upon such surface above said 500 foot plane, as reserved in the deed from John H. Hauen and Agnes H. Hauen, husband and wife, recorded March 17, 1955, in Book D 88, Page 815, Official Records, Instrument No. 1301.

ALSO RESERVING all rights of reversion of the reservation of Russell E. Harrison and Hilda H. Harrison, husband and wife, by deed recorded July 1, 1955, as provided in the deed last above mentioned.

ALSO EXCEPT all right, title and interest in and to oil, gas, and other hydrocarbon substances in or under said land, as conveyed to John H. Hauen, a married man, by deed recorded September 15, 1955, in Book D 802, Page 521, Official Records, but without the right of entry upon the surface or subsurface of said land except below a depth of 500 feet below the surface thereof.

PARCEL 2:

That certain strip of parcel of land, lying, being and situate in the City of Santa Fe Springs, County of Los Angeles, State of California, described in deed to the Long Beach, Whittier and Los Angeles County Railroad Company, recorded on February 18, 1955 in Book 381, Page 53 of Deeds, in the office of the County Recorder of said county, said land being described in said deed as follows:

"A strip or tract of land fifty feet wide, lying equally on each side of the located line of the Long Beach, Whittier and Los Angeles County Railroad Company's Railroad where the same is located through the land of the said party of the first part situated between the town of "Fulton Wells" or "Santa Fe Springs" and the town of "Whittier" and adjoining the lands of John H. Martin, Sanchez, Hall and others, being more particularly described as follows, to wit:

Commencing for the same at a point on the centerline of said Railroad where said centerline intersects the westerly boundary line of said land of said party of the first part at or near Engineer's Station Number One Hundred and Seventy Nine plus Forty One (179 + 41) and running thence in a northeasterly direction along said centerline of said Railroad, embracing a strip of land twenty five feet wide on each side of said centerline to the northerly boundary line of said land at or near Engineer's Station Number One Hundred and Ninety Five plus Thirty Six (195 + 36), a distance of One Thousand Five Hundred and Ninety Five (1595) feet, more or less,"

EXCEPTING therefrom that portion thereof lying southerly of that certain course, and its easterly prolongation, having a length of 441.12 feet in the southerly boundary of the real property, described in the deed to C. W. Roberts, recorded on April 21, 1954, as Document No. 891, in Book 44382, Page 402, Official Records, in the office of said County Recorder.

ALSO EXCEPTING therefrom that portion thereof lying easterly of the centerline of that certain strip of land 80 feet wide, described in the deed of easement to the City of Santa Fe Springs, recorded on May 21, 1965, as Document No. 3533, in Book D 2818, Page 718, of said Official Records, said centerline being more particularly described therein as follows:

Beginning at the southerly terminus of that certain course having a bearing and length of South 3° 19' 35" West 515.93 feet in the centerline of Sorenson Avenue, as shown on County Surveyor's Map No. 11-2303, on file in the office of the Engineer of said county; thence South 3° 42' 47" West, along the southerly prolongation of said certain course, 232.10 feet to the beginning of a tangent curve, concave westerly and having a radius of 800.00 feet; thence southerly and southwesterly along said curve, through a central angle of 38° 54' 00", an arc distance of 515.26 feet; thence tangent to said curve South 40° 30' 53" West, 188.87 feet to the beginning of a tangent curve concave easterly and having a radius of 800.00 feet; thence southerly along said curve, through a central angle of 35° 00' 00", an arc distance of 488.80 feet; thence tangent to said curve South 6° 30' 53" West, 888.74 feet to a point of tangency in the northwest-erly and northerly continuation of that certain curve having a radius of 1000 feet and an arc length of 201.80 feet in the centerline of Sorenson Avenue, 80 feet wide, as shown on the map of Tract No. 27823, recorded in Book 700, Pages 55, 56 and 57 of Maps, in the office of said County Recorder; thence southerly and southeasterly along said continuation and along said certain curve, through a central angle of 65° 54' 09", an arc distance of 918.93 feet to the southeasterly terminus of said certain curve.

ALSO EXCEPTING therefrom that portion of said Parcels 1 and 2 lying below a depth of five hundred (500) feet measured vertically from the contour of the surface thereof, as excepted in the deed from Southern Pacific Transportation Company, a Delaware corporation, recorded February 26, 1970, in Book D 4842, Page 231, Official Records, as Instrument No. 322.

Dated: July 14, 1970.

AMERICAN CYCLOTECHNICS, INC.

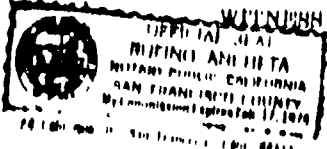
By *J. W. ...* Vice President

By *[Signature]* Assistant Secretary

STATE OF CALIFORNIA }
CITY AND } ss.
COUNTY OF San Francisco }

On July 14, 1970, before me, the undersigned, a Notary Public in and for said State, personally appeared P. WOOD known to me to be the Vice President of the corporation that executed the within instrument, known to me to be the person who executed the within instrument on behalf of the corporation therein named, and acknowledged to me that such corporation executed the within instrument pursuant to its by-laws or a resolution of its Board of Directors.

WITNESS my hand and official seal.



Rufino Angueta
Notary Public

My commission expires:

RUFINO ANGUETA

NOTARY PUBLIC

Notary for the State of California, County of San Francisco, State of California

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STATE OF California }
COUNTY OF San Bernardino } ss.

On July 22, 1970, before me, the under-
signed, a Notary Public in and for said State, personally appeared
B. W. Turk, known to me to be
the Assistant Secretary of the corporation that executed the within
instrument, known to me to be the person who executed the within
instrument on behalf of the corporation therein named, and acknow-
ledged to me that such corporation executed the within instrument
pursuant to its by-laws or a resolution of its Board of Directors.

WITNESS my hand and official seal.

Virginia E. Meadows
Notary Public

My commission expires:

July 12, 1971



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AGREEMENT, dated as of June 30, 1972, by and between
L'AIR LIQUIDE, SOCIETE ANONYME POUR L'ETUDE ET L'EXPLOITATION
DES PROCÉDES GEORGES CLAUDE, ("Air Liquide"), a French
corporation; CANADIAN LIQUID AIR LTD. ("CLA"), a Canadian
corporation; JERSEY ENTERPRISES INC. ("Jersey"), a Delaware
corporation; INTERNATIONAL LIQUID AIR INC. ("LA Inter"), a
Delaware corporation; AMERICAN AIR LIQUIDE, INC. ("AAL"), a
Delaware corporation; LIQUID AIR INC. ("LAI"), a Delaware
corporation; U.S. DIVERS CO. ("USD"), a California corporation;
LA SPIROTECHNIQUE ("Spiro"), a French corporation; and
JACQUES COUSTEAU ("Cousteau"), Scientist, of the Principality
of Monaco,

PECIALS

WHEREAS Air Liquide is the owner of all the outstanding
common shares of CLA and is desirous of transferring the same
to LA Inter, in exchange for Common Stock of LA Inter;

WHEREAS CLA, AAL, and certain individuals are the
owners of all the outstanding common shares of LAI and are
desirous of transferring the same to LA Inter;

WHEREAS Spiro, AAL and Cousteau are the owners of
all the outstanding common shares of USD and are desirous of
transferring the same to LA Inter;

WHEREAS the foregoing is part of a re-organization
plan pursuant to which LA Inter (a majority of the Common Stock
of which will be owned by Air Liquide) will be the parent

company

17. ROYALTIES AND OTHER AGREEMENTS

Air Liquide agrees that:-

(a) Air Liquide has entered into a Technical Agreement with CLA dated August 1, 1969 a copy of which has been delivered to Jersey. The royalty provided in said agreement payable by CLA to Air Liquide shall not be increased during the term of said agreement and such royalties shall only apply to sales by CLA and its Canadian Subsidiaries (excluding sales in the U.S. by Canadian Subsidiaries, branches or divisions operating in the U.S.) and said royalties shall include all sales to companies within the Air Liquide Group;

(b) Spiro has entered into a Technical Agreement with USD dated October 1, 1966, a copy of which has been delivered to Jersey. The royalty provided in said agreement payable by USD to Spiro shall not be increased during the term of said agreement. The Agreements described in this Section 17 (a) and (b) may be renewed upon their expiry dates on terms and conditions based upon consideration of facts and circumstances existing at the time of such renewal;

(c) Any work or services performed by Air Liquide or any of its Affiliates for LA Inter and its Subsidiaries (except as provided in the aforesaid Technical Agreements) shall be performed at cost (including a reasonable allowance for administrative and other overheads) plus 5%;

(d) Any LA Inter indebtedness to Air Liquide or any of its Affiliates shall be at not more than the then current bank charge for prime loans in New York City plus 1% except as referred to or contemplated by the provisions of this Agreement, or as consented to by Jersey pursuant to a letter dated March 24, 1972 addressed to CLA;

(e) LA Inter will be the sole vehicle for Air Liquide's future direct or indirect operations in the industrial gas field (exclusive of engineering and constructing low temperature separation plants) and in those lines of business in which USD is engaged at the time of the Closing in the United States and Canada;

(f) Air Liquide's other relations with LA Inter will be conducted with due regard to the interests of LA Inter minority stockholders;



LIQUID AIR

AN AIR LIQUIDE GROUP COMPANY

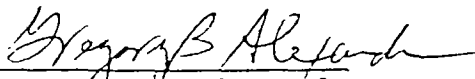
LAI Properties, Inc.
2121 North California Boulevard
Walnut Creek, California 94596

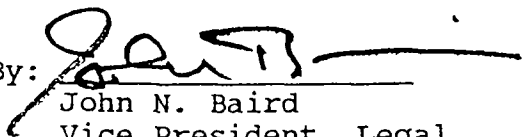
Gentlemen:

This is to advise you that Liquid Air Corporation ("LAC") hereby elects to contribute to the capital of LAI Properties, Inc., ("LAI"), a Delaware corporation, all of: (1) its Assets, whether owned or leased and which are used in the industrial gas business in the United States, which is conducted through the INDUSTRIAL GASES DIVISION, a joint venture pursuant to the agreement of January 1, 1980, as amended, between LAC and LAI, except for those assets specifically described in Appendix "A," attached hereto, forming part hereof; (2) that portion of the indebtedness owed by LAC to third party creditors that is attributable to the industrial gas business conducted through the INDUSTRIAL GASES DIVISION, and as more specifically described on Appendix "B," attached hereto, forming part hereof; and (3) that portion of the indebtedness, including principal and accrued interest owed by LAI to LAC, as at September 30, 1990, and as more specifically described on Appendix "C," attached hereto, forming part hereof, such capital contribution to be effective at the close of business on September 30, 1990, without any additional shares of capital stock of LAI being issued in respect thereof. No transfer or assignment of any leasehold interest in any asset which requires the consent of a third party is, or shall be made, if without such consent, the assignment or transfer would constitute a breach or violation thereof.

Very truly yours,

LIQUID AIR CORPORATION

By: 
Gregory B. Alexander
Vice President and Treasurer

By: 
John N. Baird
Vice President, Legal
and Corporate Affairs

DICE 00060

APPENDIX "A"

The following assets are excluded from the capital contribution from LAC to LAI:

1. Capital Stock of VitalAire Corporation
2. Capital Stock of Canadian Liquid Air Ltd.
3. Capital Stock of LACONA Holdings, Inc.
4. Capital Stock of LAI Properties, Inc.
5. Capital Stock of U.S.D. Corp
6. Those assets accounted for by LAC as the division entitled "LAC Unconsolidated," as shown in Attachment 1.
7. Any and all patents of which LAC is the owner or current holder.

APPENDIX "B"

THIRD PARTY INDEBTEDNESS

Accounts Payable to Vendors	\$33,187,667
Taxes Other Than Income	\$ 1,134,689
Oklahoma Revenue Bond	\$ 1,120,000
Deferred Income	\$ 714,304
Deferred Income Taxes	\$ 6,289,788

APPENDIX "C"

INDEBTEDNESS

PAYABLE BY LAI TO LAC

In the amount of \$62,255,567

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ARNA 7/15/80 48
A. K. Kalkanian 7/15/80
J. Killkenny 7/15/80

SEPARATION AGREEMENT
SANTA FE SPRINGS, CALIFORNIA

AGREEMENT, made this *6th* day of June, 1980 by and between MG BURDETT GAS PRODUCTS COMPANY, a Delaware corporation having an office at One Schuylkill Avenue, Norristown, Pennsylvania 19401 ("Burdett"), and LIQUID AIR INC., a Delaware corporation having offices at One Embarcadero Center, San Francisco, California 94111 ("Liquid Air").

W I T N E S S E T H :

WHEREAS, Burdett and Liquid Air are parties to an agreement dated February 8, 1980 (the "Acquisition Agreement") whereby Liquid Air and Liquid Air Corporation of North America, a Delaware corporation, have agreed to sell to Burdett and Burdett has agreed to purchase from Liquid Air and said Liquid Air Corporation of North America certain assets and business of manufacturing, marketing and distributing industrial and medical gases and marketing and distributing welding equipment, as defined in the Acquisition Agreement;

WHEREAS, §4.2.1 of the Acquisition Agreement and Schedule 4.2A attached thereto provide that Liquid Air shall retain a certain portion (the "Liquid Air Parcel") and

transfer to Burdett a certain portion (the "Burdett Parcel") of the real property of Liquid Air at Sante Fe Springs, California; and

WHEREAS, §4.2.1 of the Acquisition Agreement provides that the parties thereto will execute and deliver an agreement governing the separation of said property;

NOW THEREFORE, in consideration of the premises and the mutual covenants and conditions contained herein, the parties hereto hereby agree as follows:

1. Subdivision

Liquid Air shall at its expense prepare and file any and all documents that may be necessary, under the California Subdivision Map Act or the subdivision ordinances of the City of Santa Fe Springs, California or otherwise, in order to subdivide said property into the Liquid Air Parcel and the Burdett Parcel. Liquid Air shall pay any and all costs for work or improvements (collectively, the "Improvements") on the Liquid Air Parcel or the Burdett Parcel specifically required by any governmental agency in order to effect the subdivision, including, but not limited to, the costs of streets, street alignments, pavements, sidewalks, curbs, gutters, drainage facilities and the like. Liquid Air shall,

at its own cost and expense, cause to be posted any bond or bonds required by any governmental agency to secure the completion of the improvements.

2. Escrow

On the date hereof, Liquid Air has delivered to Lawyers Title Insurance Corporation or such other person as may from time to time be designated by written agreement of Liquid Air and Burdett (the "Escrow Holder") an executed deed to Burdett of the Burdett Parcel, to be held in accordance with the terms of escrow instructions from Burdett and Liquid Air to the Escrow Holder in the form attached hereto and by this reference made a part hereof (the "Escrow Instructions"). In the event the Escrow Holder is unable to record said deed and issue or cause to be issued a title insurance policy as described therein and by the date (as may be extended by mutual agreement) set forth therein (the "Release Date") in accordance with the Acquisition Agreement, Liquid Air shall be deemed to have exercised its option pursuant to §4.2.1 of the Acquisition Agreement notwithstanding the fact that Burdett has not removed the air separation plant. In such event, the payment of the option price to Burdett against redelivery of the deed to the Burdett Parcel to Liquid Air (the "Option Closing") shall take place upon removal of the

air separation plant from the Burdett Parcel by Burdett or on June 6, 1990, whichever shall first occur. The appraisals for purposes of determining the option price which are contemplated by §4.2.1 of the Acquisition Agreement shall be made as of the date of the Option Closing. In the event the option is deemed to have been exercised under this paragraph 2, Burdett shall not be required to remove said plant prior to June 6, 1990, and Burdett shall have the custody and care of said plant and all property of Burdett from time to time stored on the Burdett Parcel by Burdett during such period. Liquid Air shall not permit third parties to have access to such plant and property without the prior written approval of Burdett. Nothing herein shall be deemed to relieve Liquid Air of its obligations or its obligation to use its best efforts up to and including the Release Date to convey the Burdett Parcel to Burdett in accordance with the Escrow Instructions. In the case of any conflict between this Separation Agreement and the Escrow Instructions, the provisions of this Separation Agreement shall control.

3. Possession and License

(a) Prior to the recordation of the deed and issuance of title insurance in accordance with the Escrow Instructions, Liquid Air shall retain possession of the Burdett Parcel.

(b) Liquid Air hereby grants to Burdett a license (the "License") over the Burdett Parcel for ingress, egress, operation and maintenance of all equipment and machinery located on the Burdett Parcel, storage of supplies and inventory, and for such other purposes as may reasonably be necessary for Burdett to conduct the business being transferred to it from Liquid Air pursuant to the Acquisition Agreement and to fulfill its obligations under this Separation Agreement and the Acquisition Agreement. The License shall commence on the date of this Separation Agreement and shall terminate upon the recordation of the deed in accordance with the Escrow Instructions or upon the Option Closing, whichever occurs first. Burdett shall not be obligated to pay any additional consideration to Liquid Air for the License.

(c) It is the intent of the parties that the License not constitute a "lease" and to this end, Burdett and Liquid Air each agree that the license shall not constitute an estate in the Burdett Parcel. Burdett and Liquid Air further intend and agree that the License be a personal contractual right of Burdett and that the License shall not be capable of assignment by Burdett. Any attempt to assign the License by Burdett shall result in the immediate and automatic termination thereof.

4. Easements

On and after the date that the Burdett Parcel is conveyed to Burdett, each party, upon the request of the other party, shall from time to time grant without charge such easements, which shall be in recordable form, as are reasonably necessary to the normal operation and use of the requesting party's portion of said real property, including without limitation utility easements and rights of way, provided that neither party shall be required to grant any particular easement if such easement, taken together with the easements theretofore granted pursuant hereto, would unreasonably interfere with the normal operation and use, or materially reduce the fair market value, of its respective parcel or render its title to the same unmarketable.

5. Utilities.

Whereas Burdett has been informed by Southern California Edison Company (through Connie Callenor, Customer Service Representative) that as a new owner of the Burdett Parcel Burdett will have the right to cancel the existing power contract and enter into a new such contract with reduced residual demand charges based on its actual power requirements. Burdett will make available to Liquid Air electric power at

Burdett's cost for actual kilowatt hours as used by Liquid Air and as determined by the power contract then in effect, excluding any residual demand charges to Burdett, and water service at Burdett's cost to the extent such utilities have customarily heretofore been supplied to the Liquid Air Parcel from the Burdett Parcel until Liquid Air shall find alternate sources for the same available on a reasonable basis. Liquid Air will use its best efforts promptly to find such alternate sources, and Burdett will, subject to paragraph 4 hereof, grant any reasonable easements required for the installation and maintenance of any such alternate sources.

6. Sewer Lines.

Liquid Air shall at no charge to Liquid Air have the right to use for the Liquid Air Parcel sanitary and storm sewer lines located on the Burdett Parcel to the extent such lines have customarily heretofore been used for the Liquid Air Parcel. Liquid Air will pay to Burdett its pro rata share of all expenses, including without limitation taxes, rents, charges and maintenance, associated with such lines, based upon Liquid Air's estimated usage of the same.

7. Compressed Air.

As long as Burdett shall operate the air separation plant Burdett will supply Liquid Air with compressed air

for use on the Liquid Air Parcel to the extent customarily heretofore supplied from the Burdett Parcel, and shall be paid, based upon metered volume, at rates then generally charged for similar supply in Santa Fe Springs, California, or if such rates are not determinable, at a reasonable rate.

8. Spur Track.

Liquid Air shall use its best efforts to maintain in effect an agreement providing for use of the existing spur track of Southern Pacific Company adjacent to the Liquid Air Parcel and to make such track available for use by Burdett without charge to Burdett in the normal operation and use of the Burdett Parcel to the extent that any such use by Burdett does not unreasonably interfere with the normal operation and use of the Liquid Air Parcel.

9. Scales.

Burdett shall at no charge to Burdett have access to and the right to use the scales located on the Liquid Air Parcel to the extent that any such use by Burdett does not unreasonably interfere with the normal operation and use of the Liquid Air Parcel.

10. Responsibility.

Each party hereto assumes full responsibility for its employees, agents and independent contractors for the purpose of this Agreement, and shall indemnify and hold the other party harmless from and against any and all loss, cost, damage, expense (including reasonable attorneys fees) and liability arising out of any injury to or death of persons and damage to or destruction of property (including, without limitation, the employees of Liquid Air and Burdett and the property of Liquid Air, Burdett or others), resulting from or attributable to any negligent act or omission of any such employee, agent or independent contractor or arising out of or in connection with any claim, suit or demand by any such employee, agent or independent contractor against the other party resulting from the use of or access to the facilities of such other party by any such employee, agent or independent contractor. Neither party shall be responsible to the other for special, indirect or consequential damages, however occurring.

11. Notices.

All notices, requests, demands and other communications required or permitted to be given hereunder shall be in writing and shall be deemed to have been duly given if

delivered personally or if given by pre-paid telegram or mailed first-class, postage pre-paid, registered or certified mail, to the party to receive the same at the address shown below, or to such other address as either party may designate by notice hereunder to the other:

If to Burdett:

MG Burdett Gas Products Company
One Schuylkill Avenue
Norristown, Pennsylvania 19401

Attention: Vice President-Operations

If to Liquid Air:

Liquid Air Inc.
One Embarcadero Center
San Francisco, California 94111

Attention: John Baird, Secretary

12. Miscellaneous.

(a) This Agreement may be amended, modified, superseded, cancelled or assigned, and any of the terms, covenants, representations or conditions hereof may be waived, only by written instrument executed on behalf of both of the parties hereto, or in the case of a waiver, by the party waiving compliance.

(b) Burdett and Liquid Air agree that this Agreement shall be governed by the laws of the State of California.

(c) Prior to segregation of the Burdett Parcel and the Liquid Air Parcel by the appropriate governmental authorities for real property tax purposes, Liquid Air will pay all taxes and Burdett will reimburse Liquid Air a pro rata share of real property taxes shall be based on the relative sizes in square feet of the Burdett Parcel and the Liquid Air Parcel.

IN WITNESS WHEREOF, the parties have caused this agreement to be executed as of the day and year first above written.

MG BURDETT GAS PRODUCTS COMPANY

By: 

LIQUID AIR, INC.

By: 

Recording requested by and when recorded mail to: MG Burdett Gas Products Company
One Schuylkill Avenue
Norristown Pennsylvania 19401

GRANT DEED

LIQUID AIR INC. (formerly AMERICAN CRYOGENICS, INC.), a Delaware corporation, of One Embarcadero Center, San Francisco, California, for value received, hereby grants to MG BURDETT GAS PRODUCTS COMPANY, a Delaware corporation, of One Schuylkill Avenue, Norristown, Pennsylvania, all that real property situated in the City of Santa Fe Springs, County of Los Angeles, State of California, described as follows:

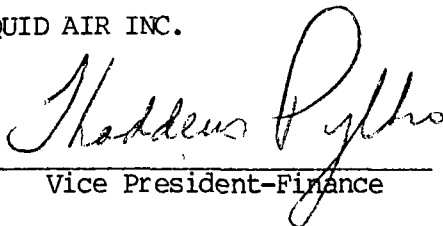
Parcel 2 of Parcel Map Number 13513 filed in Book Page of
Parcel Maps, in the office of the County Recorder of said County.

Subject to covenants, conditions, restrictions and easements of record.

Dated this 6th day of June, 1980.

LIQUID AIR INC.

By:


Vice President-Finance

ATTEST:

By:


Assistant Secretary

200 Park Av



Note:

never recorded w/ L.A.
County recorder.

DICE 00075

MEMORANDUM

OCT 17 1983

TO T. Slattery DATE October 13, 1983
FROM J. Baird SUBJECT SANTA FE SPRINGS -
BURDETT PLANT

I have been advised by Burdett that, on or about November 30, 1983, they intend to remove their air separation plant from the Santa Fe, California plant site.

In accordance with the agreement between Liquid Air and Burdett dated February 8, 1980, it was resolved that Liquid Air would have an option to repurchase this property once the air separation plant had been removed. While Liquid Air has approximately five acres of vacant land across the street, the repurchase of the site in question has always been deemed necessary by Production because the current operations (cylinder filling, acetylene plant, hydrogen fill plant, specialty gas production, etc.) are rather cramped. The site is approximately one acre, and contains a dock and compressor building.

Technically, the land was never sold to Burdett because the City of Santa Fe insisted that, before they would allow a subdivision, we pay for the installation of street lights, curbs, sewers, etc.; and since we intended to repurchase the property once the air separation plant was removed, it seemed easier to leave everything in Liquid Air's name and to give Burdett an absolute license to use the property, which satisfied the F.T.C. requirement of disposing of the plant.

A very preliminary and rough estimate of the price of the land in question would be approximately \$350,000.

We must respond to Burdett within 180 days of their notice. Since Burdett can probably use the income, we might be able to use this factor in negotiating a more favorable price if we agree to purchase the property on or about November 30.

Please give me your comments.

JNB:bb
cc: M. Bignolas
A. Potter ←



LIQUID AIR CORPORATION
INDUSTRIAL GASES DIVISION

10:50
FILED

DEC 30 1982

Man C. Keaton
SECRETARY OF STATE

CERTIFICATE OF OWNERSHIP AND MERGER
MERGING
MG BURDETT GAS PRODUCTS COMPANY
INTO
MESSER GRIESHEIM INDUSTRIES, INC.

Messer Griesheim Industries, Inc., a corporation organized and existing under the laws of Delaware,

DOES HEREBY CERTIFY:

FIRST: That this corporation was incorporated on the nineteenth day of August, 1975, pursuant to the General Corporation Law of the State of Delaware.

SECOND: That this corporation owns all of the outstanding shares of the stock of MG Burdett Gas Products Company (formerly Burdett Oxygen Company), a corporation incorporated on the eighth day of September 1975, pursuant to the General Corporation Law of the State of Delaware.

THIRD: That this corporation, by the following resolutions of its Board of Directors, duly adopted at a meeting properly called, at which a quorum was present and acting throughout, on the 29th day of December, 1982, determined to and did merge into itself said MG Burdett Gas Products Company:

RESOLVED, That Messer Griesheim Industries, Inc. merge, and it hereby does merge into itself MG Burdett Gas Products Company and assumes all of its obligations; and

FURTHER RESOLVED, That the merger shall become effective upon the close of business on December 31, 1982; and

FURTHER RESOLVED, That the proper officers of this corporation be and they hereby are directed to make and execute a Certificate of Ownership and Merger setting forth a copy of the resolutions to merge said MG Burdett Gas Products Company and assume its liabilities and obligations, and the date of adoption thereof, and to cause the same to be filed with the Secretary of State and a certified copy recorded in the office of the Recorder of Deeds of New Castle County and to do all acts and things whatsoever, whether within or without the State of Delaware, which may be in anywise necessary or proper to effect said merger.

IN WITNESS WHEREOF, Said Messer Griesheim Industries, Inc. has caused this certificate to be signed by D. zur Loye, its President, and

00008

DICE 00077

attested by Dr. Herbert H. Fricke, its Secretary, this 28th day of December, 1982.

MESSER GRIESHEIM INDUSTRIES, INC.
CORPORATE SEAL 1975
DELAWARE

MESSER GRIESHEIM INDUSTRIES, INC.

BY: D. zur Loye
D. zur Loye, President

ATTEST:

BY: Herbert H. Fricke
Dr. Herbert H. Fricke, Secretary

STATE OF NEW JERSEY
COUNTY OF SOMERSET SS.:

D. zur Loye, being the President and Dr. Herbert H. Fricke, being the Secretary of the above named corporation, each being duly sworn, deposes and says that they each executed the above Certificate of Ownership and Merger as the act and deed of the above named corporation and that the facts stated therein are true and correct.

D. zur Loye
D. zur Loye
Herbert H. Fricke
Dr. Herbert H. Fricke

Sworn to and subscribed before me this 28th day of December, 1982.

William E. Gars
Notary Public

Notarial
Seal

10009

Certificate of Ownership of the "MESSELI CORPORATION (INCORPORATED), INC."
merging "MG BURDETT GAS PRODUCTS COMPANY",

pursuant to Section 253 of the General Corporation Law of the State of Delaware,

as received and filed in this office the _____ day of December,

A.D. 1982, at 10 o'clock A. M.

00010

DICE 00079

Delaware

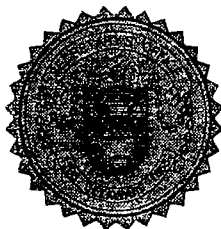
PAGE 1

The First State

I, HARRIET SMITH WINDSOR, SECRETARY OF STATE OF THE STATE OF DELAWARE DO HEREBY CERTIFY THAT THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF CONVERSION OF A DELAWARE CORPORATION UNDER THE NAME OF "MESSER GRIESHEIM INDUSTRIES, INC." TO A DELAWARE LIMITED LIABILITY COMPANY, CHANGING ITS NAME FROM "MESSER GRIESHEIM INDUSTRIES, INC." TO "MESSER GRIESHEIM INDUSTRIES LLC", FILED IN THIS OFFICE ON THE THIRTEENTH DAY OF MAY, A.D. 2004, AT 8:09 O'CLOCK A.M.

AND I DO HEREBY FURTHER CERTIFY THAT THE EFFECTIVE DATE OF THE AFORESAID CERTIFICATE OF CONVERSION IS THE THIRTEENTH DAY OF MAY, A.D. 2004, AT 10 O'CLOCK A.M.

A FILED COPY OF THIS CERTIFICATE HAS BEEN FORWARDED TO THE KENT COUNTY RECORDER OF DEEDS.



0815454 8100V

040349309

Harriet Smith Windsor

Harriet Smith Windsor, Secretary of State

AUTHENTICATION: 3108064

DATE: 05-13-04

DICE 00081

STATE OF DELAWARE
CERTIFICATE OF CONVERSION
FROM
MESSER GRIESHEIM INDUSTRIES, INC.
INTO
MESSER GRIESHEIM INDUSTRIES LLC

(Pursuant to Section 266 of the General Corporation Law of the State of Delaware and Section 18-214 of the Limited Liability Company Act of the State of Delaware)

Messer Griesheim Industries, Inc., a business corporation of the State of Delaware duly organized and existing under the laws of the State of Delaware ("MGI"), in order to convert itself into a limited liability company of the State of Delaware, does hereby certify as follows:

FIRST: MGI was formed as a corporation of the State of Delaware pursuant to a Certificate of Incorporation filed on August 19, 1975 with the Secretary of State of the State of Delaware.

SECOND: The name of the limited liability company into which MGI shall be converted, and as set forth in such limited liability company's certificate of formation (the "Certificate of Formation"), is Messer Griesheim Industries LLC ("MGI LLC").

THIRD: In accordance with Section 266 of the General Corporation Law of the State of Delaware, the conversion of MGI into MGI LLC has been approved by a resolution duly adopted by the Board of Directors of MGI, dated May 13, 2004, and by a written consent of the sole stockholder of MGI, dated May 13, 2004.

FOURTH: The conversion shall be effective as of 10:00 A.M. (Eastern Time) on May 13, 2004.

[Signature Page Follows]

IN WITNESS WHEREOF, the undersigned has executed this Certificate of Conversion
as of May 13, 2004.

MESSER GRIESHEIM INDUSTRIES, INC.

/s/ Gregory B. Alexander
Name: Gregory B. Alexander
Title: Treasurer

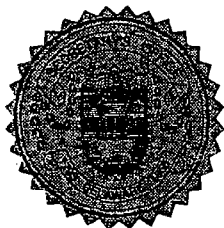
Delaware

PAGE 1

The First State

I, HARRIET SMITH WINDSOR, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF AMENDMENT OF "MESSER GRIESHEIM INDUSTRIES LLC", CHANGING ITS NAME FROM "MESSER GRIESHEIM INDUSTRIES LLC" TO "ALIG LLC", FILED IN THIS OFFICE ON THE FIFTH DAY OF AUGUST, A.D. 2004, AT 9:17 O'CLOCK A.M.

DICE 00084



Harriet Smith Windsor

Harriet Smith Windsor, Secretary of State

0815454 8100

040572809

AUTHENTICATION: 3276932

DATE: 08-05-04

State of Delaware
Secretary of State
Division of Corporations
Delivered 09:17 AM 08/05/2004
FILED 09:17 AM 08/05/2004
SRV 040572809 - 0815454 FILE

**CERTIFICATE OF AMENDMENT
OF
CERTIFICATE FORMATION
OF
MESSER GRIESHEIM INDUSTRIES LLC**

FIRST: The name of the limited liability company is Messer Griesheim Industries LLC (the "Company").

SECOND: Article FIRST of the Certificate of Formation of the Company is hereby amended to read in its entirety as follows:

"FIRST: The name of the limited liability company (hereinafter called the "Company") is ALIG LLC."

THIRD: This Certificate of Amendment shall be effective upon the date of filing.

IN WITNESS WHEREOF, the undersigned has executed this Certificate of Amendment of the Company this 5th day of August, 2004.

/s/ Kevin M. Feeney
Name: Kevin M. Feeney
Title: Authorized Person

B357 869
RECEIPT AND CERTIFICATE N° 667

BURDETT OXYGEN CO. OF CLEVELAND, INC. formerly THE BURDETT OXYGEN COMPANY OF CLEVELAND
NAME INCORPORATED

120296

NUMBER

DOMESTIC CORPORATIONS

- ARTICLES OF INCORPORATION
- AMENDMENT
- MERGER/CONSOLIDATION
- DISSOLUTION
- AGENT
- RE-INSTATEMENT
- CERTIFICATES OF CONTINUED EXISTENCE
- MISCELLANEOUS

FOREIGN CORPORATIONS

- LICENSE
- AMENDMENT
- SURRENDER OF LICENSE
- APPOINTMENT OF AGENT
- CHANGE OF ADDRESS OF AGENT
- CHANGE OF PRINCIPAL OFFICE
- RE-INSTATEMENT
- FORM 7
- PENALTY

MISCELLANEOUS FILINGS

- ANNEXATION/INCORPORATION—CITY OR VILLAGE
- RESERVATION OF CORPORATE NAMES
- REGISTRATION OF NAME
- REGISTRATION OF NAME RENEWALS
- REGISTRATION OF NAME—CHANGE OF REGISTRANTS ADDRESS
- TRADE MARK
- TRADE MARK RENEWAL
- SERVICE MARK
- SERVICE MARK RENEWAL
- MARK OF OWNERSHIP
- MARK OF OWNERSHIP RENEWAL
- EQUIPMENT CONTRACT/CHATTEL MORTGAGE
- POWER OF ATTORNEY
- SERVICE OF PROCESS
- MISCELLANEOUS
- ASSIGNMENT—TRADE MARK, MARK OF OWNERSHIP, SERVICE MARK, REGISTRATION OF NAME

I certify that the attached document was received and filed in the office of TED W. BROWN, Secretary of State, at Columbus, Ohio, on the 13th day of May A. D. 1964, and recorded on Roll B357 at Frame 869 of the RECORDS OF INCORPORATION and MISCELLANEOUS FILINGS.

Ted W. Brown
TED W. BROWN,
Secretary of State

Filed by and Returned To: Ulser, Eric, Harbo, Dickman & Curtis

att: Irvin S. Inglis

1130 Lehigh Bldg. Public Bldg. at 17th St. Cleveland, Ohio

FEE RECEIVED \$ 1,375.00

NAME: BURDETT OXYGEN CO. OF CLEV. Ohio, Inc. formerly THE BURDETT OXYGEN COMPANY OF CLEVELAND INCORPORATED

12-3-94

B357 870

121296
APPROVED
5-13-64
1295.00
12544

CERTIFICATE OF ADOPTION
OF
AMENDED ARTICLES OF INCORPORATION
OF
THE BURDETT OXYGEN COMPANY OF CLEVELAND, INCORPORATED

S. M. LOVENAN, President, and J. M. BERNE, Secretary, of THE BURDETT OXYGEN COMPANY OF CLEVELAND, INCORPORATED, an Ohio corporation, with its principal office located in Cleveland, Ohio, hereby certify that a meeting of the holders of the shares of said corporation entitling them to vote on the proposal to adopt Amended Articles of Incorporation thereof, as contained in the following resolution, was duly called and held on the 11th day of May, 1964, at which meeting a quorum of such shareholders was present in person or by proxy, and that by the affirmative vote of the holders of shares entitling them to exercise two-thirds of the voting power of the corporation on such proposal the following resolution was duly adopted:

RESOLVED, that in order to provide for certain amendments to the Articles of Incorporation of this Corporation, the shareholders of this Corporation hereby adopt, in their entirety, the following Amended Articles of Incorporation, being the same as the copy thereof attached to the shareholders' notice of this meeting:

B357 871

AMENDED ARTICLES OF INCORPORATION
OF
BURDETT OXYGEN CO. OF CLEVELAND, INC.

FIRST: The name of the Corporation is BURDETT OXYGEN CO. OF CLEVELAND, INC.

SECOND: The place in the State of Ohio where its principal office is located is the City of Cleveland in Cuyahoga County.

THIRD: The purposes of the Corporation are as follows:

(a) To manufacture, fabricate, process, produce, service, buy, purchase or otherwise acquire, invest in, own, mortgage, pledge, exchange, sell, assign and transfer or otherwise dispose of, trade, deal in and deal with, import and export, in every manner, gases, chemicals, goods, wares, merchandise, personal property, products, metals, materials and articles of every class, kind and description, for any industrial, commercial, military, scientific or other purpose.

(b) To carry on and perform research, development, evaluation, investigation, planning, design, testing, technical studies, invention or consulting or other service, for any commercial, industrial, military, scientific or other purpose and in any field or fields.

(c) To maintain and operate manufacturing, testing and related equipment, chemical, physical and other laboratories, and

B357 872

such other facilities as may be appropriate for the foregoing purposes and to carry on such activities.

(d) To acquire by purchase or otherwise and to own, hold, improve, develop, maintain, use, lease, sell, convey, transfer mortgage, guarantee, pledge, exchange, or otherwise deal in and deal with or dispose of, real and personal property, tangible or intangible, of any description or character whatsoever, to the extent that the same may be permitted by law.

(e) To acquire by purchase or otherwise and to own, hold, invest in, sell, negotiate, exchange, transfer, pledge, mortgage, guarantee, deal in and lend or borrow money upon, all forms and kinds of securities, shares of stock, scrip, bonds, debentures, mortgages, notes, commercial paper, trust certificates, certificates of interest, certificates of deposit or indebtedness, bills receivable, accounts receivable, contract obligations, investments and warrants; issued or created by any person, firm, corporation, joint stock company, trust or association, public or private, wherever or however organized or created, or any nation, state, municipality or political subdivision thereof, and to issue and exchange thereof in any manner permitted by law, shares of the capital stock, bonds or other obligations of this Corporation; and while the holder or owner of any of such securities or property, to possess and exercise in respect thereof any and all rights, powers and privileges of ownership, including all voting, consenting or other rights in or in respect thereof.

(f) To enter into, make and perform contracts of every kind

B357 873

and description, including contracts of joint venture, with any firm, association, corporation, government or person, public or private.

(g) To do all things necessary or incidental to any of the foregoing and, in general, to carry on any other lawful activity or business whatsoever which is calculated directly or indirectly to promote the interests of the Corporation and to enhance the value of its properties.

The foregoing clauses of this Article THIRD shall be construed as purposes, objectives and powers, and nothing herein shall be deemed to limit or exclude in any manner any power, right or privilege now or hereafter given to the Corporation by law or any authority which it now or hereafter is permitted to exercise under the statutes of Ohio.

FOURTH: The maximum number of shares which the Corporation is authorized to have outstanding is 600,000 shares, all of which shall be common shares with a par value of \$1.00 per share.

FIFTH: No holder of shares of the Corporation shall be entitled as such, as a matter of right, to subscribe for or purchase shares of the Corporation, now or hereafter authorized, or to purchase or subscribe for securities convertible into or exchangeable for shares of the Corporation or to which shall be attached or appertained any warrants or rights entitling the holder thereof to subscribe for or purchase shares, except such

B357 874

rights of subscription or purchase, if any, at such price or prices and upon such terms and conditions as the Board of Directors, in its discretion, from time to time may determine.

SIXTH: Notwithstanding any provision of any of the laws of Ohio, now or hereafter in force, requiring for any purpose the vote or consent of holders of shares entitling them to exercise two-thirds of the voting power of the Corporation or of any class or classes of shares thereof, such action, unless otherwise expressly required by statute, may be taken by the vote or consent of the holders of shares entitling them to exercise a majority of the voting power of the Corporation or of such class of shares thereof:

SEVENTH: The Corporation may purchase, from time to time, any of its outstanding shares. Such purchases may be made either in the open market, or at private or public sale, in such manner and amounts, from such holder or holders of outstanding shares of the Corporation, and at such prices and upon such terms as the Board of Directors shall, from time to time, determine, and the Board of Directors is hereby empowered to authorize such purchase, from time to time, without any vote of the holders of any class of shares now or thereafter authorized and outstanding at the time of any such purchase.

EIGHTH: A director or officer of this Corporation shall not

B357 875

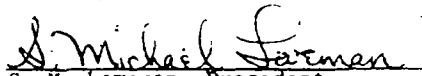
be disqualified by his office from dealing or contracting with the Corporation as a vendor, purchaser, employee, agent or otherwise, nor shall any transaction or contract or act of this Corporation be void or voidable or in any way affected or invalidated by reason of the fact that any director or officer or any firm of which any director or officer is a member, or any corporation of which any director or officer is a shareholder or director or officer, is in any way interested in such transaction or contract or act, provided the fact that such director or officer or such firm or such corporation is so interested shall be disclosed or shall be known to the Board of Directors or such members thereof as shall be present at any meeting of the Board of Directors at which action upon any such contract or transaction or act shall be taken, nor shall any such director or officer be accountable or responsible to the Corporation for or in respect to any such transaction or contract or act of this Corporation or for any gains or profits realized by reason of the fact that he or any firm of which he is a member or any corporation of which he is a shareholder or director or officer is interested in such transaction or contract or act, and any such director may be counted in determining the existence of a quorum at any meeting of the Board of Directors of the Corporation which shall authorize or take action in respect to any

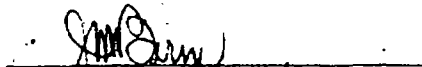
B357 876

such contract or transaction or act, and may vote thereat to authorize, ratify or approve any such contract or act, with like force and effect as if he or any firm of which he is a member or any corporation of which he is a shareholder or director or officer were not interested in such transaction or contract or act.

NINTH: The within Amended Articles of Incorporation shall supersede and take the place of the heretofore existing Articles of Incorporation and all amendments thereto.

IN WITNESS WHEREOF, said S. M. LOVEMAN, President, and J. M. BERNE, Secretary, of said corporation acting on behalf of said corporation, have hereunto subscribed their names this 11th day of May, 1964.


S. M. Loveman, President


J. M. Berne, Secretary



DEPARTMENT OF STATE

TED W. BROWN
Secretary of State

Certificate

120294

It is hereby Certified that the Secretary of State of Ohio has custody of the
 Records of Incorporation and Miscellaneous Filings; that said records show
 the filing and recording of AMD:CHN of
BURDOX, INC. FORMERLY BURDETT OXYGEN CO. OF CLEVELAND, INC.

United States of America
 STATE OF OHIO
 Office of the Secretary of State

Recorded on Roll B980 at Frame 1253 of the
 Records of Incorporation and Miscellaneous Filings.



Witness my hand and the seal of the Secretary of State, at the City of
 Columbus, Ohio, this 26TH day of JUNE, A. D. 19 74

T. W. Brown
 TED W. BROWN

1253-1253

CERTIFICATE OF AMENDMENT

1253-1253
APPROVED
1253-1253

TO

AMENDED ARTICLES OF INCORPORATION

OF

BURDETT OXYGEN CO. OF CLEVELAND, INC.

The undersigned, HAROLD E. SCHERL and JORDAN C. BAND, being President and Secretary, respectively, of Burdett Oxygen Co. of Cleveland, Inc., an Ohio corporation, do hereby certify that at the Annual Meeting of Shareholders of the Corporation duly held on June 10, 1974, at which meeting a quorum was present in person or by proxy, the following resolution was adopted and approved by the affirmative vote of the holders of shares entitling them to exercise a majority of the voting power of the Corporation, and is in full force and effect.

RESOLVED, that the Amended Articles of Incorporation of Burdett Oxygen Co. of Cleveland, Inc. are hereby further amended by deleting Article FIRST thereof and substituting therefor the following amended Article FIRST:

"FIRST: The name of the Corporation is Burdax, Inc."

IN WITNESS WHEREOF, said HAROLD E. SCHERL and JORDAN C. BAND, President and Secretary, respectively, of Burdett Oxygen Co. of Cleveland, Inc., acting for and on behalf of said Corporation, have herunto subscribed their names this 18th day of June, 1974.

Harold E. Scherl

President

Secretary

REC-80-1253 -A

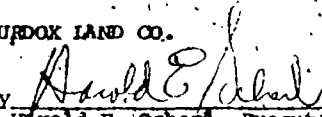
BURDOX LAND CO.

CONSENT

BURDOX LAND CO. (formerly Burdox, Inc.);
an Ohio corporation, hereby consents to the use of
the name "Burdox" by Burdett Oxygen Co. of Cleve-
land, Inc. with respect to the change by Burdett
Oxygen Co. of Cleveland, Inc. of its corporate
name to Burdox, Inc.

BURDOX LAND CO.

By



Harold E. Scherl, Executive
Vice President

STATE OF OHIO
DEPARTMENT OF STATE



TED W. BROWN
SECRETARY OF STATE

B980-1251
RECEIPT NO. 26949

DATE 6/27/74

120296
NUMBER

B980-1251

RECEIVED OF
OR FILED BY ULMER, BERNE ET AL

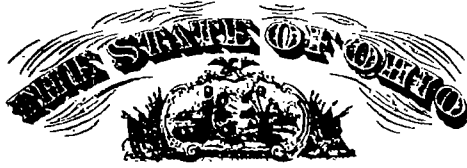
THE SUM OF \$ 25.00 FOR FILING AND CHN _____ OF
BURDOX, INC. FORMERLY BURDETT OXYGEN CO. OF CLEVELAND, INC.

RETURN TO:
26949
ULMER, BERNE ET AL
ATT'D. E. HEISER
1100 KIETH BLDG.
CLEVELAND, OH 44115

AMD \$ 25.00
CHN _____

TOTAL FEE \$ 25.00

NAME:
BURDOX, INC. FORMERLY BURDETT OXYGEN CO. OF CLEVELAND, INC.



E0416-0719



TED W BROWN
Secretary of State

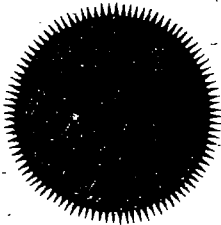
Certificate

120296

It is hereby Certified that the Secretary of State of Ohio has custody of the Records of Incorporation and Miscellaneous Filings, that said records show the filing and recording of, AMD CHN OF AGA BURDOX, INC. FORMERLY BURDOX, INC.

United States of America
STATE OF OHIO
Office of the Secretary of State

Recorded on Roll E416 at Frame 0720 of the
Records of Incorporation and Miscellaneous Filings



Witness my hand and the seal of the Secretary of State, at the City of Columbus, Ohio, this 5TH day of MAY, A D 19 78.

TED W BROWN
Secretary of State

01416-0720

CERTIFICATE OF AMENDMENT OF
ARTICLES OF INCORPORATION OF
BURDOX, INC.

120296
RECEIVED
of RE Sun
date 5-5-78
Attest E.S. Orr

The undersigned, being President and Secretary, respectively, of Burdox, Inc., an Ohio corporation, do hereby certify that the following resolution was duly adopted and approved on April 28, 1978 by the written consent of the sole shareholder of the corporation, acting without a meeting pursuant to the provisions of Section 1701.54 of the Ohio Revised Code, and is in full force and effect:

RESOLVED, that the Articles of Incorporation of Burdox, Inc. now in effect are hereby amended by deleting Article FIRST thereof and substituting therefor the following amended Article FIRST:

"FIRST: The name of the corporation is AGA Burdox, Inc."

IN WITNESS WHEREOF, the aforesaid President and Secretary, respectively, of Burdox, Inc., acting for and on behalf of said corporation, have hereunto subscribed their names this 28th day of April, 1978.

J. Michael Sweman
President

[Signature]
Secretary

E416-0720

Ulmer, Berne, Laronge, Glickman & Curtis

Attorneys at Law

900 Bond Court Building

East Ninth Street at St Clair Avenue

Cleveland, Ohio 44114

J. M. ULMER (1908-1977)
J. M. BERNE (1900-1968)
S. D. GORDON (1918-1991)
C. R. BARNHART (1928-1994)

(216) 621-8400

JEROME N. CURTIS
MARVIN J. LARONGE
H. J. SUDMAN
ROBERT L. LEWIS
JORDAN O. SAND
HERBERT S. LEVINE
MORTON L. STONE
IRVING S. THOMAS
WILLIAM A. EDWARDS
MARVIN L. KARP
ALAN S. BIRN
THOMAS A. DUGAN
A. B. GOLDMAN
DONALD E. HEISER
R. S. RUBINSTEIN
RONALD H. BROFF
MURRAY K. LINDSON
STUART A. LAYNE
ROBERT M. CURTIS
ROBERT A. FEIN
RONALD L. KAHN
MARY LOU TRATNER
HAROLD H. READER III
HOWARD M. GARFINKEL
BRUCE F. MANDEL
C. O. MCHACKEN
LAURA I. FORBACH

APR 11 1978
CORRESPONDENCE

Honorable Ted W. Brown
Secretary of State
State of Ohio
Department of State Building
Broad and High Street
Columbus, Ohio 43216

Re: Burdox, Inc.
Certificate of Amendment
Change of Name

Gentlemen:

Enclosed for filing is a Certificate of Amendment of Articles of Incorporation of Burdox, Inc., changing the name of the corporation to ACA-Burdox, Inc. Also enclosed is our firm check in the amount of \$25 to cover the filing fee.

Very truly yours,

Donald E. Heiser

Donald E. Heiser

24/pft

Enclosures

STATE OF OHIO
DEPARTMENT OF STATE



TED W. BROWN
SECRETARY OF STATE

RECEIPT NO. 79860

DATE 5/09/78

120296
NUMBER

E416-0718 233
~~E0416-0718~~

RECEIVED OF
OR FILED BY ULMER, BERNE, LARONGE, GLICKMAN ET AL

THE SUM OF \$ 25.00 FOR FILING AMD CHN 00 OF
AGA BURDOX, INC. FORMERLY BURDOX, INC.

RETURNED TO: .79860
ULMER, BERNE, LARONGE, GLICKMAN ET AL
ATT: O.E. HEISER
900 BOND COURT BLDG.
CLEVELAND, OH 44114

AMD \$ 25.00

TOTAL FEE \$ 25.00

NAME:
AGA BURDOX, INC. FORMERLY BURDOX, INC.



Department of State

The State of Ohio

Anthony J. Celebrezze, Jr.
Secretary of State

120296

Certificate

It is hereby certified that the Secretary of State of Ohio has custody of the Records of Incorporation and Miscellaneous Filings; that said records show the filing and recording of AGA CHH

of AGA GAS, INC. FORMERLY AGA BURDOY, INC.

United States of America
State of Ohio
Office of the Secretary of State

Recorded on Roll F 185 at Page 0485 of
the Records of Incorporation and Miscellaneous Filings

Witness my hand and the seal of the Secretary of State, at the
City of Columbus, Ohio, this 30TH day of DEC,
A.D. 1982.



Anthony J. Celebrezze Jr.
Anthony J. Celebrezze, Jr.
Secretary of State

C T CORPORATION SYSTEM



December 10, 1982

Secretary of State
Corporation Department
State Office Tower - 14th Floor
30 East Broad Street,
Columbus, Ohio - 43215

RE: AGA Burdox, Inc. Change of Name to:
AGA Gas, Inc.

Gentlemen:

We enclose Certificate of Amendment for filing in the State of Ohio changing the name AGA Burdox, Inc. to AGA Gas, Inc.

Please note enclosed also is our Reservation of Name form indicating that C T Corporation System reserved the name on November 24, 1982.

Please note the counsel of record desires that the enclosed amendment be filed with the Secretary of State of Ohio on December 31, 1982. The office of the Secretary of State is closed on that day. Would you kindly file the amendment on December 30, 1982.

Finally, enclosed is our check in payment of the filing fees.

If for any reason the filing cannot be made, please contact this office by collect telephone.

Your kind attention to the above request will be greatly appreciated.

Yours very truly,

C T CORPORATION SYSTEM

Anthony J. Poli
Service Representative

AJP:ds

Encls.

120096
SP mcs
12/30/82
35076

CERTIFICATE OF AMENDMENT OF
ARTICLES OF INCORPORATION OF
AGA BURDOX, INC.

The undersigned, Ake Nyborg and Peter Wirstrom,
being President and Secretary, respectively, of AGA Burdox,
Inc., an Ohio corporation, do hereby certify that the follow-
ing resolution was duly adopted and approved on December 8,
1982 by the written consent of the sole shareholder of the
corporation, acting without a meeting pursuant to the pro-
visions of Section 1701.54 of the Ohio Revised Code, and
is in full force and effect:

RESOLVED, that the Articles of Incorporation,
as amended, of AGA Burdox, Inc. now in ef-
fect are hereby amended by deleting Article
FIRST thereof and substituting therefor the
following amended Article FIRST:

"FIRST: The name of the corporation
is AGA Gas, Inc."

IN WITNESS WHEREOF, the aforesaid President and
Secretary, respectively, of AGA Burdox, Inc., acting for and
on behalf of said corporation, have hereto subscribed their
names this 8th day of December, 1982.

Ake Nyborg, President.
Peter Wirstrom, Secretary



State of Ohio
Department of State

185-0485

Anthony J. Celebrezze, Jr.
Secretary of State

Date 1/05/83

Number 120296

Receipt No. 35047

F185-0485 081

Received of or filed by C T CORPORATION SYSTEM

The sum of \$ 35.00 for filing AND CHR of

AGA GAS, INC. FORMERLY AGA BURDOX, INC.

Returned to: 35047

C T CORPORATION SYSTEM
ATTN: A. J. POLI
UNION COMMERCE BLDG.
CLEVELAND, OH 44115

AND \$ 35.00

Name: AGA GAS, INC. FORMERLY AGA BURDOX, INC.

Total Fee: \$ 35.00



DATE	DOCUMENT ID	DESCRIPTION	FILING	EXPED	PENALTY	CERT	COPY
12/30/2003	200336400062	MERGER/DOMESTIC (MER)	125 00	100.00	00	00	00

Receipt

This is not a bill. Please do not remit payment

CORPORATION SERVICE COMPANY
ATTN: LISA VAIDO
887 SOUTH HIGH STREET
COLUMBUS, OH 43206

STATE OF OHIO

Ohio Secretary of State, J. Kenneth Blackwell

1428531

It is hereby certified that the Secretary of State of Ohio has custody of the business records for

LINDE GAS LLC

and, that said business records show the filing and recording of:

Document(s)
MERGER/DOMESTIC

Document No(s):
200336400062



United States of America
State of Ohio
Office of the Secretary of State

Witness my hand and the seal of
the Secretary of State at Columbus,
Ohio this 1st day of January, A D
2004.

J. Kenneth Blackwell
Ohio Secretary of State

DATE	DOCUMENT ID	DESCRIPTION	FILING	EXPED	PENALTY	CERT	COPY
12/30/2003	200336400062	MERGED OUT OF EXISTENCE (MEX)	00	00	00	00	00

Receipt

This is not a bill. Please do not remit payment

CORPORATION SERVICE COMPANY
 ATTN: LISA VAIDO
 887 SOUTH HIGH STREET
 COLUMBUS, OH 43206

STATE OF OHIO

Ohio Secretary of State, J. Kenneth Blackwell

120296

It is hereby certified that the Secretary of State of Ohio has custody of the business records for
AGA GAS, INC.

and, that said business records show the filing and recording of:

Document(s)

MERGED OUT OF EXISTENCE

Document No(s):

200336400062



United States of America
 State of Ohio
 Office of the Secretary of State

Witness my hand and the seal of
 the Secretary of State at Columbus,
 Ohio this 1st day of January, A.D.
 2004

J. Kenneth Blackwell
 Ohio Secretary of State



Prescribed by J. Kenneth Blackwell
Ohio Secretary of State
Central Ohio: (614) 466-3910
Toll Free 1-877-SOS-FILE (1-877-767-3453)

Expedite this Form:
Mail Form to me at the following:
Yes PO Box 1390 Columbus, OH 43216
No PO Box 1329 Columbus, OH 43216

www.state.oh.us/sos
c-mail busserv@sos.state.oh.us

CERTIFICATE OF MERGER
(For Domestic or Foreign, Profit or Non-Profit)
Filing Fee \$125.00

In accordance with the requirements of Ohio law, the undersigned corporations, banks, savings banks, savings and loan, limited liability companies, limited partnerships and/or partnerships with limited liability, desiring to effect a merger, set forth the following facts

I. SURVIVING ENTITY

A. The name of the entity surviving the merger is

Linde Gas LLC

B. Name Change. As a result of this merger, the name of the surviving entity has been changed to the following: Not Applicable

(Complete only if name of surviving entity is changing through the merger)

C. The surviving entity is a (Please check the appropriate box and fill in the appropriate blank)

- Domestic (Ohio) For-Profit Corporation, charter number
Domestic (Ohio) Non-Profit Corporation, charter number
Foreign (Non-Ohio) Corporation incorporated under the laws of the state/country of and licensed to transact business in the State of Ohio under license number
Foreign (Non-Ohio) Corporation incorporated under the laws of the state/country of and NOT licensed to transact business in the state of Ohio,
Domestic (Ohio) Limited Liability Company, with registration number
Foreign (Non-Ohio) Limited Liability Company organized under the laws of the state/country of and registered to do business in the State of Ohio under registration number DELAWARE 1428531
Foreign (Non-Ohio) Limited Liability Company organized under the laws of the state/country of and NOT registered to do business in the State of Ohio,
Domestic (Ohio) Limited Partnership, with registration number
Foreign (Non-Ohio) Limited Partnership organized under the laws of the state/country of and registered to do business in the state of Ohio under registration number

B The qualifying entity also states as follows (Complete only if applicable)

1 Foreign Notice Under Section 1703 031

(If the qualifying entity is a foreign bank, savings bank, or savings and loan, then the following information must be completed.)

(a.) The name of the Foreign Nationally/Federally chartered bank, savings bank, or savings and loan association is

Not Applicable

(b.) The name(s) of any Trade Name(s) under which the corporation will conduct business.

Not Applicable

(c.) The location of the main office (non-Ohio) shall be

Not Applicable
NOTE: P.O. Box Addresses are NOT acceptable.
(city, township or village) (county) (state) (zip code)

(d.) The principal office location in the state of Ohio shall be.

Not Applicable
NOTE: P.O. Box Addresses are NOT acceptable.
Ohio
(city, township, or village) (county) (state) (zip code)
(Please note, if there will not be an office in the state of Ohio, please list none.)

(e.) The corporation will exercise the following purpose(s) in the state of Ohio
(Please provide a brief summary of the business to be conducted a general clause is not sufficient)

N/A

2 Foreign Qualifying Limited Liability Company

(If the qualifying entity is a foreign limited liability company, the following information must be completed)

(a.) The name of the limited liability company in its state of organization/registration is

(b.) The name under which the limited liability company desires to transact business in Ohio is

(c.) The limited liability company was organized or registered or under the laws of the state/country of

(d) The address to which interested persons may direct requests for copies of the articles of organization operating agreement bylaws or other charter documents of the company is:

(street address) NOTE: P.O. Box Addresses are NOT acceptable

(city, township, or village) (state) (zip code)

3 Foreign Qualifying Limited Partnership

(If the qualifying entity is a foreign limited partnership, the following information must be completed)

(a) The name of the limited partnership is

Not Applicable

(b) The limited partnership was formed on _____

(c) The address of the office of the limited partnership in its state/country of organization is

Not Applicable

(street address) NOTE: P.O. Box Addresses are NOT acceptable.

(city, township or village) (county) (state) (zip code)

(d) The limited partnership's principal office address is

Not Applicable

(street address) NOTE: P.O. Box Addresses are NOT acceptable

(city township or village) (county) (state) (zip code)

(e) The names and business or residence addresses of the General Partners of the partnership are as follows:

Name	Address
Not Applicable	

(If insufficient space to cover the item please attach a separate sheet listing the general partners and their respective addresses)

(f) The address of the office where a list of the names and business or residence addresses of the limited partners and their respective capital contributions is to be maintained is

Not Applicable

(street address) NOTE: P.O. Box Addresses are NOT acceptable.

(city township or village) (county) (state) (zip code)

- Foreign (Non-Ohio) Limited Partnership organized under the laws of the state/country of _____ and NOT registered to do business in the state of Ohio
- Domestic (Ohio) Partnership having limited liability, with the registration number _____
- Foreign (Non-Ohio) Partnership having limited liability organized under the laws of the state/country of _____ and registered to do business in the state of Ohio under registration number _____
- Foreign (Non-Ohio) Partnership having limited liability organized under the laws of the state/country of _____ and NOT registered to do business in the state of Ohio
- Foreign (Non-Ohio) Non-Profit Incorporation under the laws of the state/country of _____ and licensed to transact business in the state of Ohio under license number _____
- Foreign (Non-Ohio) Non-Profit incorporation under the laws of the state/country of _____ and not licensed to transact business in the state of Ohio.
- General partnership not registered with the state of Ohio

II MERGING ENTITY

The name, charter/license/registration number, type of entity, state/country of incorporation or organization respectively, of which is the entities merging out of existence are as follows: (this is insufficient space to reflect all merging entities, please attach a separate sheet listing the merging entities.)

(Please list the Ohio charter, license/registration no. below)

Name / charter license or registration number	State/Country of Organization	Type of Entity
AGA Gas, Inc. - 120296	Ohio	close corporation
_____	_____	_____
_____	_____	_____
_____	_____	_____

III MERGER AGREEMENT ON FILE

The name and mailing address of the person or entity from whom/which eligible persons may obtain a copy of the agreement of merger upon written request:

Mark D. Weller, Sr. V.P. and General Counsel (name)	c/o Linde Gas LLC, 6055 Rockside Woods Blvd (street) <small>NOTE: P.O. Box Addresses are NOT acceptable</small>
Independence (city, village or township)	Ohio 44131-2329 (state) (zip code)

IV EFFECTIVE DATE OF MERGER

This merger is to be effective on 1/1/04 (if a date is specified, the date must be a date on or after the date of filing, the effective date of the merger cannot be earlier than the date of filing, if no date is specified, the date of filing will be the effective date of the merger)

V MERGER AUTHORIZED

The laws of the state or country under which each constituent entity exists, permits this merger. This merger was adopted, approved and authorized by each of the constituent entities in compliance with the laws of the state under which it is organized, and the persons signing this certificate on behalf of each of the constituent entities are duly authorized to do so.

VI. STATUTORY AGENT

The name and address of the surviving entity's statutory agent upon whom any process notice or demand may be served is:

(name) _____ (street) NOTE: P.O. Box Addresses are NOT acceptable. _____, Ohio _____ (city, village or township) _____ (zip code)

(This item MUST be completed if the surviving entity is a foreign entity which is not licensed, registered or otherwise authorized to conduct business in the state of Ohio)

VII. ACCEPTANCE OF AGENT

The undersigned, named herein as the statutory agent for the above referenced surviving entity, hereby acknowledges and accepts the appointment of statutory agent for said entity

Signature of Agent _____

(The acceptance of agent must be completed by the surviving entities if through this merger the statutory agent has changed, or the named agent differs in any way from the name currently on record with the Secretary of State)

VIII. STATEMENT OF MERGER

Upon filing or upon such later date as specified herein, the merging entity/entities listed herein shall merge into the listed surviving entity

IX. AMENDMENTS

The articles of incorporation, articles of organization, certificate of limited partnership or registration of partnership having limited liability (circle appropriate term) of the surviving domestic entity have been amended Attachments are provided No Changes

X. QUALIFICATION OR LICENSURE OF FOREIGN SURVIVING ENTITY

A. The listed surviving foreign corporation, bank, savings bank, savings and loan, limited liability company, limited partnership, or partnership having limited liability desires to transact business in Ohio as a foreign corporation, bank, savings bank, savings and loan, limited liability company, limited partnership, or partnership having limited liability, and hereby appoints the following as its statutory agent upon whom process, notice or demand against the entity may be served in the state of Ohio. The name and complete address of the statutory agent is:

(name) _____ (street) NOTE: P.O. Box Addresses are NOT acceptable. _____, Ohio _____ (city, village or township) _____ (zip code)

The subject surviving foreign corporation, bank, savings bank, savings and loan, limited liability company, limited partnership, or partnership having limited liability irrevocably consents to service of process on the statutory agent listed above as long as the authority of the agent continues, and to service of process upon the Secretary of State of Ohio if the agent cannot be found, if the corporation, bank, savings bank, savings and loan, limited liability company, limited partnership, or partnership having limited liability fails to designate another agent when required to do so, or if the foreign corporation's, bank's, savings bank's, savings and loan's, limited liability company's, limited partnership's or partnership having limited liability's license or registration to do business on Ohio expires or is canceled

The limited partnership hereby certifies that it shall maintain said records until the registration of the limited partnership in Ohio is canceled or withdrawn

4 Foreign Qualifying Partnership Having Limited Liability

(a) The name of the partnership shall be

Not Applicable

(b) Please complete the following appropriate section (either item b(1) or b(2))

(1) The address of the partnership's principal office in Ohio is:

Not Applicable

(street address) NOTE: P.O. Box Addresses are NOT acceptable

Ohio (zip code)
(city, village or township)

(If the partnership does not have a principal office in Ohio, then items b2 must be completed)

(2) The address of the partnership's principal office (Non-Ohio)

Not Applicable

(street address) NOTE: P.O. Box Addresses are NOT acceptable.

(city, township, or village) (state) (zip code)

(c.) The name and address of a statutory agent for service of process in Ohio is as follows

Not Applicable

(name)

(street address) NOTE: P.O. Box Addresses are NOT acceptable

Ohio (zip code)
(city, village or township)

(d.) Please indicate the state or jurisdiction in which the Foreign Limited Liability Partnership has been formed

Not Applicable

(e) The business which the partnership engages in is

Not Applicable

The undersigned constituent entities have caused this certificate of merger to be signed by its duly authorized officers, partners and representatives on the date(s) stated below

AGA Gas, Inc (Exact name of entity)	Linde Gas LLC (Exact name of entity)
By: <u>[Signature]</u>	By: <u>[Signature]</u>
Its: President	Its: President
Date: <u>12-23-03</u>	Date: <u>12-23-03</u>

(Exact name of entity)	(Exact name of entity)
By: _____	By: _____
Its: _____	Its: _____
Date: _____	Date: _____

(Exact name of entity)	(Exact name of entity)
By: _____	By: _____
Its: _____	Its: _____
Date: _____	Date: _____

(Exact name of entity)	(Exact name of entity)
By: _____	By: _____
Its: _____	Its: _____
Date: _____	Date: _____

(Exact name of entity)	(Exact name of entity)
By: _____	By: _____
Its: _____	Its: _____
Date: _____	Date: _____

RECEIVED

MAR 3 1961

COYNE CYLINDER CO.

4111

EXD1100Pg375

3/7/61

RECORDING REQUESTED BY

RECORDED IN
OFFICIAL RECORDS
LOS ANGELES COUNTY CALIF.
RAY E. LEE, RECORDER

1961 FEB 27 PM 2:04

WHEN RECORDED MAIL TO

Heller, Ehrman, White & McAuliffe

14 Montgomery Street

San Francisco 4, California

Attention: Mr. Robert Harris

FEE \$1.40 40

Affix I.R.S. \$⁷⁰240 In This Space

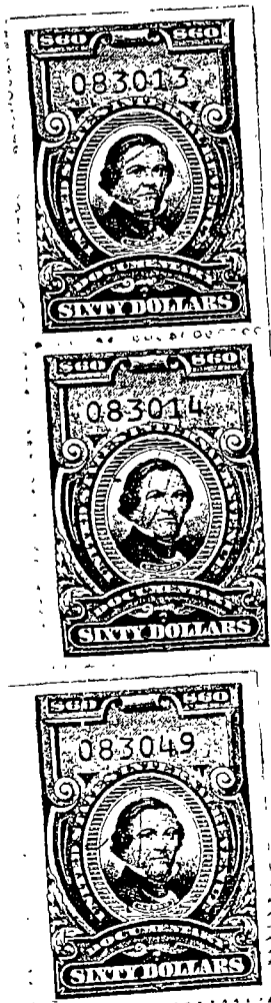
GRANT DEED

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged, THE BURDETT OXYGEN COMPANY OF CLEVELAND, INCORPORATED, an Ohio corporation, hereby grants to AMERICAN CRYOGENICS, INC., a Georgia corporation, the following described real property in the County of Los Angeles, State of California:

PARCEL NO. 1

That portion of the Colima Tract, in the Rancho Santa Gertrudes, in the city of Santa Fe Springs, county of Los Angeles, state of California, described as follows:

Commencing at a point in the center line of Dice Road, 40.00 feet northerly thereon from the center line of the right of way of the Pacific Electric Railway (as said right of way and Dice Road are shown on a map recorded in book 3465 page 135 of Deeds, Records of said County); thence along said center line of Dice Road, North 11° 54' 10" East 120.90 feet; thence South 83° 26' East 261.70 feet to the true point of beginning; thence North 1° 21' East 68.8 feet; thence North 83° 21' West 249.00 feet to the center line of said Dice Road; thence North 11° 54' 10" East along said center line 196.65 feet; thence South 83° 07' 50" East 340.15 feet; thence North 08° 26' 10" East 145.34 feet to the northerly line of the land described in Certificate of Title No. X-10800 on file in the office of the Registrar of Titles of said County; thence along said northerly line South 73° 50' 40" East 823.79 feet to the northwesterly line of the Southern Pacific Railroad right of way as said right of way was known on August 24, 1920; thence thereon South 60° 48' 40" West 762.07 feet to the northerly line of said Pacific Electric Railway right of way; thence along said last mentioned northerly line North 78° 02' West 294.60 feet to a point distant South 78° 02' East



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282.70 feet thereon from said center line of Dice Road; thence North 3° 15' East 147.25 feet to the true point of beginning.

EXCEPT therefrom the land described in the deed from Burdett Oxygen Company of Cleveland, Inc., a corporation, to C. W. Roberts, a married man, recorded April 21, 1954 in book 44382 page 402, Official Records.

ALSO EXCEPT therefrom that portion within said Dice Road conveyed to County of Los Angeles in fee simple for road purposes by deed recorded October 10, 1908 in book 3465 page 133 of Deeds.

PARCEL NO. 2

That portion of the Colima Tract, Rancho Santa Gertrudes, in the city of Santa Fe Springs, county of Los Angeles, state of California, described as follows:

Beginning at a point in the northerly line of the right of way of the Pacific Electric Railway, said line being the southerly line of the land described in certificate of title Y-11053 in the office of the registrar of titles of said county, distant thereon South 78° 02' East, 163.50 feet from the intersection of said line with the center of Dice Road as same is shown on map of right of way of said Pacific Electric Railway, recorded in book 3465 page 135 of Deeds, records of said county; thence continuing along said northerly line of said right of way South 78° 02' East 119.20 feet; thence North 03° 15' East 147.25 feet to an angle point in the northerly line of said land described in said certificate Y-11053; thence along said northerly line of said land North 83° 26' West 118.02 feet; thence South 03° 15' West 136.02 feet to the point of beginning.

PARCEL NO. 3

That portion of the Colima Tract, in the Rancho Santa Gertrudes, in the city of Santa Fe Springs, county of Los Angeles, state of California, described as follows:

Beginning at a point in the center line of Dice Road, distant 40 feet northerly thereon from its intersection with the center line of the right of way of the Pacific Electric Railway, as shown on a map of said right of way recorded in book 3465 page 135 of Deeds, records of said county; thence continuing along said center line of said Dice Road, North 11° 54' 10" East, 120.90 feet; thence South 83° 26' East 143.59 feet; thence South 3° 15' West, 136.02 feet to a point in the northerly line of the aforesaid right of way of the Pacific Electric Railway, said line being the southerly line of the land described in certificate Y-11053 of the registrar of titles of said county; thence North 78° 02' West along said northerly line of said right of way and the southerly line of said registered parcel, 163.50 feet to the point of beginning.

EXCEPT therefrom that portion within said Dice Road, conveyed to County of Los Angeles in fee simple for

1111

road purposes, by deed recorded October 10, 1908 in book 3465 page 133 of Deeds.

PARCEL NO. 4

That portion of the 236 acre parcel in the Colima Tract, Rancho Santa Gertrudes, in the city of Santa Fe Springs, county of Los Angeles, state of California, included within the following described boundaries:

Beginning at a point in the center line of Dice Road, 40 feet northerly thereon from the center line of the right of way of the Pacific Electric Railway (as said right of way and Dice Road are shown on map attached to and recorded with a deed recorded in book 3465 page 133 of Deeds); thence along the center line of said Dice Road, North 11° 54' 10" East 120.90 feet to the true point of beginning; thence South 83° 26' East 261.70 feet; thence North 1° 21' East 68.8 feet; thence North 83° 21' West 249 feet to said center line of Dice Road; thence along said center line, South 11° 54' 10" West 69.18 feet to the true point of beginning.

EXCEPT therefrom that portion within said Dice Road, conveyed to County of Los Angeles, in fee simple for road purposes, by deed recorded October 10, 1908 in book 3465 page 133 of Deeds.

Including all buildings and improvements thereon and all appurtenances to said property; including all boilers, dynamos, motors, all heating, plumbing, ventilating, gas and electric light fixtures, and safety devices, equipment, machinery, fittings and fixtures of every kind in, and all other property attached to, any building or buildings now standing on said premises or any part thereof; including all of the industrial gas manufacturing plants, including a liquid oxygen nitrogen plant with supplementary equipment to make argon and an acetylene plant and a hydrogen plant, and a liquefied petroleum gas filling station; and all parts thereof.

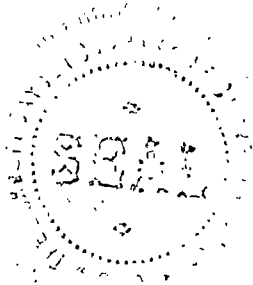
Subject to all general and special taxes for the fiscal year 1960-61 which are a lien but are not yet due and payable, and conditions, restrictions, reservations, covenants, easements, rights of way, requests and agreements of record, AMERICAN CRYOGENICS, INC. assuming all of the obligations of THE BURDETT OXYGEN COMPANY OF CLEVELAND, INCORPORATED, thereunder.

IN WITNESS WHEREOF, the grantor has executed these presents this 23rd day of February, 1961.

THE BURDETT OXYGEN COMPANY
OF CLEVELAND, INCORPORATED

By [Signature]
President

By [Signature]
Secretary



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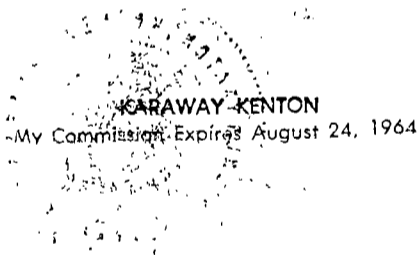
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STATE OF CALIFORNIA }
COUNTY OF LOS ANGELES } SS:

On February 23rd, 1961, before me, the undersigned, a Notary Public in and for said County and State, personally appeared *Wm. H. Louman*, known to me to be the President, and *J. M. Berne*, known to me to be the Secretary of the corporation that executed the within instrument, and known to me to be the persons who executed the within instrument on behalf of the corporation therein named, and acknowledged to me that such corporation executed the within instrument pursuant to its by-laws or a resolution of its board of directors.

WITNESS my hand and official seal.

Karaway Kenton
Notary Public



OFFICIAL RECORDS
COUNTY OF LOS ANGELES
10 AM SEP 11 1961
C. J. F. County Recorder

3080

BK 01350 P 467

GRANT DEED

FEE \$3.60 3M

AMERICAN CRYOGENICS, INC., a Georgia corporation,
grants to CALIFORNIA OXYGEN COMPANY, a California corporation,
that certain real property located in the County of Los Angeles,
State of California, described as follows:

PARCEL NO. 1

That portion of the Colima Tract, in the Rancho Santa Gertrudes, in the City of Santa Fe Springs, County of Los Angeles, State of California, described as follows:

Commencing at a point in the center line of Dice Road, 40.00 feet northerly thereon from the center line of the right of way of the Pacific Electric Railway (as said right of way and Dice Road are shown on a map recorded in Book 2465, page 135, of Deeds, Records of said County); thence along said center line of Dice Road, North 11° 54' 10" East 130.50 feet; thence South 83° 26' East 261.70 feet to the true point of beginning; thence North 1° 21' East 68.8 feet; thence North 83° 21' West 249.00 feet to the center line of said Dice Road; thence North 11° 54' 10" East along said center line 196.65 feet; thence South 83° 07' 50" East 340.15 feet; thence North 08° 26' 10" East 145.34 feet to the northerly line of the land described in Certificate of Title No. X-10800 on file in the office of the Registrar of Titles of said County; thence along said northerly line South 73° 50' 40" East 823.79 feet to the northwesterly line of the Southern Pacific Railroad right of way as said right of way was known on August 24, 1920; thence thereon South 60° 48' 40" West 762.07 feet to the northerly line of said Pacific Electric Railway right of way; thence along said last mentioned northerly line North 78° 02' West 294.60 feet to a point distant South 78° 02' East 282.70 feet thereon from said center line of Dice Road; thence North 3° 15' East 147.25 feet to the true point of beginning.

EXCEPT therefrom the land described in the deed from Burdett Oxygen Company of Cleveland, Inc., a corporation, to C. W. Roberts, a married man, recorded April 21, 1954, in Book 44382, page 402, Official Records.

ALSO EXCEPT therefrom that portion within said Dice Road conveyed to County of Los Angeles in fee simple for road purposes by deed recorded October 10, 1908, in Book 3465, page 133, of Deeds.

PARCEL NO. 2

That portion of the Colima Tract, Rancho Santa Gertrudes, in the City of Santa Fe Springs, County

RECORDED
1961
MELLER, BISHMAN, WHITE & McCAULIFFE
ATTORNEYS AT LAW
1400 WEST 10TH STREET
SANTA ANA, CALIF. 92703

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DICE 00119

BK 01350-2468

of Los Angeles, State of California, described as follows:

Beginning at a point in the northerly line of the right of way of the Pacific Electric Railway, said line being the southerly line of the land described in certificate of title Y-11053 in the office of the registrar of titles of said county, distant thereon South 78° 02' East, 163.50 feet from the intersection of said line with the center of Dice Road as same is shown on map of right of way of said Pacific Electric Railway, recorded in Book 3465 page 135 of Deeds, Records of said County; thence continuing along said northerly line of said right of way South 78° 02' East 119.20 feet; thence North 03° 15' East 147.25 feet to an angle point in the northerly line of said land described in said certificate Y-11053; thence along said northerly line of said land North 83° 26' West 118.02 feet; thence South 03° 15' West 136.02 feet to the point of beginning.

PARCEL NO. 3

That portion of the Colima Tract, in the Rancho Santa Gertrudes, in the City of Santa Fe Springs, County of Los Angeles, State of California, described as follows:

Beginning at a point in the center line of Dice Road distant 40 feet northerly thereon from its intersection with the center line of the right of way of the Pacific Electric Railway, as shown on a map of said right of way recorded in Book 3465 page 135 of Deeds, Records of said County; thence continuing along said center line of said Dice Road, North 11° 54' 10" East, 120.90 feet; thence South 93° 26' East 143.59 feet; thence South 3° 15' West, 136.02 feet to a point in the northerly line of the aforesaid right of way of the Pacific Electric Railway, said line being the southerly line of the land described in certificate Y-11053 of the registrar of titles of said County; thence North 78° 02' West along said northerly line of said right of way and the southerly line of said registered parcel, 163.50 feet to the point of beginning.

EXCEPT therefrom that portion within said Dice Road conveyed to County of Los Angeles in fee simple for road purposes, by deed recorded October 10, 1908, in Book 3465, page 133 of Deeds.

PARCEL NO. 4

That portion of the 236 acre parcel in the Colima Tract, Rancho Santa Gertrudes, in the City of Santa Fe Springs, County of Los Angeles, State of California, included within the following described boundaries:

Beginning at a point in the center line of Dice Road, 40 feet northerly thereon from the center line of the right of way of the Pacific Electric Railway (as said right of way and Dice Road are shown on map attached to and recorded with a deed recorded in Book 3465, page 133 of Deeds); thence along the center line of said Dice Road, North 11° 54' 10" East 120.90 feet to the true point of beginning; thence South 83°

MILLER, BERNARD, SURVEY & MEASUREMENT
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26' East 261.70 feet; thence North 1° 21' East 68.8 feet; thence North 83° 21' West 249 feet to said center line of Dice Road; thence along said center line, South 11° 54' 10" West 69.18 feet to the true point of beginning.

EXCEPT therefrom that portion within said Dice Road conveyed to County of Los Angeles, in fee simple for road purposes, by deed recorded October 10, 1908, in Book 3465, page 133 of Deeds.

SUBJECT TO easements, restrictions, and encumbrances of record, including a Deed of Trust from American Cryogenics, Inc., to Title Insurance and Trust Company, a California corporation, Trustee for the benefit of The Burdett Oxygen Company of Cleveland, Incorporated, an Ohio corporation, which Deed of Trust was recorded in Book of Official Records at page in the office of the Recorder of Los Angeles County, California, and which Deed of Trust is assumed by California Oxygen Company.

Dated: March 21, 1961.

AMERICAN CRYOGENICS, INC., a Georgia corporation

By _____ Vice President
By _____ Executive Vice President

HELLER, EDWARDS, WHITE & MCKELUPPE
ATTORNEYS AT LAW
1400 BROADWAY
SAN FRANCISCO 4, CALIF.

STATE OF CALIFORNIA
County of *San Mateo* } ss.

On this *27th* day of *September*, in the year one thousand nine hundred and sixty-one, before me, *Florence B. Larson* a Notary Public in and for the County of *San Mateo*, State of California, residing therein, duly commissioned and sworn, personally appeared

John P. Coyne & M. J. Coyne

known to me to be the *Vice President & Operating Vice President* of the corporation described in and that executed the within instrument, and also known to me to be the persons who executed the within instrument on behalf of the corporation therein named, and acknowledged to me that such corporation executed the same pursuant to its by-laws or a resolution of its board of directors.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal in *San Mateo* County of *California* the day and year in this certificate first above written.

Florence B. Larson, NOTARY PUBLIC
in and for the County of *San Mateo*
State of California.
My Commission Expires

My Commission Expires *Mar 24, 1962*

1996 PHASE I AND II ENVIRONMENTAL ASSESSMENTS

RE

EXCHANGE OF PROPERTY

BETWEEN

BARNARD/WITCO AND AIR LIQUIDE

10/98

DICE 00122



ENVIRONMENTAL STRATEGIES CORPORATION

11911 Freedom Drive • Reston, Virginia 20190 • (703) 709-6500 • Fax (703) 709-8505

**PHASE I ENVIRONMENTAL ASSESSMENT
AND
PHASE II ENVIRONMENTAL INVESTIGATION**

**WITCO CORPORATION
NORTH PLANT – EAST
SANTA FE SPRINGS, CALIFORNIA**

PREPARED

BY

ENVIRONMENTAL STRATEGIES CORPORATION

SEPTEMBER 6, 1996

DICE 00123

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- Table 2 - Soil Data
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- Appendix D - Tank Information
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Executive Summary

ESC conducted a Phase I environmental assessment and a Phase II investigation of the Witco North Plant-East facility in Santa Fe Springs, California. Witco manufactures fatty acids, glycerine, and fatty acid derivatives for use in various types of consumer products. The facility is in the process of closing.

Manufacturing operations have been conducted at the facility since the 1950s; however, Witco has only been operating at the site since 1988.

Historic aerial photographs of the site taken in 1953, 1970, 1986, 1990 and 1993 were reviewed by ESC. In the photograph taken in 1953, the site shows what appear to be residential buildings. The remaining photographs generally show the site as it exists today. No issues posing potential environmental concern were observed in the aerial photographs.

The primary raw materials used during manufacturing are zinc stearate, fatty acids, coconut oil, and glycerine. The raw materials are stored in aboveground bulk storage tanks.

Hazardous wastes generated at the facility include solids cleaned from the wastewater sumps and wastewater sludges. Hazardous wastes have been sent offsite for disposal since Witco acquired the property in 1988.

There are two empty and clean 10,000-gallon underground tanks that formerly contained methanol and there is a main underground sump for collection of wastewater and storm water. The wastewater/storm water go to a clarifier and microfiltration pretreatment system with sodium hypochlorite addition before permitted discharge to the Los Angeles County Sanitation District.

There are numerous aboveground tanks used to store raw materials, finished products, and other chemicals at the facility. There are currently 1400-1500 drums containing off-specification raw materials and products that are being stored pending proper disposal.

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ESC

A formal asbestos survey has not been performed. Witco personnel indicated that there may be insulation on the esterification tower that contains asbestos materials.

Currently, there are no electrical transformers that contain polychlorinated biphenyls (PCBs) at the facility.

Witco is listed on federal and state environmental databases including Toxic Release Inventory System (TRIS), Emergency Response Notification System (ERNS), and Underground and Aboveground storage tanks (UST/AST). These listings do not indicate that Witco has adversely affected environmental conditions at the site in the area.

ESC also reviewed federal state and databases to determine the potential for the facility to be affected by releases from neighboring properties. Several sites north of Witco (upgradient) pose an environmental concern due to documented releases of chlorinated volatile organic compounds. These sites include Parker Hannifin Corporation, Western Screw Products, Cal Western Paint, Corp., and Pilot Chemical Company. The presence of the regional groundwater contamination was verified by ESC's Phase I investigation, which is discussed below.

ESC performed a Phase II investigation to assess potential environmental liabilities associated with six areas of concern (AOCs) identified during the Phase I investigation of the Witco North Plant-East, Santa Fe Springs, California, facility. ESC installed five soil borings and one temporary monitoring well, and collected a total of five soil samples and one groundwater sample within the AOCs identified.

The results of the Phase II investigation indicated that Witco's operations have not adversely affected soil quality. The temporary groundwater monitoring well (downgradient of facility operations) that was installed contained chlorinated volatile organic compounds (VOCs) above California Action Levels and federal maximum contaminant levels; however, there is considerable documented evidence of areawide groundwater contamination from upgradient sources and there is no evidence to suggest that Witco is a source of the VOC contamination.

The results of both the Phase I and II investigation of the Areas of Concern indicate that no further investigative or remedial actions are necessary or warranted at the North Plant-East.

Introduction

General

A Phase I environmental assessment was conducted by Environmental Strategies Corporation (ESC) to identify existing and potential environmental liabilities at the Witco Corporation (Witco) facility, North Plant-East located in Santa Fe Springs, California. This Phase I investigation includes:

- a site inspection conducted on July 25, 1996 by Richard E. Freudenberger and Ashley W. Faddis of ESC with Jason C. Chai of Witco
- a review of available facility records
- a review of federal and state databases for sites within a one-mile radius of the facility
- a review of previously-conducted environmental work at the facility
- site photographs (Appendix A)

The Phase I results were used to identify areas of concern and recommend locations at the facility for a subsequent Phase II investigation.

Portions of this report are based on documents reviewed at the facility and on oral information provided by Mr. Al Nesheiwat, Corporate Environmental Manager, and Mr. Jason C. Chai, Health, Safety & Environmental Engineer of the Witco facility. This report is accurate to the best of ESC's knowledge and belief, and ESC has based the conclusions on the information supplied by Witco and the other sources described in this report.

Assessment of Environmental Risks at the Witco Corporation Facility, North Plant - East, Located in Santa Fe Springs, California

Site Description and History

The Witco facility is located at 8724 Dice Road in Santa Fe Springs, California (Figure 1). The North Plant-East occupies approximately ten acres in an industrial/commercial area of Santa Fe Springs. The facility is bordered to the north by Pilot Chemical Co., Flight Trucking, Inc., West Bent Bolt Co., Parker Fluid Power, and Williams Machine Co.; to the west by Talco Plastics Co. and T-Chem Products. To the south is Phibro-Tech, Inc., Liquid Air, Inc., Diversey Corp., Schnee-Morehead Chemicals, and Consolidated Disposal Services, Inc. To the northeast is Nicsan Engineering Co. and Earl Manufacturing Co. The nearest residences are approximately 0.5 mile northwest of the facility. There are large tracts of undeveloped land also owned by Witco located north and south of the manufacturing facility.

The property and surrounding area are relatively flat and the nearest surface water body, the San Gabriel River, is located approximately 1.25 miles west of the facility.

The facility was constructed by Process Chemicals in the 1950s. Emery Chemical purchased Process Chemicals in 1963 and Witco acquired the North Plant in 1988. Similar products to Witco's were manufactured by previous owners. This assessment was conducted on the North Plant-East property owned by Witco.

Currently, the facility consists of a warehouse; maintenance building and boiler room; about 20 aboveground storage and process vessels; a 50,000-gallon propane tank; a wastewater treatment system; and two underground storage tanks that formerly contained methanol. The site is entirely paved with undeveloped areas along the southern boundary near a railroad spur, and north of the property (Figure 2).

The facility is currently undergoing closure; it recently employed about 50 people and operated three shifts per day. The North Plant-East manufactures surfactants through oxidation and esterification. Finished intermediate products are exchanged with neighboring Witco operations (North Plant-West and

the South Plant) in Santa Fe Springs. The primary customers for Witco's intermediate product surfactants are cosmetic and cleaning agent companies.

Aerial Photographs and Sanborn Map Survey

Aerial photographs showing the facility in 1950, 1970, 1986, 1990, and 1993 were obtained. No Sanborn maps were available. The 1953 photograph shows what appear to be residential buildings on the site and currently undeveloped areas of the site. The 1970, 1986, 1990, and 1993 photographs show the facility and the undeveloped areas as they are today with little discernible changes from year-to-year. There is no visible evidence in the aerial photographs that suggests any environmental impacts from the site.

Materials Handling and Storage

A list of hazardous chemicals used at the North Plant-East is included as Appendix C and a list of chemical storage tanks is in Appendix D. The majority of the chemicals arrive in 55-gallon drums, tote bins (300 gallons), and tank trucks or railcars for storage in aboveground tanks. The primary raw materials (zinc stearate, fatty acids, coconut oil, glycerine) are mixed in low temperature and high temperature reaction vessels.

Three trucks including a tank trailer transport raw materials and products among the two neighboring Witco operations.

Non-RCRA hazardous wastes generated at North Plant-East include sludge from the wastewater treatment system. Witco's EPA ID No. is CAD008371627. Other non-hazardous wastes include normal refuse.

There are 1,400-1,500 drums containing off-specification raw materials and products currently stored at the North Plant-East. Witco is in the process of properly disposing of these drums in accordance with applicable regulations.

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ESC

Underground and Aboveground Tanks

There are about 20 aboveground storage tanks and two empty and clean underground storage tanks that formerly contained methanol, each with capacities of 10,000 gallons (Appendix D). The 12 largest aboveground chemical storage tanks each has a capacity of 16,000-gallons and contain various materials. The remaining aboveground tanks have capacities less than 6,000 gallons.

Water, Wastewater and Storm Water

Potable water is supplied by the city of Santa Fe Springs. Process wastewater is generated from the washdown of various process areas and rinsing of tanks. All storm water falling within the plant process areas is collected within berms that surround these areas. Wastewater and storm water are then collected within the North Plant-East through a system of trenches that convey the water to the main sump at the wastewater treatment system.

Wastewater and storm water are stored in a 160,000-gallon tank in an unpaved area at the northern boundary of the plant. The underground sewer line from the North Plant-West rises above the ground surface after it enters the North Plant-East and conveys wastewater and storm water to the wastewater pretreatment system on the North Plant-East facility. The primary constituents present in the wastewater from the North Plant-East include surfactants (methylene blue active substances {MBAS}), fatty acids, and zinc. Pretreatment consists of screening, settling, and adding sodium hypochlorite and is permitted by the Los Angeles County Sanitation District (LACSD). The wastewater from the treatment plant on the North Plant-East facility is discharged to the LACSD.

Storm water that falls within the western edge of the plant and outside the process areas is conveyed to the municipal storm sewer system along Dice Road.

Asbestos

A formal asbestos survey has not been performed and Witco personnel indicated that insulation on the esterification tower within North Plant-East may contain asbestos-containing material (ACM). No pipe or spray-on insulation was observed during ESC's site visit. According to Witco personnel, any ACM on the existing boiler at the facility was removed during renovation. No report on this activity was available.

Polychlorinated Biphenyls (PCBs)

According to Witco personnel, there is no electrical equipment or transformers within the North Plant-East that contain PCBs, with the possible exception of fluorescent light ballasts. Any transformers that may have contained PCBs were replaced by Southern California Edison in 1985-86.

Regulatory Database Review

Federal and state databases, including the National Priorities List (NPL), Comprehensive Environmental Response, Compensation, and Liability Information system (CERCLIS), state equivalent CERCLIS list (SCL), RCRA Corrective Action Sites List (CORRACTS), Calsites Database (SPL), RCRA permitted treatment, storage, and disposal facilities (TSD), permitted solid waste landfills, incinerators, or transfer stations (SWLF), Toxic Release Inventory System (TRIS), sites which have violated RCRA regulations (RCRA Viol), Underground Storage Tank Registrations (UST), Aboveground Storage Tank Registrations (AST), Toxic Pits, Emergency Response Notification System (ERNS), Leaking Underground Storage Tanks (LUST), and Deed Restrictions were reviewed for the subject property and properties within a 1-mile radius of the site. The database information is included as Appendix E.

The Witco facility is listed under TRIS for reporting diethanolamine, ethylene glycol, ethylene oxide, and hydrochloric acid. Under the ERNS database, the facility is listed for a release of methanol to the land. The facility is also listed in the UST/AST databases for registered tanks. No releases of hazardous substances or petroleum were reported for the site in the LUST databases.

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ESC

There are over 30 sites listed under the various databases located within one mile of the site. One NPL site (Waste Disposal, Inc.) is located 0.53 mile west of the facility. Of the remaining sites, those that are north and, therefore, upgradient of the facility with respect to groundwater flow (see *Site Geology and Hydrogeology*), are discussed below.

Pilot Chemical Company is adjacent to the Witco site to the north and is listed on the CERCLIS, LUST, CORTESE, ERNS, TRIS, and UST/AST databases. Under CERCLIS, the site is listed as no further remedial action planned. Under LUST, Pilot Chemical has had leaks of diesel to the groundwater. In addition, ESC reviewed other files that indicate that Pilot Chemical is investigating groundwater contamination from chlorinated volatile organic compounds. Flight Trucking, located 0.03 mile north of the Witco property, is listed on the LUST database for a release of diesel fuel to soil. West Bent Bolt is 0.09 mile north of the subject site and is listed on CERCLIS as no further action planned, and on SCL and CORTESE for releases of pollutants including cyanides, household wastes, and unspecified sludge waste. Parker Hannifin Corporation, located 0.16 mile northeast of the subject site, is listed on TRIS for a release of 1,1,1 trichloroethane. Techni-Braze Inc., located 0.17 mile northeast of the Witco facility, is listed on SCL for a release of pollutants including gas scrubber waste, paint sludge, and phosphate sludge. Aerospace Rivet Manufacturing Corporation, located 0.18 mile north of the Witco property, is listed under TRIS for a release of sulfuric acid. Western Screw Products and Cal Western Paint Corp., located 0.24 mile north of the facility, are listed on CERCLIS as no further action planned and SCL. Western Screw appears to have had a release of halogenated solvents, and Cal Western Paint Corp. is listed for a release of latex waste and unspecified solvent mixtures.

It is possible that releases from the Pilot Chemical Company, Parker Hannifin Corporation, Western Screw Products, or Cal Western Paint Corp. may have adversely affected the condition of groundwater beneath the Witco site and have contributed to an areawide groundwater problem.

Summary of Previous Subsurface Investigation Results

In December 1987, Woodward-Clyde Consultants conducted a soil and groundwater investigation at the Witco North Plant-East facility. A summary of Woodward-Clyde Consultant's investigation is provided below.

Soil Sampling

Woodward-Clyde Consultants collected 13 soil samples to assess whether historic operations have adversely affected soil quality at the site. Eleven of the samples were collected by hand augering to a depth of approximately one foot. Following this, a modified California sampler containing four brass tubes was placed in the hole and hammered to a depth of 15 to 20 inches, thus, collecting the soil samples beneath the augured hole. Two subsurface soil samples were collected near the site of a reported drum of chlorosulfonic acid and the underground methanol storage tanks, respectively. Drilling was accomplished using an 8-inch hollow stem auger. The boring near the underground drum extended to about 10 feet below ground surface (bgs), and the boring near the methanol tanks extended to about 20 feet bgs. Soil samples were collected as noted above.

Samples from each location were analyzed for pH and oil and grease using modified EPA Method 413.2. Two selected soil samples were also analyzed for total phenols using EPA Method 420.1 and one sample was analyzed for benzene, toluene, and xylenes (BTX) using EPA Method 8020.

The soil pH values ranged from 7.10 to 9.58 and oil and grease concentrations ranged from not detected to 540 mg/kg. The presence of oil and grease is likely due to releases of relatively non-toxic constituents, such as stearates, fatty acids, coconut oil, and glycerine as opposed to more toxic petroleum hydrocarbon compounds which are not used in large quantities at the facility. Concentrations of phenols and BTX were not detected.

Groundwater Sampling

One groundwater monitoring well was installed by Woodward-Clyde Consultants at the North Plant-East, upgradient of the chemical manufacturing and storage areas. The borehole for the monitoring well was drilled using a ten-inch outside diameter hollow stem auger. Organic concentrations of soil gas were measured for selected depths in the boring using an organic vapor analyzer (OVA). The boring was completed as a four-inch diameter monitoring well. Groundwater samples were collected and analyzed for pH, oil and grease, total phenols, BTX, and volatile organic compounds. Later, a second groundwater sample was collected and analyzed for semi-volatile organic compounds and total CAM metals (metals listed in the California Administrative Code, Title 22, Chapter 30, Section 66699).

The pH of the groundwater sample was 7.43 and the oil and grease concentration was 12.1 mg/l. There is no groundwater quality standard for oil and grease. Trichloroethene was detected at 28 ug/l, above the California Action Level (AL) and federal maximum contaminant level (MCL) of 5 µg/l. Tetrachloroethene was detected at 2 µg/l, below the California AL and MCL of 5 µg/l. The concentrations of CAM metals and semi-volatile organic compounds were all below applicable California Action Levels and federal MCLs.

The monitoring well installed by Woodward-Clyde was subsequently abandoned. No record of this activity was available.

Areas of Concern (AOCs)

It is important to recognize that fatty acids are used in various types of consumer products, including foods for human consumption. According to the document **Dangerous Properties of Industrial Materials** (January 1979), no lethal concentration, carcinogen, toxic dose, or threshold limit values have been identified for fatty acids. In addition, fatty acids are not regulated as hazardous substances, hazardous wastes, or priority chemicals by the U.S. Environmental Protection Agency (EPA). The absence of data and regulations is likely due to the innocuous characteristics of fatty acid substances. Due to the absence of toxicity for fatty acids, one of the primary intermediates or products manufactured at the facility, ESC did not identify potential releases of fatty acids at the facility to be an area of environmental concern warranting investigation.

The Phase I environmental assessment conducted by ESC identified the areas of concern (AOCs) described below and shown on Figure 3.

AOC 1 - Plant Sump

Witco has a number of wastewater trenches which collect and distribute wastewater to a main sump. The main sump on the east side of the north plant is located adjacent to the wastewater treatment system. Since the sump is below ground and accepts all wastewater flow from both the North Plant-East and North Plant-West, the integrity of the sump must be considered.

AOC 2 - Fatty Acid Area on East Side of Plant

There is a trench and storage tanks containing fatty acids located on the south portion of the North Plant-East. During the site visit, the concrete pavement in this area was stained and pitted.

AOC 3 - Unpaved Surface Surrounding Wastewater Storage Tank

The wastewater storage tank is situated above an unpaved surface, thus, it is possible that leakage may have adversely affected soil in this area.

AOC 4 - Zinc Stearate Area

The concrete surface of the zinc stearate production and storage area was pitted and stained during ESC's site visit.

AOC 5 - Stained Area East of Maintenance Building

The concrete surface of the maintenance area where drums are stored was stained at the time of the site visit.

AOC 6 - Groundwater

The historic operations at the plant may have adversely affected groundwater quality south or southwest of the plant. As discussed in the **Site Geology and Hydrogeology** section of this report, this is the regional groundwater flow direction. In addition, the groundwater quality may have been adversely affected by offsite groundwater contamination.

ESC Phase II Investigation

ESC performed a Phase II investigation on August 14, 15, 22, and 23, 1996 to assess the potential environmental liabilities associated with six AOCs identified during the Phase I assessment of the Witco facility.

The Phase II investigation consisted of hand auger investigations in five areas and installation and sampling of a temporary groundwater monitoring well. A summary of the soil and groundwater sampling activities performed during the Phase II investigation is provided in Table 1. The field methodologies and results of each task of work are described below.

Investigation Methodology

Activities performed for the ESC Phase II field investigation included: locating underground utilities near proposed drilling and hand auger locations; hand augering five soil borings and collecting undisturbed soil samples; and installing a temporary groundwater monitoring well and collecting a groundwater sample from the well.

Utility Location

The location of all buried utilities and underground objects near the proposed soil sampling and monitoring well locations was verified before drilling activities commenced. The proposed locations were marked by ESC with white spray paint and were initially cleared by Witco facility personnel.

Utilities near the proposed drilling locations were located by Spectrum ESI Urban Geophysics (Spectrum) of San Fernando, California. Spectrum used a variety of portable geophysical and line locating instruments to precisely locate and trace the path of buried utilities near the proposed drilling locations. Some sample locations were moved due to the close proximity of buried utilities near the originally proposed sampling locations. No underground objects were detected by Spectrum near the proposed drilling locations.

Soil Investigation

Before the soil borings could be hand augured, several locations required a concrete corer to access the underlying soils. A concrete coring machine was used to core a 4.5-inch diameter hole at all of the sample locations covered by concrete.

On August 14, 1996, five shallow soil borings were hand augured, sampled, and backfilled with the soil cuttings in the areas of concern at the facility (Figure 4). All borings were hand augured to one-foot bgs to six feet bgs and undisturbed soil samples were collected

The soil cuttings were also screened for volatile organic compound (VOC) content with a Thermo 580 B photo ionization detector (PID) equipped with a 10.6 electron volt lamp calibrated to benzene and isobutylene standards. The PID screening results indicated that no evidence of VOCs was present in any of the cuttings and bore holes.

The sampling equipment was decontaminated by scrubbing with a nonphosphate detergent followed by a double rinse of deionized, organic-free water. All decontamination water and drill cuttings generated during the soil boring activities were collected in clean 55-gallon steel drums and placed in a secure area at the facility.

Soil samples were collected immediately beneath the concrete or soil surface at a depth of one-foot below the ground surface (bgs). A two-inch split-spoon sampler fitted with a clean six-inch brass liner was used to collect the samples. After opening the sampler, the sample sleeve was removed and screened for organic vapors using the PID. Following PID screening, the ends of the brass liner containing the soil sample were immediately covered with teflon tape and capped with plastic endcaps. The sample sleeve was then labeled and placed in a cooler for later shipment to the analytical laboratory. Samples were shipped with chain-of-custody documentation, included in Appendix F.

After the hand augering and sampling were complete, each borehole was backfilled with the original soil cuttings. Each borehole was subsequently capped with concrete or native soil and finished to original grade.

One soil sample per boring was collected and submitted to the laboratory for chemical analysis. The five samples were analyzed for polycyclic hydrocarbons (PAHs) and VOCs by EPA Methods 8270 and 8260, respectively. Additionally, the sample from the zinc stearate production area was analyzed for total zinc. The soil samples were analyzed by IEA Laboratories of Cary, North Carolina, a California State certified laboratory.

Groundwater Investigation

On August 15, 1996, a hydraulically-driven sampling probe device was used to attempt to collect groundwater samples. Refusal was encountered at a very dense sand at approximately 6 to 18 feet bgs. Due to the dense sand formation beneath the site, the hydraulic sampling method was unable to reach saturated soils. Witco then requested that ESC drill and set a temporary well to collect groundwater samples. On August 22, 1996, ESC installed temporary well TW-3 to a depth of 55 feet bgs. West Hazmat Drilling of Anaheim, California drilled and installed the temporary well using a CME 75 drill rig equipped with seven-inch diameter hollow stem augers.

Cuttings were logged continuously for lithology during drilling using the U.S. Soil Conservation Service Unified Soil Classification System. Cuttings and the breathing zone around the well were also monitored for organic vapors using the PID. No VOCs were detected during the monitoring. Groundwater was first encountered between 40 and 50 feet bgs, and drilling continued approximately five feet beyond that point, to a medium coarse saturated sand zone.

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TW-3 was completed as a one-inch diameter well using Schedule 40 PVC casing and screen. The screened section was five feet in length with 0.010-inch factory milled slots to help minimize siltation and turbidity. The well screen and blank casing were decontaminated using a steam cleaner before emplacement down the well borehole. A sand pack made up of #3 RMC Lonestar washed sand was placed in the annular space around the well screen to a height of five feet above the top of the well screen. The boring log and well construction details are provided in Appendix G. The downhole equipment was decontaminated by steam cleaning before and after the well construction activities. Soil cuttings and

rinsate water from the drilling operations were placed into clean 55-gallon steel drums. The drums were labeled and moved to a secure area. The well was abandoned once sufficient sample volume was recovered.

A tremie pipe was inserted into the open borehole adjacent to the temporary well casing. The well casing was pulled out of the borehole, and a bentonite slurry mix was pumped into the borehole through the tremie pipe.

Groundwater samples were collected from temporary well TW-3 on August 22, 1996. A copy of the field sampling form is provided in Appendix H.

The well was sampled with a clean disposable teflon bailer. Groundwater was transferred from the bailer into sample containers provided by the laboratory. The sample containers were labeled and placed in chilled coolers for transport to the analytical laboratory. The groundwater sample was collected for VOC analysis by EPA Method 8260 and for PAH analysis by EPA Method 8270. The sample was submitted to IEA Laboratories in Cary, North Carolina, for analysis.

Site Geology and Hydrogeology

The Witco site is located on upper Pleistocene alluvium of the Lakewood formation. The Lakewood formation overlies the lower Pleistocene San Pedro Formation, the Pliocene Pico and Repetto Formations, and the Miocene Puente Formation.

The surface of the site is located on the Bellflower Aquiclude, which is approximately 10 to 15 feet thick and consists of clays, silt, silty clays, and sandy clays. The Gage aquifer underlies the Bellflower aquiclude to a depth of 30 to 35 feet. Below the Gage, a second aquiclude exists to a depth of 50 feet. This aquiclude separates the Gage from the Hollydale aquifer. The Hollydale aquifer contains the first water beneath the site. This portion of the aquifer beneath the site, consisted of a dark brownish red medium to coarse grained sand. The sands were saturated, well sorted, and contained traces of gravels.

The general regional flow of groundwater in the area is in a south to southwest direction. Depth to first groundwater is approximately 50 feet beneath the site. The static water level is approximately 35 feet below ground surface.

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Sample Evaluation Criteria

The Phase II investigation was performed by ESC, on behalf of Witco, as a voluntary investigation. ESC evaluated the analytical data by comparing the data to relevant and appropriate California and federal standards and guidelines.

The soil analytical data for VOCs and PAHs are compared to the EPA Region IX Preliminary Remediation Goals (PRGs) 1996. Groundwater analytical results are compared to the California Action ALs and the MCLs.

Soil Sample Results

The analytical results for VOCs and PAHs' are summarized in Table 2. The laboratory analytical report and quality assurance review are included as Appendix I.

No PAHs were detected in any of the soil samples collected in the North Plant-East facility. Trace levels of acetone that are considered negligible (all less than 15 ug/kg) were detected in two of the five samples. No other VOCs were detected in any of the soil samples. Zinc was detected at 67.3 µg/kg in the sample from the zinc stearate production area. All detected levels of PAHs, VOCs, and zinc are below the PRGs.

Groundwater Sample Results

The groundwater analytical results are summarized in Table 3. No PAHs were detected in the groundwater samples collected from temporary well TW-3. Three VOCs, 1,1-dichloroethene (1,1-DCE), tetrachloroethene (PCE), and trichloroethene (TCE), were detected at concentrations of 5 µg/l, 31 µg/l, and 7 µg/l. The PCE and TCE concentrations were above the California ALs and MCLs of 5 µg/l for both compounds in the sample from TW-3. TW-3 is considered a downgradient well. Previous sampling in

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1987 by Woodward-Clyde of a monitoring well upgradient of Witco's facility operations (see page 9 of this report) also revealed significant concentrations of TCE. Although VOCs exceed California ALs and MCLs, there are sources upgradient of Witco that were identified in the database search which are known to have contributed to an areawide groundwater contamination problem with VOCs. Witco has not used chlorinated solvents in manufacturing and there is no evidence that Witco's operations are a source of the VOCs detected in the samples collected from beneath the facility.

Conclusions

The Phase I environmental assessment and Phase II environmental investigation conducted by ESC identified the following areas of concern at the Witco North Plant-East facility in Santa Fe Springs, California.

Areas of Concern 1 - Plant Sump

Witco has a number of wastewater trenches which collect and distribute wastewater to a main sump. The one sump on the east side of the north plan is located adjacent to the wastewater treatment system. Since the sump is below ground and accepts all wastewater flow from both the North Plant-East and North Plant-West, the integrity of the sump must be considered.

ESC collected a soil sample from this area and found no detectable levels of VOCs or PAHs. Thus, this area does not pose a concern and no remediation is warranted.

Areas of Concern 2 - Fatty Acid Area on East Side of Plant

There is an area which has a trench and storage tanks containing fatty acids. During the site visit, the concrete pavement in this area was stained and pitted.

ESC collected a soil sample from this area and found no detectable VOCs (except a trace of acetone) or PAHs. Thus, this area does not pose a concern and no remediation is warranted.

Areas of Concern 3 - Unpaved Surface Surrounding Wastewater Storage Tank

Because the wastewater storage tank is situated above an unpaved surface, it is possible that leakage may have adversely affected soil in this area.

ESC collected a soil sample adjacent to the wastewater storage tank and found no detectable VOCs and PAHs. Thus, this area does not pose a concern and no remediation is warranted.

Areas of Concern 4 - Zinc Stearate Area

During the site visit, the zinc stearate production and storage area with pitted and stained concrete was observed.

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ESC collected a soil sample in this area and found no detectable VOCs (except a trace of acetone) or PAHs and an extremely low zinc concentration. Thus, this area does not pose a concern and no remediation is warranted.

Areas of Concern 5 - Stained Area East of Maintenance Building

The concrete surface of the maintenance area where drums are stored was stained at the time of the site visit.

ESC collected a soil sample in this area and found no detectable VOCs or PAHs. Thus, this area does not pose a concern and no remediation is warranted.

Areas of Concern 6 - Groundwater

The historic operations at the plant may adversely affected groundwater quality south or southwest of the plant. As discussed in the **Site Geology and Hydrogeology** section of this report, this is the regional groundwater flow direction.

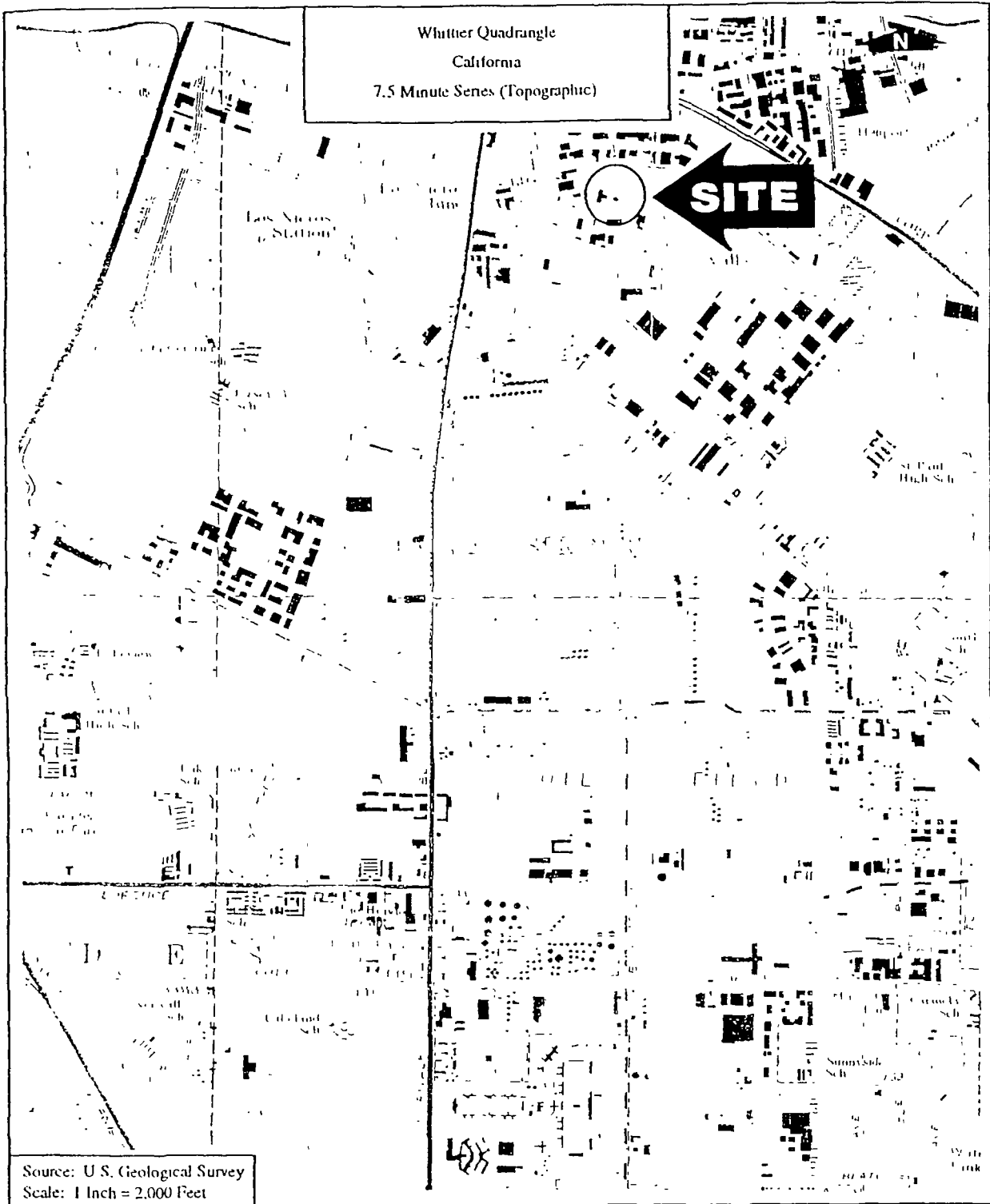
ESC installed a temporary groundwater monitoring well and found no detectable PAHs. Several chlorinated VOCs were detected above California ALs and MCLs, but there is documented evidence of areawide groundwater contamination from upgradient sources and no evidence to suggest that Witco is a source of these contaminants.

The results of the Phase II investigation of the AOCs indicate that no further investigation or remedial activities are necessary or warranted at the North Plant-East.

Figures

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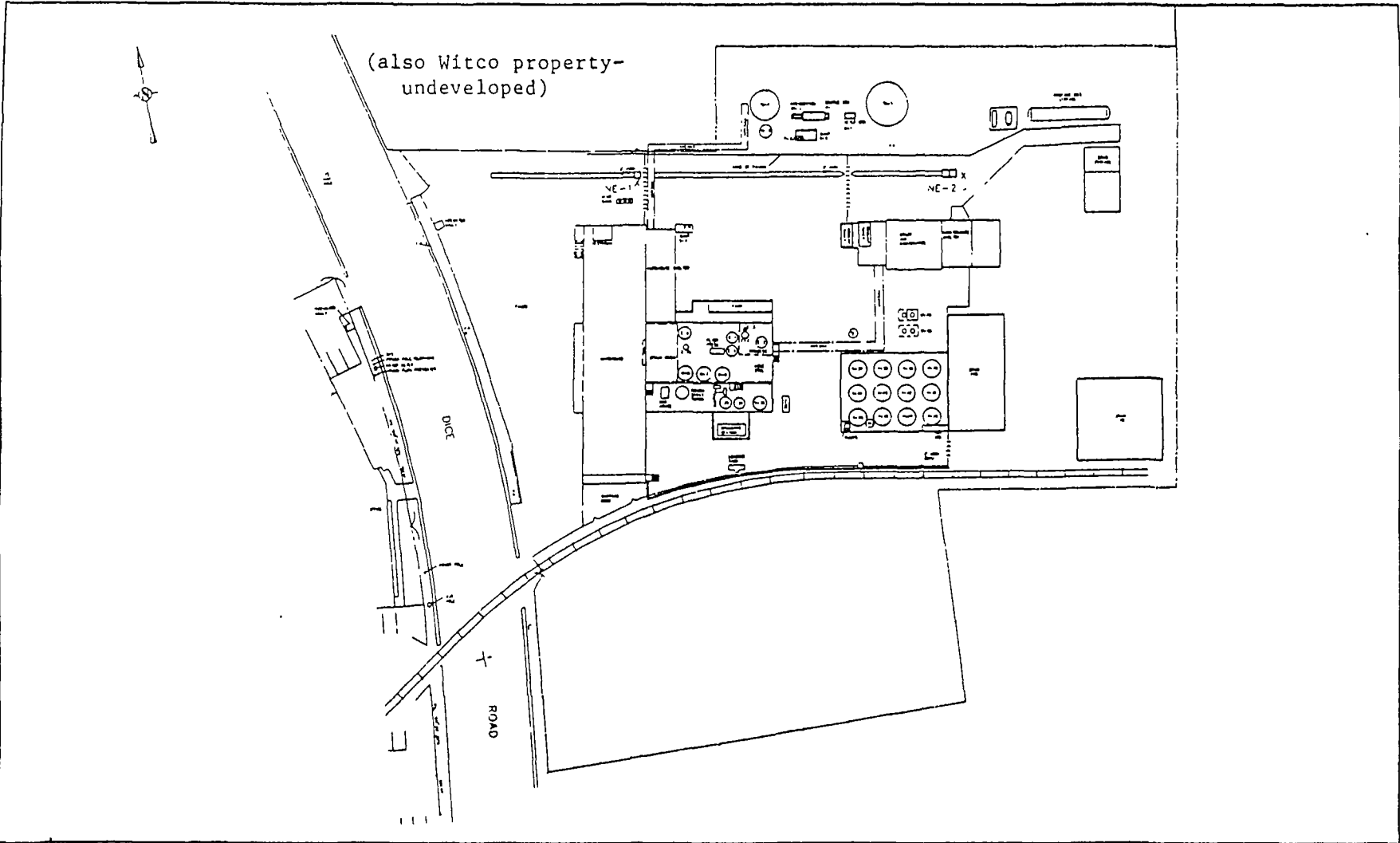


Source: U.S. Geological Survey
 Scale: 1 Inch = 2,000 Feet



ENVIRONMENTAL STRATEGIES CORPORATION
 101 Metro Drive, Suite 650
 San Jose, California 95110
 (408) 453-6100

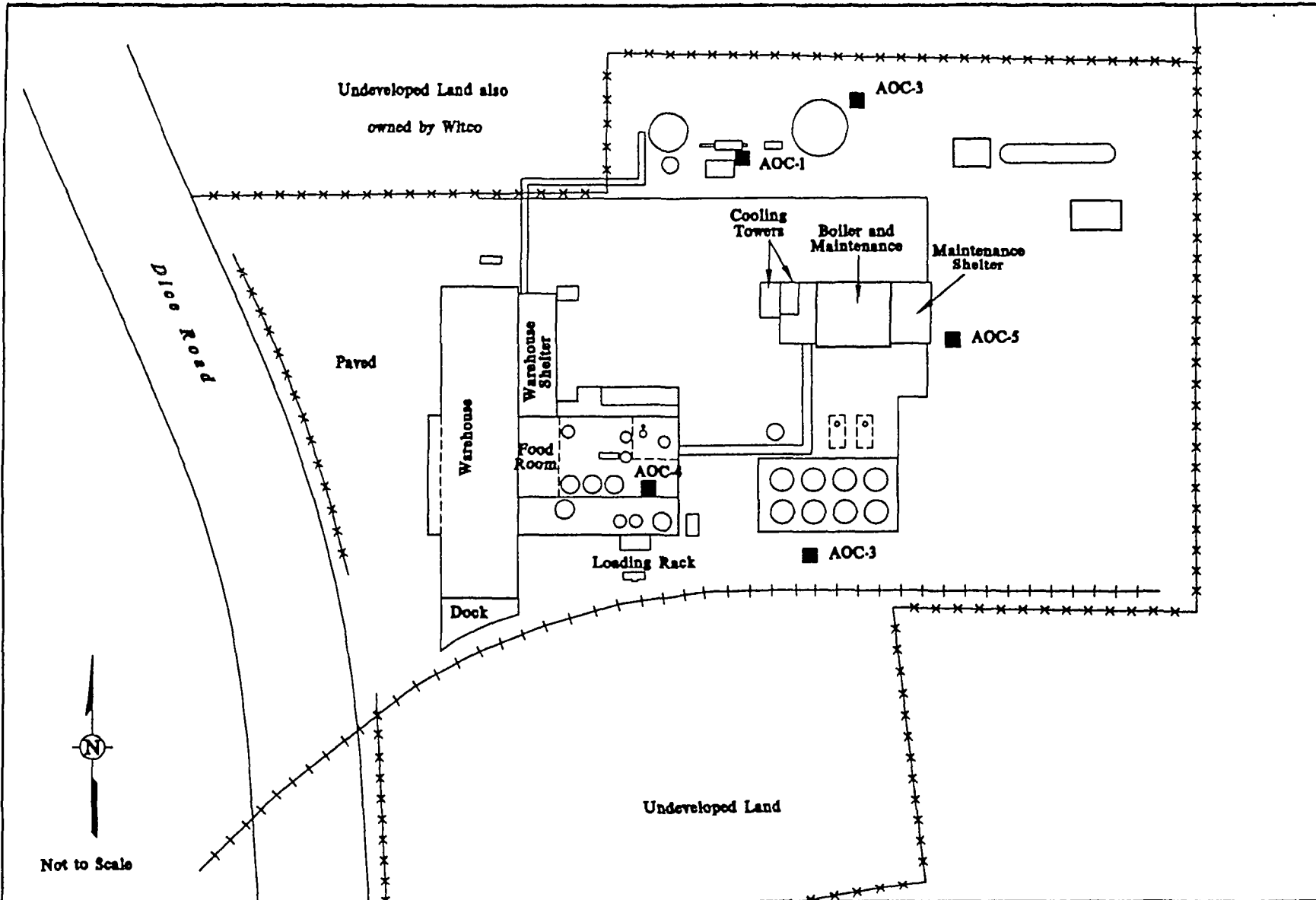
Figure 1
 Site Location
 Witco Corporation - North Plant - East
 Santa Fe Springs, California



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101 Metro Drive Suite 650
 San Jose, California 95110
 408-453-6100

Figure 2
 Site Layout - North Plant - East
 Witco Corporation
 Santa Fe Springs, California

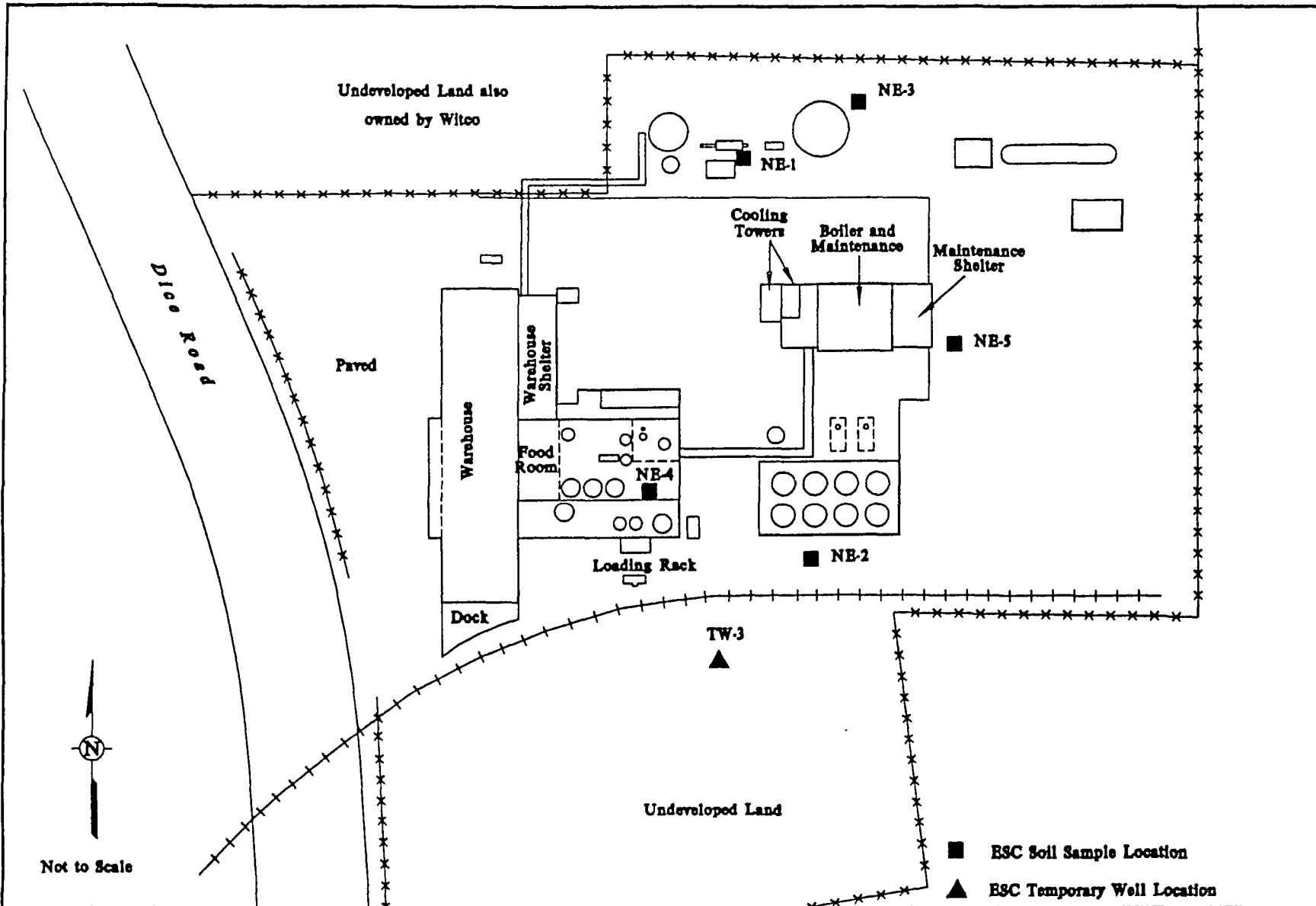


DICE 00151

ENVIRONMENTAL STRATEGIES CORPORATION
 11911 Freedom Drive Suite 900
 Reston, Virginia 22090
 703-709-6500

Figure 3
 Areas of Concern - North Plant - East
 Witco Corporation
 Santa Fe Springs, California

WIT87A.DWG



ENVIRONMENTAL STRATEGIES CORPORATION
 11911 Freedom Drive Suite 900
 Reston, Virginia 22090
 703-709-6500

Figure 4
 Sample Locations - North Plant - East
 Witco Corporation
 Santa Fe Springs, California

WIT037.DWG

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Tables

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Table 1
Summary of Soil and Groundwater Sampling Activities
Witco Corporation Facility
Santa Fe Springs, California

<u>Location</u>	<u>AOC</u>	<u>Media Sampled</u>	<u>Sample Number</u>	<u>Sample Depth (ft)</u>	<u>Sampling Method</u>	<u>Analytical Parameters</u>
NE-1	North Plant-East	Soil	NE-1-6	6'	Hand Auger	VOCs, PAHs
NE-2	North Plant-East	Soil	NE-2-6	6'	Hand Auger	VOCs, PAHs
NE-3	North Plant-East	Soil	NE-3-1	1'	Hand Auger	VOCs, PAHs
NE-4	North Plant-East	Soil	NE-4-2	2'	Hand Auger	VOCs, PAHs, Zinc
NE-5	North Plant-East	Soil	NE-5-1	1'	Hand Auger	VOCs, PAHs
TW-3	North Plant-East	Groundwater	TW-3		Bailer	VOCs, PAHs

Table 2
Soil Analytical Results
Semi-Volatile Organic Compounds
Witco Corporation - North Plant-East
Santa Fe Springs, California
August 1996

Sample Location Depth	NE-1 (6')	NE-2 (1')	NE-3 (1')	NE-4 (2')	NE-5 (1')
Compound					
Semi-Volatile Organics (ug/kg)					
Naphthalene	ND	ND	ND	ND	ND
2-Methylnaphthalene	ND	ND	ND	ND	ND
2-Chloronaphthalene	ND	ND	ND	ND	ND
Acenaphthylene	ND	ND	ND	ND	ND
Acenaphthene	ND	ND	ND	ND	ND
Flouorene	ND	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND	ND
Anthracene	ND	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND	ND
Pyrene	ND	ND	ND	ND	ND
Benzo(a) anthracene	ND	ND	ND	ND	ND
Chrysene	ND	ND	ND	ND	ND
Benzo (b) fluoranthene	ND	ND	ND	ND	ND
Benzo (k) fluoranthene	ND	ND	ND	ND	ND
Benzo (a) pyrene	ND	ND	ND	ND	ND
Indeno (1,2,3-cd) pyrene	ND	ND	ND	ND	ND
Dinbenz (a,h) anthracene	ND	ND	ND	ND	ND
Benzo (g,h,i) perylene	ND	ND	ND	ND	ND

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Table 2
(continued)
Soil Analytical Results
Volatile Organic Compounds
Witco Corporation - North Plant-East
Santa Fe Springs, California
August 1996

Sample Location Depth (ft)	NE-1 (6')	NE-2 (1')	NE-3 (1')	NE-4 (2')	NE-5 (1')
Compound					
Volatile Organics (ug/kg)					
Acetone	ND	15 JB	ND	13 JB	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND

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Table 2
(continued)
Soil Analytical Results
Zinc
Witco Corporation - North Plant-East
Santa Fe Springs, California
August 1996

Compound	Sample Location Depth (ft)	NE-4 2'
Zinc (ug/kg)		
Zinc		67.3

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Table 3
Groundwater Analytical Results
Volatile Organic Compounds
Witco Corporation - North Plant-East
Santa Fe Springs, California
August 1996

Sample Location	TW-3
Compound	
Volatile Organics (ug/kg)	
Acetone	ND
1,1-Dichloroethene	5
Tetrachloroethene	30
Toluene	ND
Trichloroethene	7

NOTE: NO SEMI-VOLATILE ORGANIC COMPOUNDS WERE DETECTED.

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Appendix A - Site Photographs

DICE 00159

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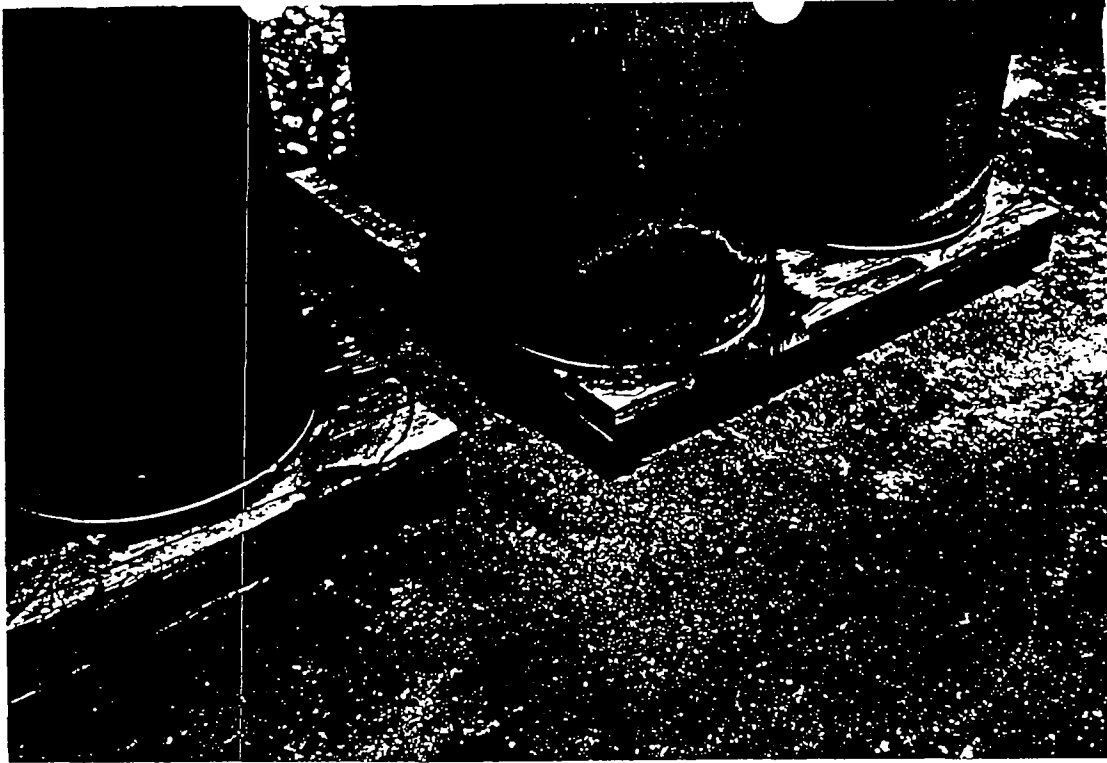


Photo 1: Stained area east of maintenance building.
Witco Corporation, North Plant-East, Santa Fe Springs, California

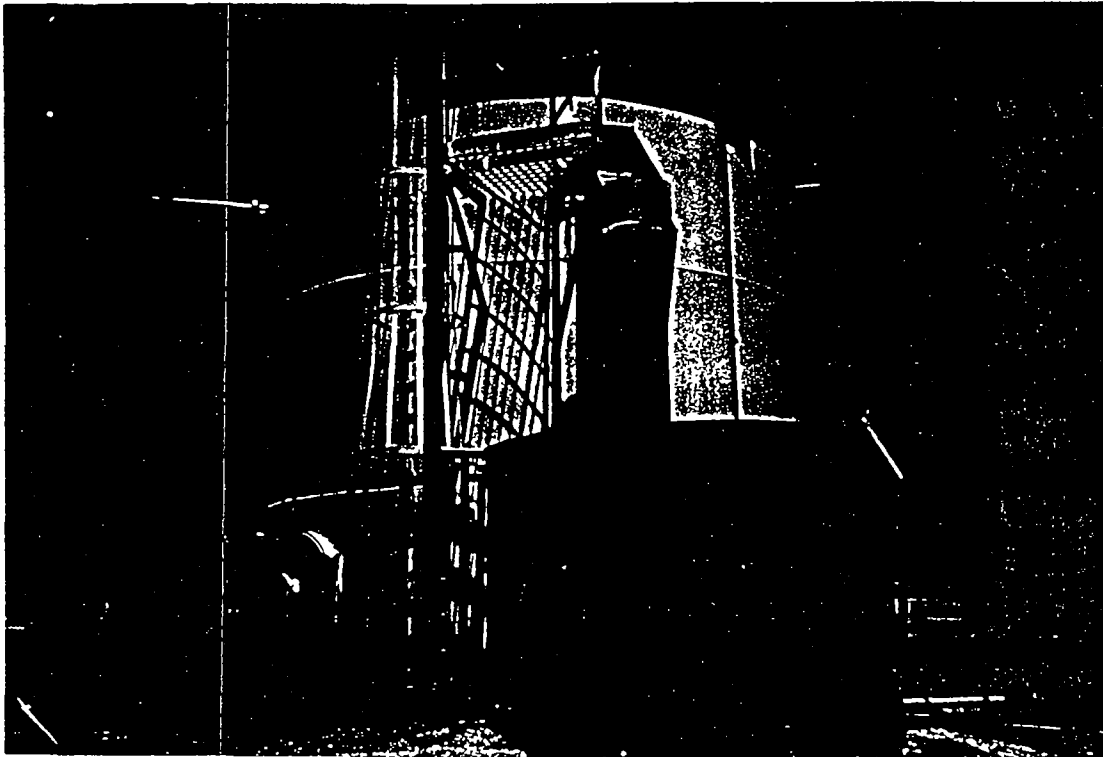


Photo 2: Aboveground wastewater storage tank.
Witco Corporation, North Plant-East, Santa Fe Springs, California



Photo 3: Drums with off-specification materials pending disposal.
Witco Corporation, North Plant-East, Santa Fe Springs, California

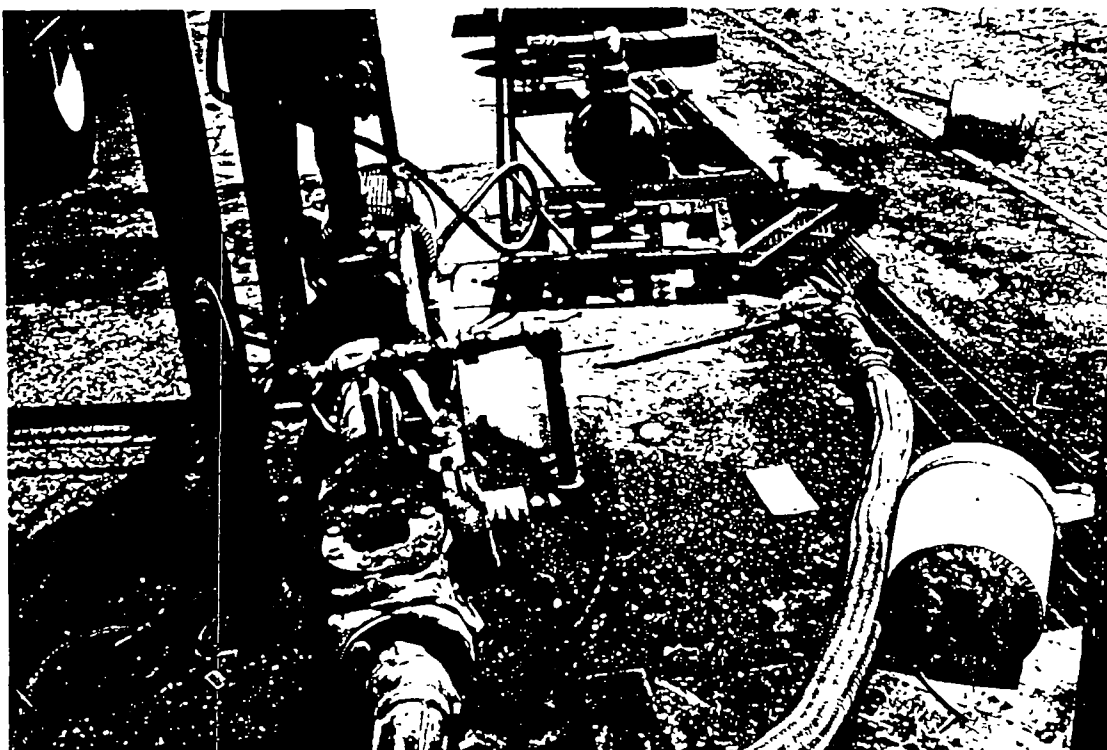


Photo 4: Sump and trenches near fatty acid area.
Witco Corporation, North Plant-East, Santa Fe Springs, California

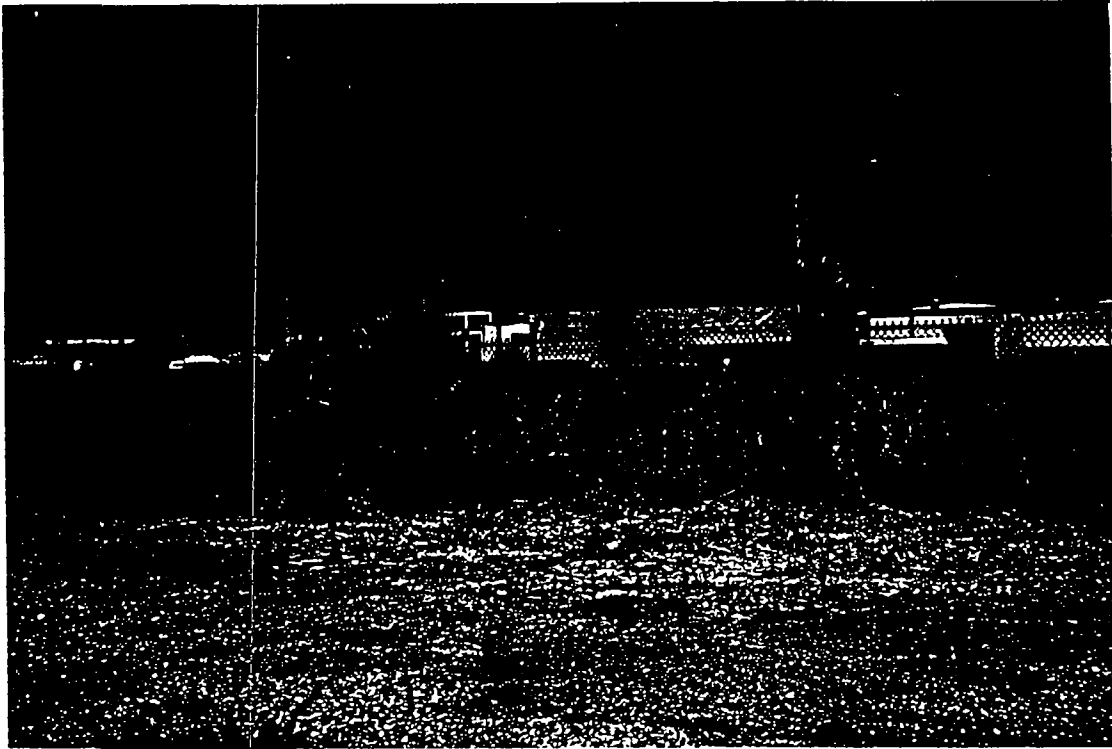
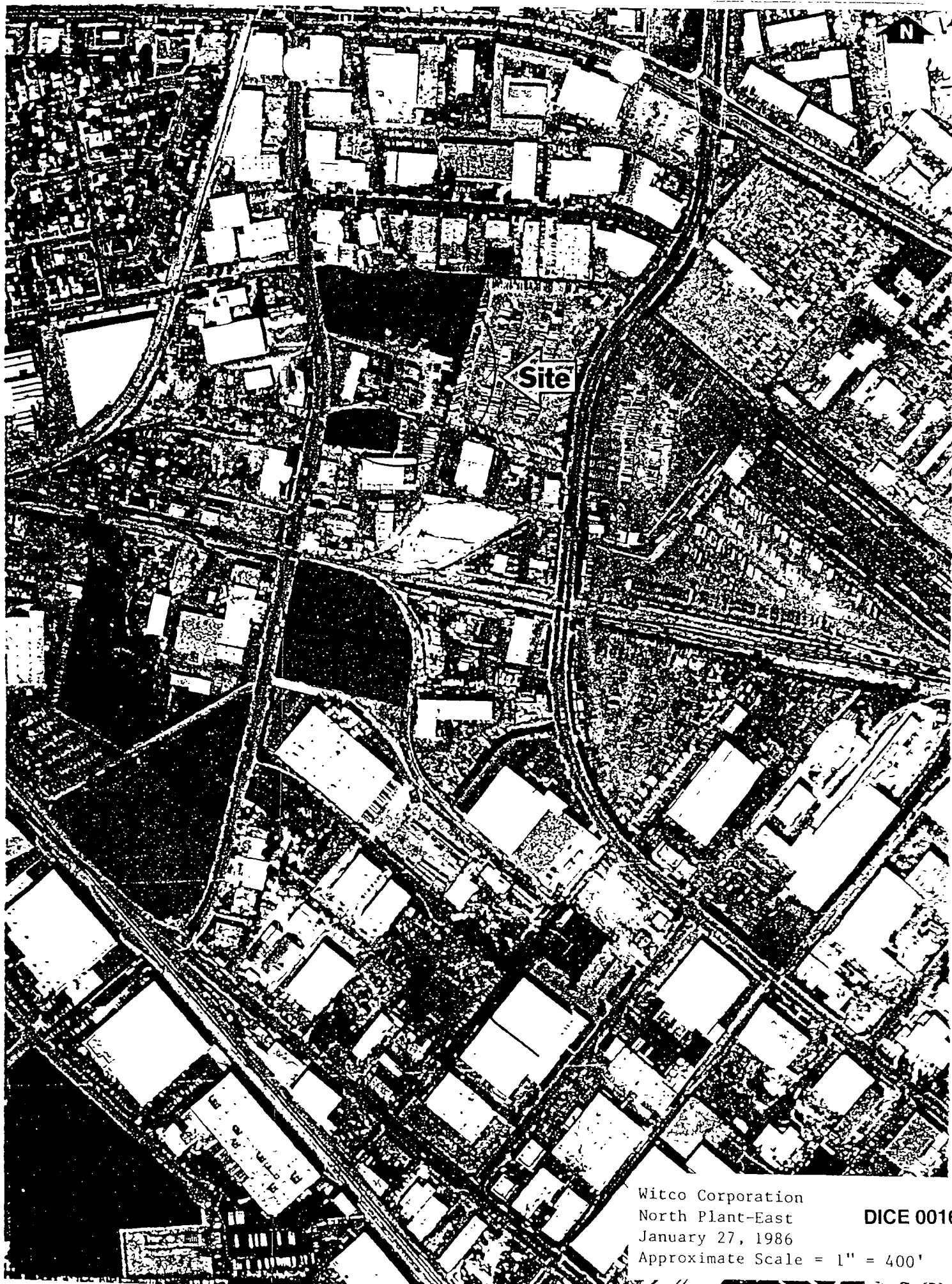


Photo 5: View of undeveloped parcel owned by Witco, north of plant area.
Witco Corporation, North Plant-East, Santa Fe Springs, California

Appendix B - Aerial Photographs

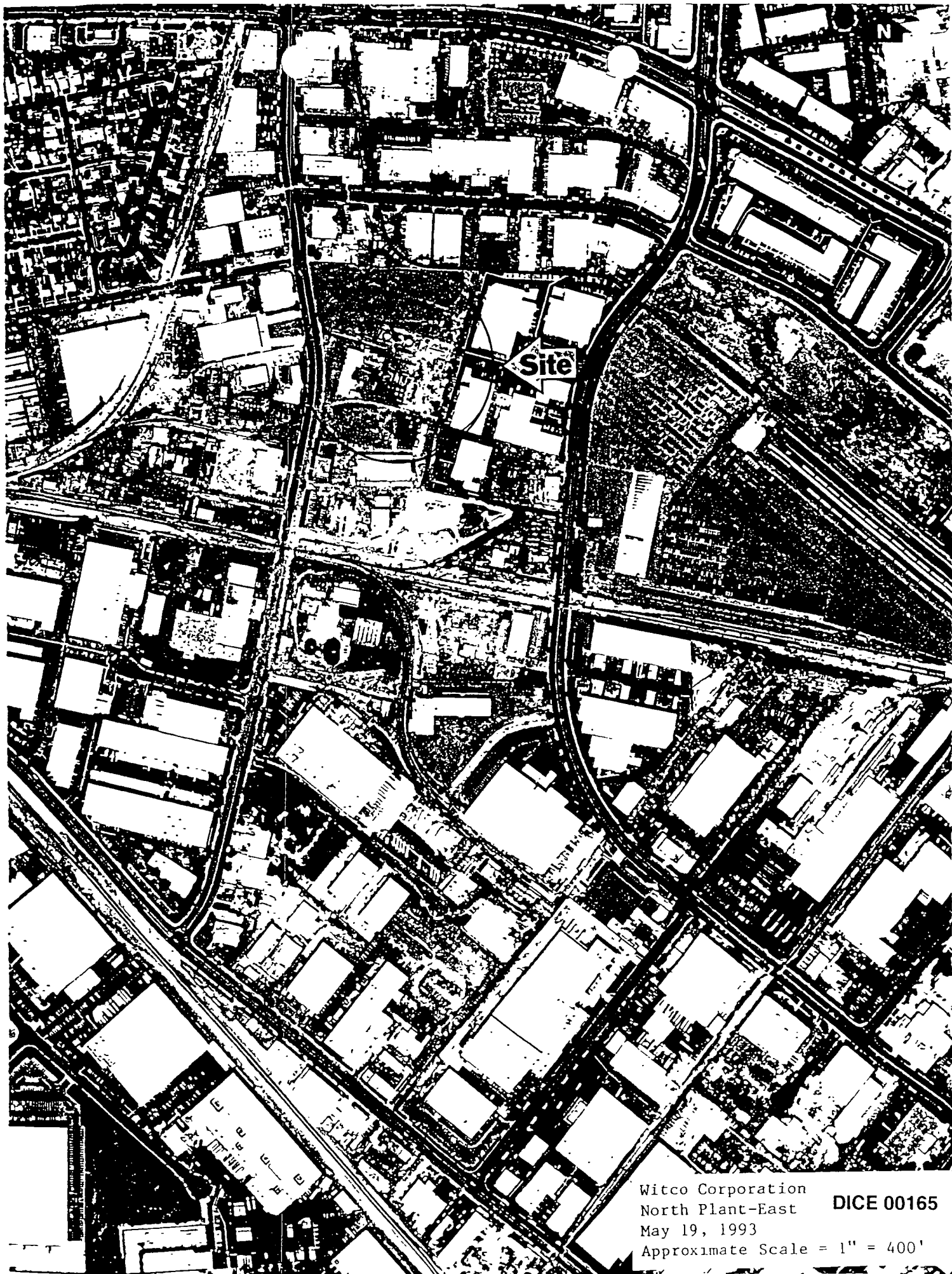
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Witco Corporation
North Plant-East
January 27, 1986
Approximate Scale = 1" = 400'

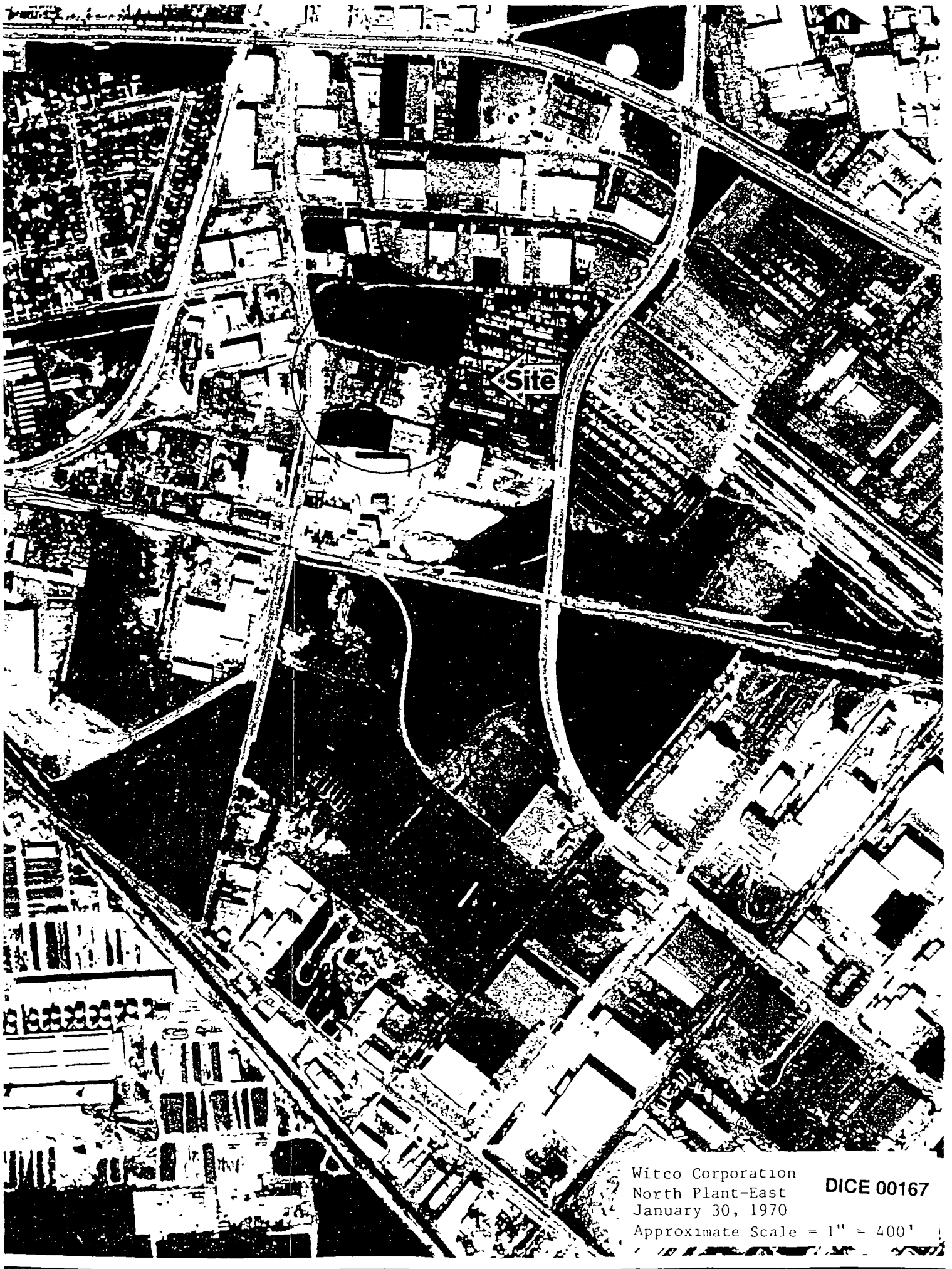
DICE 00164



Witco Corporation
North Plant-East DICE 00165
May 19, 1993
Approximate Scale = 1" = 400'



Witco Corporation
North Plant-East DICE 00166
October 19, 1953
Approximate Scale = 1" = 400'



Witco Corporation
North Plant-East
January 30, 1970
Approximate Scale = 1" = 400'

DICE 00167



Witco Corporation
North Plant-East DICE 00168
June 12, 1990
Approximate Scale = 1" = 400'

Appendix C - Hazard Chemical List

DICE 00169

ESC

HAZARDOUS CHEMICAL LIST
NORTH/EAST PLANT

	RQ Lbs.	Hazards
Air, Compressed		SRP*
Alkyl Benzene		Acute, Chronic
Alkyl Phenol Ethoxylate		Acute
Ammonium Hydroxide	1000	Acute, Chronic
Butanol	5000	
Calcium Hydroxide		Acute
Carbon Dioxide,	-	Acute
Coconut Oil, Fatty Acid	-	Acute
Decanol	-	Acute
Diethanolamine		Acute
Diethyl Amine	100	Acute, Fire
Ethylene Glycol	-	Acute, Chronic
Fuel Oil	-	Acute, Fire
Heat Transfer Oil	-	Acute, Chronic
Hexylene Glycol	-	
Hydrogen Peroxide (30%)	-	Acute, Reactive
Isopropyl Alcohol	-	Acute, Fire
Methanol	5000	Acute, Chronic, Fire
Nitrogen	-	Acute, SRP
Oxygen	-	Fire, SRP
Phosphoric Acid	5000	
Potassium Hydroxide	1000	Acute
Propane		

Sodium Chloride

Sod. Dodecyl Benz. Sulf.	1000	Acute
Sodium Hydroxide,	1000	Acute
Sodium Methyrate	1000	Acute, Chronic, Fire

*SRP - Sudden Release of Pressure

June 1, 1992

Appendix D - Tank Information

DICE 00172

ESC

WITCO TANKS INFORMATION

8724 Dicd Road, SFS

Tank No.	Material	I.D. (ft.)	Hight (ft.)	Tank Mat'l	Permit Status	Capacity Gal.	Type
Y-33	ZINC STEARATE	8.0	8.0	SS	D01059	3000	
Y-34	DETERGENT BLEND	8.0	8.0	SS	D01058	3000	
Y-35	DETERGENT BLEND	10.0	16.0	SS	D01060	10000	
Y-37	COCONUT OIL	12.5	17.5	A		16000	
Y-38	DEA	12.5	17.5	S	M63039	16000	
Y-39	FATTY ACID	12.5	17.5	SS		16000	
Y-40	TRUCK WASH	12.5	17.5	SS		16000	
Y-41	FATTY ACID	12.5	17.5	A		16000	
Y-42	GLYCERINE	12.5	17.5	A	M63038	16000	
Y-43	OLEIC ACID	12.5	17.5	S		16000	
Y-44	FATTY ACID BLEND	12.5	17.5	SS		16000	
Y-45	SORBITOL 70% (4508)	12.5	17.5	SS		16000	
Y-46	COCONUT FATTY ACID	12.5	17.5	A		16000	
Y-47	FATTY ACID 502	12.5	17.5	SS		16000	
Y-48	STEARIC ACID E-132	12.5	17.5	A		16000	
U-49	METHANOL	10.0	17.5	S	D01057	10000	Underground
U-50	M.T.	10.0	17.5	S	D01056	10000	Underground
Y-52	ETHYLENE GLYCOL	7.5	10.5	SS		3000	
M-6	DETERGENT BLEND	10.0	10.5	SS		6000	
M-7	FATTY ACID BLEND	10.0	10.5	SS		6000	
M-8	FATTY ACID BLEND	10.0	10.5	SS		6000	
TK-1	WASTEWATER TANK	20.0	20.0	S		50000	
TK-7	WASTEWATER TANK	30.0	30.0	S		160000	

Appendix E - Regulatory Database Search

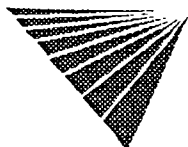
DICE 00174

ESC

SITE ASSESSMENT PLUS REPORT

PROPERTY INFORMATION	CLIENT INFORMATION
Project Name/Ref # 212417/1 WITCO CHEMICAL COMPANY 8733 DICE RD SANTA FE SPRINGS, CA 90670 Cross Street: SLAUSON AVE Latitude/Longitude (33.960495, 118.065712)	ELLEN MCDERMOTT ENV STRATEGIES(ESC)-SAN JOSE 101 METRO DR STE 650 SAN JOSE, CA 95110

Site Distribution Summary	<i>within 1/8 mile</i>	<i>1/8 to 1/4 mile</i>	<i>1/4 to 1/2 mile</i>	<i>1/2 to 1 mile</i>
Agency / Database - Type of Records				
A) Databases searched to 1 mile:				
US EPA NPL National Priority List	0	0	0	1
US EPA CORRACTS RCRA Corrective Actions	2	0	2	0
US EPA TSD RCRA permitted treatment, storage, disposal facilities	2	0	1	0
STATE SPL State equivalent priority list	1	1	1	1
B) Databases searched to 1/2 mile:				
US EPA CERCLIS Sites under review by US EPA	6	2	6	-
STATE SCL State equivalent CERCLIS list	4	3	4	-
STATE REG LUST Leaking Underground Storage Tanks	3	8	12	-
STATE/REG/CO SWLF Permitted as solid waste landfills, incinerators, or transfer stations	0	0	2	-
STATE DEED RSTR Sites with deed restrictions	0	0	0	-
STATE CORTESE State index of properties with hazardous waste	4	7	6	-
STATE TOXIC PITS Toxic Pits cleanup facilities	0	0	0	-
C) Databases searched to 1/4 mile:				
US EPA RCRA Viol RCRA violations/enforcement actions	2	0	-	-
US EPA TRIS Toxic Release inventory database	4	3	-	-
STATE UST/AST Registered underground or aboveground storage tanks	8	10	-	-
COUNTY UNIQUE CO Unique county databases	1	2	-	-
D) Databases searched to 1/8 mile:				
US EPA ERNS Emergency Response Notification System of spills	14	-	-	-
US EPA GNRTR RCRA registered small or large generators of hazardous waste	6	-	-	-



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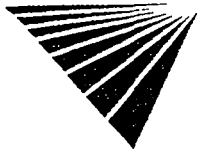
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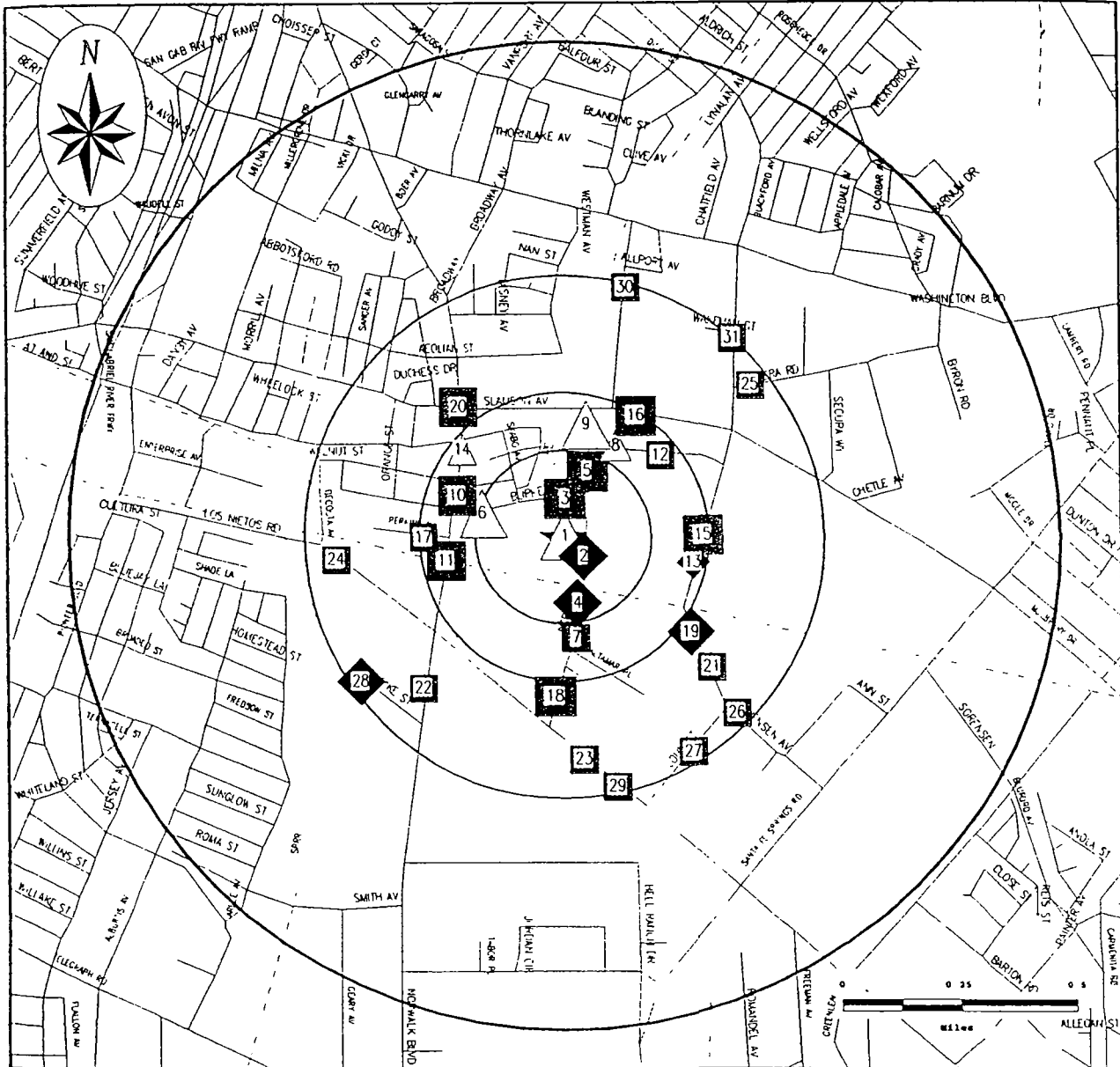
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SITE ASSESSMENT PLUS REPORT

Map of Sites within One Mile

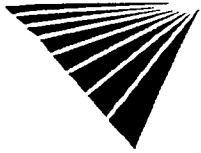


Subject Site	Category	A	B	C	D
★	Databases Searched to	1 mi.	1/2 mi	1/4 mi.	1/8 mi
	Single Sites	◆	■	△	○
	Multiple Sites	◆	■	△	○
	Roads	NPL, SPL, TSD, CORRACTS	CERCLIS, SCL, LUST, SWLF	TRIS, UST	ERNS, GENERATORS
	Highways	If additional databases are listed in the cover page of the report they are also displayed on this map. The map symbol used corresponds to the database category letter A,B,C,D			
	Railroads				
	Rivers or Water Bodies				
	Utilities				

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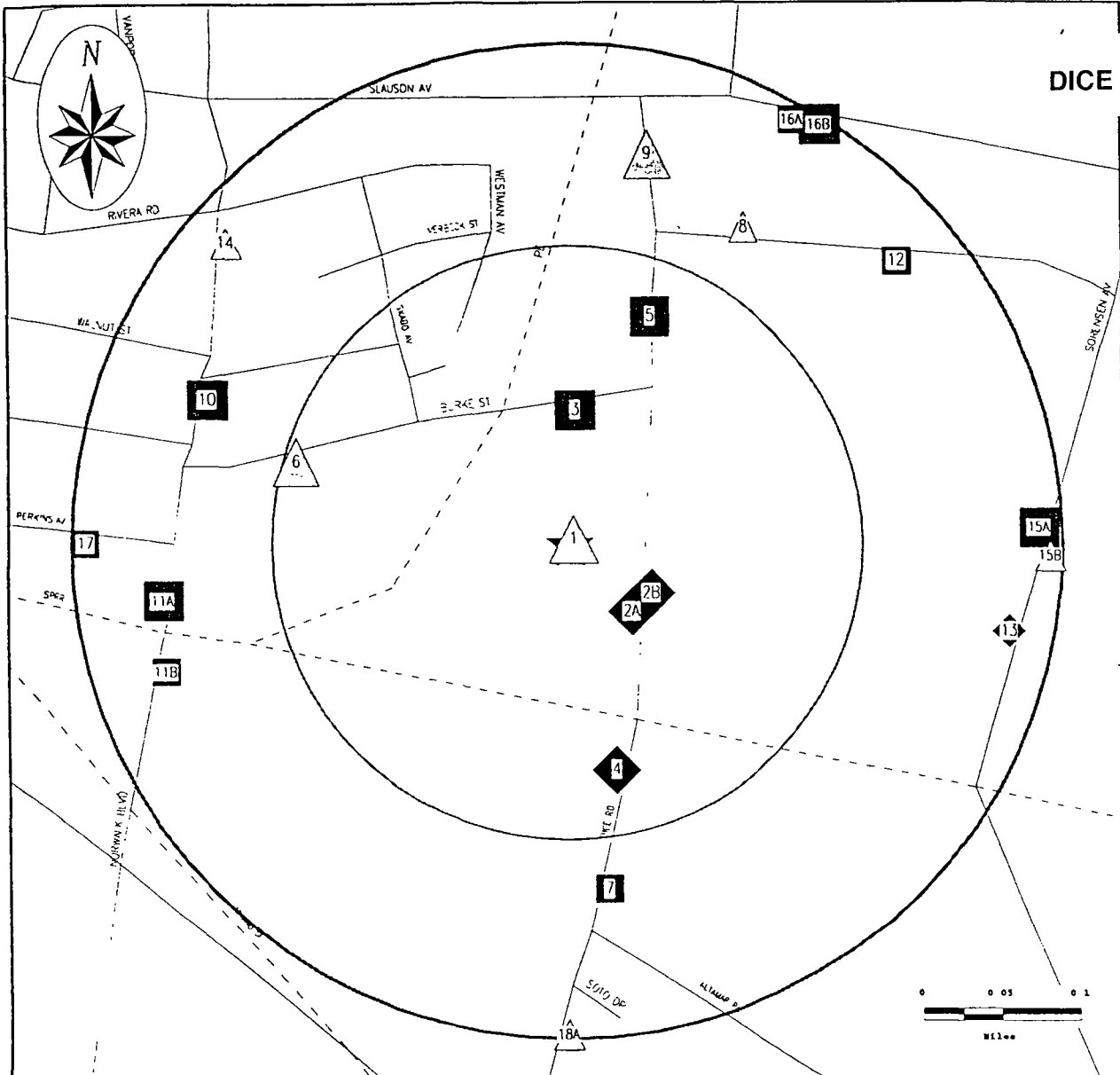
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SITE ASSESSMENT PLUS REPORT

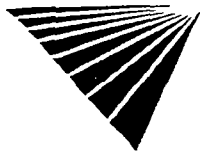
Map of Sites within Quarter Mile

DICE 00178



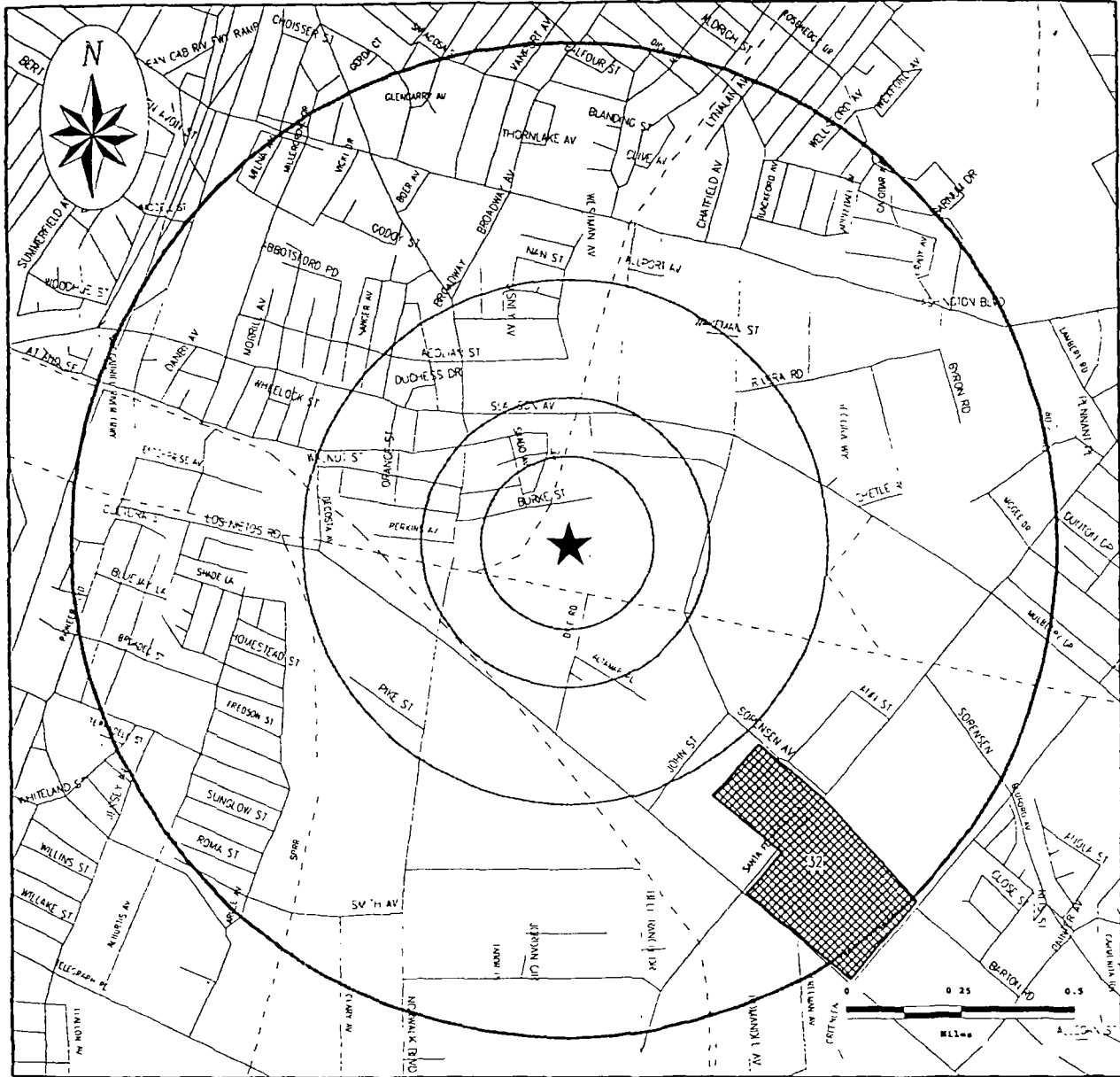
Subject Site	Category:	A	B	C	D
★	Databases Searched to:	1 mi.	1/2 mi.	1/4 mi.	1/8 mi.
	Single Sites	◆	■	△	○
	Multiple Sites	◆◆	■■	△△	○○
—	Roads	NPL, SPL,	CERCLIS,	TRIS,	ERNS,
—	Highways	TSD,	SCL, LUST,	UST	GENERATORS
—	Railroads	CORRACTS	SWLF		
—	Rivers or Water Bodies				
—	Utilities				

If additional databases are listed in the cover page of the report they are also displayed on this map. The map symbol used corresponds to the database category letter A,B,C,D



SITE ASSESSMENT PLUS REPORT

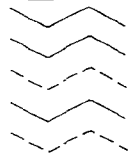
Sites Represented as Polygons



These boundaries are approximated from agency records or other sources such as published maps. They may represent property boundaries, impact zones, or study areas. For more information contact the agency referenced by source number in the site listing.

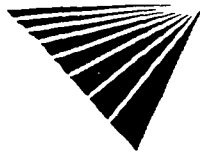


Subject Site



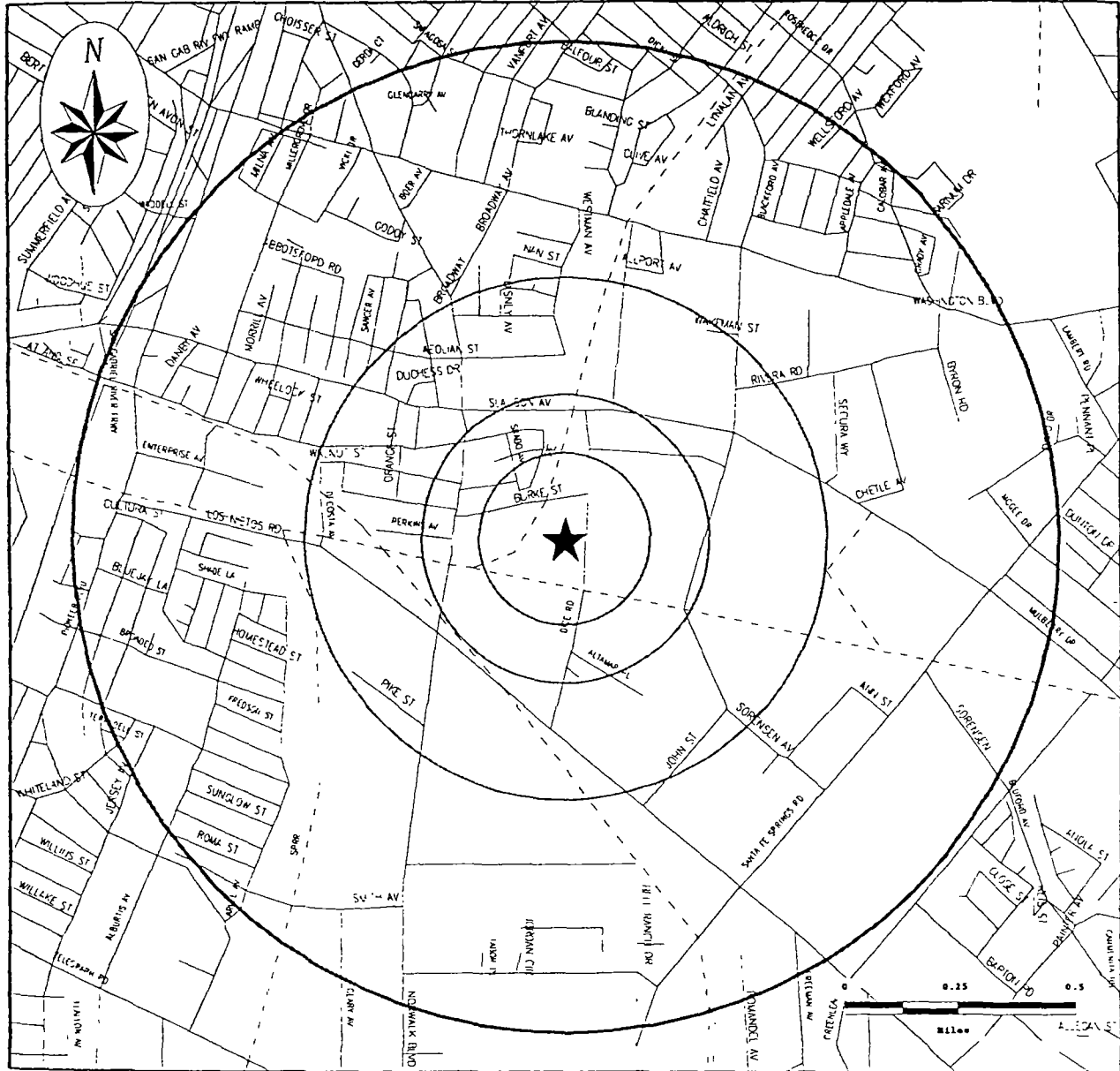
Roads
Highways
Railroads
Rivers or Water Bodies
Utilities

DICE 00179





SITE ASSESSMENT PLUS REPORT

Street Map



Subject Site



-  Roads, Highways, Rivers, Water Bodies
-  Railroads, Utilities

DICE 00180

SITE ASSESSMENT PLUS REPORT

SITE INVENTORY

MAP ID	PROPERTY AND THE ADJACENT AREA (within 1/8 mile)	VISTA ID DISTANCE DIRECTION	A			B						C			D				
			NPL	CORRACTS	TSD	SPL	CERCLIS	SCL	LUST	SWLF	DEED RSTR	CORTESE	TOXIC PITS	RCRA VIOL	TRIS	UST/AST	UNIQUE CO	ERNS	GNRTR
1	WITCO PRODUCTS 8733 D. DICE RD SANTA FE SPRINGS, CA 90670	200080899 0 00 MI ADJACENT																X	
1	WITCO CORP 8733 S DICE RD SANTA FE SPRINGS, CA 90670	4024126 0 00 MI ADJACENT													X				X
1	WITCO CORP. OLEO/SURFACTANTS GROUP 8733 S DICE RD. SANTA FE SPRINGS, CA 90670	5296501 0.00 MI ADJACENT												X					
2A	SCHNEE MOREHEAD INC 8835 S DICE RD SANTA FE SPRINGS, CA 90670	1158980 0 00 MI ADJACENT																	X
2A	SOUTHERN CALIFORNIA CHEM 8851 DICE RD SANTA FE SPRINGS, CA 90670	200212792 0.00 MI ADJACENT																	X
2A	SOUTHERN CALIFORNIA CHEM 8851 DICE RD SANTA FE SPRINGS, CA 90670	200236859 0 00 MI ADJACENT																	X
2A	SOUTHERN CALIFORNIA CHEM 8851 DICE RD SANTA FE SPRINGS, CA 90670	200211263 0 00 MI ADJACENT																	X
2A	SOUTHERN CALIFORNIA CHEM 8851 DICE RD SANTA FE SPRINGS, CA 90670	200235330 0 00 MI ADJACENT																	X
2A	SO CAL CHEMICAL 8851 DICE RD SANTA FE SPRINGS, CA 90670	200060550 0 00 MI ADJACENT																	X
2A	SOUTHERN CALIFORNIA CHEMICAL COMPANY 8851 DICE ROAD SANTA FE SPRINGS, CA 90670	389782 0 00 MI ADJACENT								X					X	X			
2A	SOUTHERN CAL CHEMICAL 8851 DICE RD SANTA FE SPRINGS, CA 90670	200036256 0 00 MI ADJACENT																	X
2A	SO CAL CHEM CO 8851 DICE RD SANTA FE SPRINGS, CA 90670	200056759 0.00 MI ADJACENT																	X
2A	SO. CAL CHEMICALS 8851 DICE RD SANTA FE SPRINGS, CA 90670	200037055 0.00 MI ADJACENT																	X
2A	SO CAL CHEMICALS 8851 DICE RD SANTA FE SPRINGS, CA 90670	200037056 0.00 MI ADJACENT																	X

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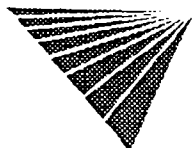
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MAP ID	PROPERTY AND THE ADJACENT AREA (within 1/8 mile)	VISTA ID DISTANCE DIRECTION	A			B						C			D			
			NPL	CORRACTS	TSD	SPL	CERCLIS	SCL	LUST	SWLF	DEED RSTR	CORTESE	TOXIC PITS	RCRA VIOL	TRIS	UST/AST	UNIQUE CO	ERNS	GNRTR
2A	SOUTHERN CALIFORNIA CHEMICAL 8851 DICE RD SANTA FE SPRINGS, CA 90670	200339400 0.00 MI ADJACENT															X	
2A	SO CA CHEM CO INC 8851 DICE RD SANTA FE SPRINGS, CA 90670	1183441 0.00 MI ADJACENT				X												
2A	PHIBRO TECH INC 8851 DICE RD SANTA FE SPRINGS, CA 90670	5241067 0.00 MI ADJACENT	X	X								X						X
2B	AIR LIQUIDE AMERICA CORP COMPRESSED GAS 8832 DICE RD SANTA FE SPRINGS, CA 90670	520500 0.00 MI ADJACENT											X					
2B	LIQUID AIR CORP 8832 DICE RD SANTA FE SPRINGS, CA 90670	245933 0.00 MI ADJACENT				X	X	X		X				X				
2B	BURDETT OXYGEN COMPANY OF CALIFORNIA 8832-8838 SOUTH DICE ROAD SANTA FE SPRINGS, CA 90670	62680 <0.01 MI SE			X	X												
3	PILOT CHEMICAL 11756 BURKE AVE SANTA FE SPRINGS, CA 90670	200066074 0.02 MI N																X
3	PILOT CHEMICAL 11756 BURKE ST SANTA FE SPRINGS, CA 90670	200242066 0.02 MI N																X
3	PILOT CHEMICAL COMPANY 11756 BURKE ST SANTA FE SPRINGS, CA 90670	5352338 0.02 MI N								X								
3	PILOT CHEMICAL 11756 BURKE ST SANTA FE SPRINGS, CA 90670	200218007 0.02 MI N																X
3	PILOT CHEM CO 11756 BURKE ST SANTA FE SPRINGS, CA 90670	330653 0.02 MI N				X		X					X	X	X			X
3	PILOT CHEMICAL COMPANY 11770 BURKE SANTA FE SPRINGS, CA 90670	4020570 0.03 MI N												X				
3	FLIGHT TRUCKING 11770 BURKE STREET SANTA FE SPRINGS, CA 90670	1194162 0.03 MI N						X										
4	DIVERSEY WYANDOTTE CORPORATION 8921 DICE RD SANTA FE SPRINGS, CA 90670	5354007 0.08 MI S								X								
4	DIVERSEY CORP 8921 DICE RD SANTA FE SPRINGS, CA 90670	123068 0.08 MI S	X	X								X						X
4	DIVERSEY WYANDOTTE CORP 8921 DICE RD SANTA FE SPRINGS, CA 90670	517328 0.08 MI S				X	X							X				
5	CITY OF SANTA FE SPRINGS FIRE 8634 S DICE SANTA FE SPRINGS, CA	4824475 0.09 MI NE												X				



X = search criteria; • = tag-along (beyond search criteria).

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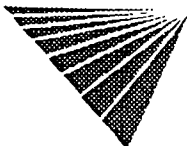
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MAP ID	PROPERTY AND THE ADJACENT AREA (within 1/8 mile)	VISTA ID DISTANCE DIRECTION	A			B					C			D				
			NPL	CORRACTS	TSD	SPL	CERCLIS	SCL	LUST	SWLF	DEED RSTR	CORTESE	TOXIC PITS	RCRA VIOL	TRIS	UST/AST	UNIQUE CO	ERNS	GNRTR
5	WEST BENT BOLT 8623 DICE RD SANTA FE SPRINGS, CA 90670	5354006 0.09 MI N									X							
5	MID WEST FABR CO 8623 DICE RD SANTA FE SPRINGS, CA 90670	274221 0.09 MI N																X
5	WEST BENT BOLT 8623 S DICE RD SANTA FE SPRINGS, CA 90670	1183438 0.09 MI NE					X	X										
6	TALCO PLASTICS INC 11650 BURKE WHITTIER, CA 90606	1237544 0.11 MI W												X				

MAP ID	SITES IN THE SURROUNDING AREA (within 1/8 - 1/4 mile)	VISTA ID DISTANCE DIRECTION	A			B					C			D				
			NPL	CORRACTS	TSD	SPL	CERCLIS	SCL	LUST	SWLF	DEED RSTR	CORTESE	TOXIC PITS	RCRA VIOL	TRIS	UST/AST	UNIQUE CO	ERNS	GNRTR
6	PALLEY PROPERTY 11630 BURKE ST CA 90606	5404254 0.13 MI W														X		
7	T CHEM PRODUCTS INC 9028 DICE RD SANTA FE SPRINGS, CA 90670	418301 0.16 MI S						X						X	X			•
8	PARKER HANNIFIN CORP 11808 BURKE ST SPRINGS SANTA FE SPRINGS, CA 90670	319868 0.16 MI NE												X				•
9	AEROSPACE RIVET MFG CORP MANUFACTURE 8535 DICE RD SANTA FE SPRINGS, CA 90670	58062 0.18 MI N												X				
9	A-W ENGINEERING CO 8518 DICE SANTA FE SPRINGS, CA 90670	34957 0.19 MI N													X			
10	BARRETT SERVICE STATION 8728 NORWALK BLVD WHITTIER, CA 90606	1203224 0.18 MI W						X		X					X			
10	BARRETT SERVICE STATION 8728 NORWALK BLVD WHITTIER, CA 90606	6478853 0.18 MI W						X										
11A	C F PENG SERVICE STATION 8905 NORWALK BLVD SANTA FE SPRINGS, CA 90670	2748870 0.19 MI W						X		X								
11A	NACHO'S BATTERIES 8917 NORWALK CA 90606	4825493 0.19 MI W														X		
11B	ACI GLASS PRODUCTS INC 9010 S NORWALK BLVD SANTA FE SPRINGS, CA 90670	4497 0.20 MI W						X		X				X				

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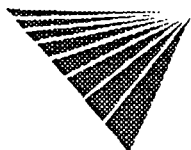
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MAP ID	SITES IN THE SURROUNDING AREA (within 1/8 - 1/4 mile)	VISTA ID DISTANCE DIRECTION	A			B					C			D				
			NPL	CORRACTS	TSD	SPL	CERCLIS	SCL	LUST	SWLF	DEED RSTR	CORTESE	TOXIC PITS	RCRA VIOL	TRIS	UST/AST	UNIQUE CO	ERNS	GNRTR
12	TECHNI-BRAZE INC 11845 BURKE STREET SANTA FE SPRINGS, CA 90670	418570 0.21 MI NE																•
13	ANGELES CHEMICAL COMPANY INC 8915 SORENSEN AVENUE SANTA FE SPRINGS, CA 90670	22476 0.22 MI E				X			X						X			•
14	H H MACHINE CO 8612 NORWALK BLVD WHITTIER, CA 90606	1160309 0.22 MI NW													X			•
15A	VANDENBERG AFB 8815 SORENSEN S. SANTA FE SPRINGS, CA 90670	5356622 0.23 MI E									X							
15A	PLAS-TAL MFG CO 8815 S SORENSEN AVE SANTA FE SPRINGS, CA 90670	5718420 0.23 MI E							X									
15B	SO PACIFIC TRANS CO 8834 SORENSEN SANTA FE SPRINGS, CA 90670	4043436 0.24 MI E													X			
16A	CAL WESTERN PAINT CORP 11748 SLAUSON AVE SANTA FE SPRINGS, CA 90670	15315 0.24 MI NE					X	X								X		•
16B	WESTERN SCREW PRODUCTS #1 11770 SLAUSON AVE E SANTA FE SPRINGS, CA 90670	5357834 0.24 MI NE										X						
16B	WESTERN SCREW PRODUCTS 11770 - 11780 SLAUSON BLVD SANTA FE SPRINGS, CA 90670	465500 0.24 MI NE					X	X										•
17	E.A. MENDOZA INC. 11574 PERKINS AVE WHITTIER, CA 90606	3768036 0.24 MI W							X		X					X		
18A	MOBILE INSP SERVICE INC 9110 DICE SANTA FE SPRINGS, CA 90670	1161989 0.25 MI S														X		

MAP ID	SITES IN THE SURROUNDING AREA (within 1/4 - 1/2 mile)	VISTA ID DISTANCE DIRECTION	A			B					C			D				
			NPL	CORRACTS	TSD	SPL	CERCLIS	SCL	LUST	SWLF	DEED RSTR	CORTESE	TOXIC PITS	RCRA VIOL	TRIS	UST/AST	UNIQUE CO	ERNS	GNRTR
18	DICE ROAD 9165 DICE ROAD SANTA FE SPRINGS, CA	5435856 0.29 MI S								X								
18	DICE ROAD 9165 DICE ROAD SANTA FE SPRINGS, CA 90670	4824476 0.29 MI S								X								
18	DICE RD LOS NIETOS RD DUMP 9165 DICE RD SANTA FE SPRINGS, CA 90670	121556 0.29 MI S					X	X										

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MAP ID	SITES IN THE SURROUNDING AREA (within 1/4 - 1/2 mile)	VISTA ID DISTANCE DIRECTION	A			B						C			D				
			NPL	CORRACTS	TSD	SPL	CERCLIS	SCL	LUST	SWLF	DEED RSTR	CORTESE	TOXIC PITS	RCRA VIOL	TRIS	UST/AST	UNIQUE CO	ERNS	GNRTR
19	MCKESSON CHEMICAL COMPANY 9005 SORENSEN AVENUE SANTA FE SPRINGS, CA 90670	1188537 0.26 MI SE				X				X		X							
19	FOREMOST MCKESSON INC 9005 SORENSEN AVE SANTA FE SPRINGS, CA 90670	156385 0.26 MI SE	X	X		X							.						.
19	PETERSON/PURITAN INC 9101 S SORENSEN AVE SANTA FE SPRINGS, CA 90670	327119 0.31 MI SE							X					.					.
20	SHELL STATION NO 204-8458-1600 11515 E SLAUSON WHITTIER, CA 90604	377479 0.27 MI NW							X		X			.					.
20	CIRCLE K CORPORATION 11462 SLAUSON AVENUE E. SANTA FE SPRINGS, CA 90670	2749552 0.32 MI NW							X										
21	CALAVAR CORP 9200 SORENSEN AVE SANTA FE SPRINGS, CA 90670	65745 0.36 MI SE							X		X			.					.
22	TUBE SERVICE COMPANY 9351 SO NORWALK BLVD. SANTA FE SPRINGS, CA 90670	1237432 0.38 MI SW							X					.					.
23	FINE LINE PAINT CORP 12200 LOS NIETOS RD SANTA FE SPRINGS, CA 90670	151703 0.42 MI S					X	X	X		X			.					.
24	CALIFORNIA CORRUGATED 11600 LOS NIETOS SANTA FE SPRINGS, CA 90670	4032431 0.43 MI W							X		X			.					.
25	CAL-TRON PLATING, INC 11919 EAST RIVERA ROAD SANTA FE SPRINGS, CA 90670	66594 0.46 MI NE						X						.					.
26	U S GYPSUM COMPANY 9306 SORENSEN SANTA FE SPRINGS, CA 90670	1158976 0.47 MI SE							X					.					.
27	VALVOLINE OIL CO 9520 JOHN ST SANTA FE SPRINGS, CA 90670	450897 0.47 MI SE							X					.	.				.
28	WHITTIER PLATTING CO INC 11642 E PIKE ST SANTA FE SPRINGS, CA 90670	468915 0.47 MI SW	X				X												.
28	MCKESSON CHEM CO 11600 PIKE ST SANTA FE SPRINGS, CA 90670	264990 0.48 MI SW					X												.
28	ALLPURE CHEMICAL COMPANY 11600 PIKE STREET SANTA FE SPRINGS, CA 90670	493950 0.48 MI SW						X						.					.
29	SOUTHERN STEEL SUPPLY CO. 12350 LOS NIETOS ROAD SANTA FE SPRINGS, CA 90670	1245694 0.48 MI S							X		X			.					.
30	SUR-LITE CORPORATION 8124 ALLPORT AVE SANTA FE SPRINGS, CA 90670	413978 0.49 MI N					X												.

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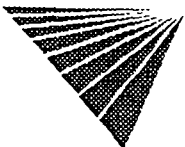
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MAP ID	SITES IN THE SURROUNDING AREA (within 1/4 - 1/2 mile)	VISTA ID DISTANCE DIRECTION	A				B				C			D				
			NPL	CORRACTS	TSD	SPL	CERCLIS	SCL	LUST	SWLF	DEED RSTR	CORTESE	TOXIC PITS	RCRA VIOL	TRIS	UST/AST	UNIQUE CO	ERNS	GNRTR
31	THIEM INDUSTRIES 8311 SORENSEN SANTA FE SPRINGS, CA 90670	4043434 0.50 MI NE						X							•			

MAP ID	SITES IN THE SURROUNDING AREA (within 1/2 - 1 mile)	VISTA ID DISTANCE DIRECTION	A				B				C			D				
			NPL	CORRACTS	TSD	SPL	CERCLIS	SCL	LUST	SWLF	DEED RSTR	CORTESE	TOXIC PITS	RCRA VIOL	TRIS	UST/AST	UNIQUE CO	ERNS	GNRTR
32	WASTE DISPOSAL INC 12731 E LOS NIETOS RD SANTA FE SPRINGS, CA 90670	460238 0.53 MI	X			X	•								•			

DICE 00186



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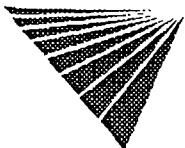
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UNMAPPED SITES	VISTA ID	A				B					C			D			
		NPL	CORRACTS	TSD	SPL	CERCLIS	SCL	LUST	SWLF	DEED RSTR	CORTESE	TOXIC PITS	RCRA VIOL	TRIS	UST/AST	UNIQUE CO	ERNS
ROSE HILLS WHITTIER, CA	5739042							X									
CHEVRON P O BOX 3608 SANTA FE SPRINGS, CA 90670	5349556									X							
WITCO CORP 12143 ALTAMAR PL SANTA FE SPRINGS, CA 90670	4824053												X				X

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SITE ASSESSMENT PLUS REPORT

DETAILS

PROPERTY AND THE ADJACENT AREA (within 1/8 mile)

VISTA Address*:	WITCO PRODUCTS 8733 D. DICE RD SANTA FE SPRINGS, CA 90670	VISTA ID#:	200080899
		Distance/Direction:	0 00 MI / ADJACENT
		Plotted as:	Point
ERNS - Emergency Response Notification System / SRC# 3006		Agency ID	90-6870
Agency Address:	SAME AS ABOVE		
Spill Date Time:	MAY 14, 1990 01 20 00 PM		
Case Number:	90-6870		
Spill Location:	8733 D DICE RD		
Source Agency:	E		
Discharger Org:	WITCO PRODUCTS		
Material Spilled:	METHANOL, 14000 00 (GAL)		
Material Spilled:	WATER, 3000 00 (GAL)		
Waterway Affected:	NONE		
Fields Not Reported:	Discharger Name, Discharger Phone		
Air Release:	Land Release:	Water Release:	Ground Release:
Facility Release:	Other Release:		
NO	YES	NO	NO
		NO	NO

Map ID
1

VISTA Address*:	WITCO CORP 8733 S DICE RD SANTA FE SPRINGS, CA 90670	VISTA ID#:	4024126
		Distance/Direction:	0 00 MI / ADJACENT
		Plotted as:	Point
RCRA-SmGen - RCRA-Small Generator / SRC# 3057		EPA ID	CAD008371627
Agency Address:	SAME AS ABOVE		
Generator Class:	GENERATORS WHO GENERATE 100 KG/MONTH BUT LESS THAN 1000 KG/MONTH OF NON-ACUTELY HAZARDOUS WASTE		
STATE UST - State Underground Storage Tank / SRC# 1612		EPA/Agency ID	N/A
Agency Address:	WITCO CORPORATION 8733 S DICE SANTA FE SPRINGS, CA 90670		
Underground Tanks:	6		
Aboveground Tanks:	NOT REPORTED		
Tanks Removed:	NOT REPORTED		
Tank ID:	1U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	NOT REPORTED	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	FIBERGLASS
Tank Size (Units):	10000 (GALLONS)	Tank Material:	STEEL
Tank ID:	2U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	NOT REPORTED	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	OTHER DESCRIPTIONS
Tank Size (Units):	10000 (GALLONS)	Tank Material:	STEEL
Tank ID:	3U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	NOT REPORTED	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	20000 (GALLONS)	Tank Material:	BARE STEEL

Map ID
1

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PROPERTY AND THE ADJACENT AREA (within 1/8 mile) CONT.

Tank ID:	4U	Tank Status:	CLOSED
Tank Contents:	NOT REPORTED	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	10000 (GALLONS)	Tank Material:	BARE STEEL
Tank ID:	5U	Tank Status:	CLOSED
Tank Contents:	NOT REPORTED	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	10000 (GALLONS)	Tank Material:	BARE STEEL
Tank ID:	6U	Tank Status:	ACTIVE IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN

VISTA Address*	WITCO CORP. OLEO/SURFACTANTS GROUP 8733 S. DICE RD. SANTA FE SPRINGS, CA 90670	VISTA ID#	5296501
		Distance/Direction	0.00 MI / ADJACENT
		Plotted as	Point

Map ID
1

TRIS - Toxic Release Inventory System / SRC# 2587		EPA ID	CAD008371627
Agency Address: WITCO CORP. OLEO/SURFACTANTS GROUP 8733 S DICE RD SANTA FE SPRINGS, CA 906702513			
Chemical Abstract Service Registry:		Quantity Released:	
DIETHANOLAMINE		255.00 (POUNDS)	
ETHYLENE GLYCOL		255.00 (POUNDS)	
ETHYLENE OXIDE		250.00 (POUNDS)	
NOT REPORTED		500.00 (POUNDS)	
HYDROCHLORIC ACID		500.00 (POUNDS)	

VISTA Address*	SCHNEE MOREHEAD INC 8835 S DICE RD SANTA FE SPRINGS, CA 90670	VISTA ID#	1158980
		Distance/Direction	0.00 MI / ADJACENT
		Plotted as	Point

Map ID
2A

RCRA-SmGen - RCRA-Small Generator / SRC# 3057		EPA ID	CAD983577024
Agency Address: SAME AS ABOVE			
Generator Class: GENERATORS WHO GENERATE 100 KG/MONTH BUT LESS THAN 1000 KG/MONTH OF NON-ACUTELY HAZARDOUS WASTE			

VISTA Address*	SOUTHERN CALIFORNIA CHEM 8851 DICE RD SANTA FE SPRINGS, CA 90670	VISTA ID#	200212792
		Distance/Direction	0.00 MI / ADJACENT
		Plotted as	Point

Map ID
2A

ERNS - Emergency Response Notification System / SRC# 3006		Agency ID	93-1417		
Agency Address: SAME AS ABOVE					
Spill Date Time: JANUARY 11, 1993 07:00:00 AM					
Case Number: 93-1417					
Spill Location: 8851 DICE RD					
Source Agency: E					
Discharger Name: VIGIL, EDWARD					
Discharger Org: SOUTHERN CALIFORNIA CHEM					
Material Spilled: COPPER CHLORIDE (IC), 0.00 (UNK)					
Fields Not Reported: Discharger Phone, Waterway Affected					
Air Release:	Land Release:	Water Release:	Ground Release:	Facility Release:	Other Release:
NO	YES	NO	NO	NO	NO

DICE 00189



PROPERTY AND THE ADJACENT AREA (within 1/8 mile) CONT.

VISTA Address*:	SOUTHERN CALIFORNIA CHEM 8851 DICE RD SANTA FE SPRINGS, CA 90670	VISTA ID#:	200236859		
		Distance/Direction:	0.00 MI / ADJACENT		
		Plotted as:	Point		
ERNS - Emergency Response Notification System / SRC# 3006		Agency ID:	93-1417		
Agency Address:	SAME AS ABOVE				
Spill Date Time:	JANUARY 11, 1993 07 00 00 AM				
Case Number:	93-1417				
Spill Location:	8851 DICE RD				
Source Agency:	E				
Discharger Org:	SOUTHERN CALIFORNIA CHEM				
Material Spilled:	COPPER CHLORIDE (IC), 0 00 (UNK)				
Fields Not Reported:	Discharger Name, Discharger Phone, Waterway Affected				
Air Release:	Land Release:	Water Release:	Ground Release:	Facility Release:	Other Release:
NO	YES	NO	NO	NO	NO

Map ID
2A

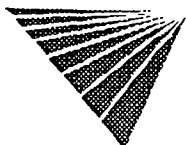
VISTA Address*:	SOUTHERN CALIFORNIA CHEM 8851 DICE RD SANTA FE SPRINGS, CA 90670	VISTA ID#:	200211263		
		Distance/Direction:	0 00 MI / ADJACENT		
		Plotted as:	Point		
ERNS - Emergency Response Notification System / SRC# 3006		Agency ID:	152717		
Agency Address:	SAME AS ABOVE				
Spill Date Time:	JANUARY 11, 1993 07 00 00 AM				
Case Number:	152717				
Spill Location:	8851 DICE RD				
Source Agency:	N				
Discharger Name:	VIGIL, EDWARD				
Discharger Org:	SOUTHERN CALIFORNIA CHEM				
Material Spilled:	COPPER CHLORIDE (IC), 0 00 (UNK)				
Waterway Affected:	ASPHALT AND GRAVEL UNDERLAID WITH PLASTI				
Fields Not Reported:	Discharger Phone				
Air Release:	Land Release:	Water Release:	Ground Release:	Facility Release:	Other Release:
NO	YES	NO	NO	NO	NO

Map ID
2A

VISTA Address*:	SOUTHERN CALIFORNIA CHEM 8851 DICE RD SANTA FE SPRINGS, CA 90670	VISTA ID#:	200235330		
		Distance/Direction:	0.00 MI / ADJACENT		
		Plotted as:	Point		
ERNS - Emergency Response Notification System / SRC# 3006		Agency ID:	152717		
Agency Address:	SAME AS ABOVE				
Spill Date Time:	JANUARY 11, 1993 07.00 00 AM				
Case Number:	152717				
Spill Location:	8851 DICE RD				
Source Agency:	N				
Discharger Org:	SOUTHERN CALIFORNIA CHEM				
Material Spilled:	COPPER CHLORIDE (IC), 0 00 (UNK)				
Waterway Affected:	ASPHALT AND GRAVEL UNDERLAID WITH PLASTI				
Fields Not Reported:	Discharger Name, Discharger Phone				
Air Release:	Land Release:	Water Release:	Ground Release:	Facility Release:	Other Release:
NO	YES	NO	NO	NO	NO

Map ID
2A

DICE 00190



PROPERTY AND THE ADJACENT AREA (within 1/8 mile) CONT.

VISTA Address*:	SO CAL CHEMICAL 8851 DICE RD SANTA FE SPRINGS, CA 90670	VISTA ID#:	200060550		
		Distance/Direction:	0.00 MI / ADJACENT		
		Plotted as:	Point		
ERNS - Emergency Response Notification System / SRC# 3006		Agency ID	91-6386		
Agency Address:		SAME AS ABOVE			
Spill Date Time:		SEPTEMBER 27, 1991 01:30:00 AM			
Case Number:		91-6386			
Spill Location:		8851 DICE RD			
Source Agency:		E			
Discharger Org:		SO CAL CHEMICAL			
Material Spilled:		HYDROCHLORIC ACID, 0 00 (UNK)			
Waterway Affected:		NONE			
Fields Not Reported:		Discharger Name, Discharger Phone			
Air Release:	Land Release:	Water Release:	Ground Release:	Facility Release:	Other Release:
YES	YES	NO	NO	NO	NO

Map ID

2A

VISTA Address*:	SOUTHERN CALIFORNIA CHEMICAL COMPANY 8851 DICE ROAD SANTA FE SPRINGS, CA 90670	VISTA ID#:	389782
		Distance/Direction:	0 00 MI / ADJACENT
		Plotted as:	Point
SCL - State Equivalent CERCLIS List / SRC# 2825		Agency ID	19280516
Agency Address:		SAME AS ABOVE	
Facility Type:		NOT AVAILABLE	
Lead Agency:		NOT AVAILABLE	
State Status:		FORMER ANNUAL WORKPLAN SITE REFERRED TO RCRA	
Pollutant 1:		NICKEL	
Pollutant 2:		CHROMIUM (VI)	
Pollutant 3:		UNSPECIFIED SLUDGE WASTE	
Fields Not Reported:		Status	
STATE UST - State Underground Storage Tank / SRC# 1612		EPA/Agency ID	N/A
Agency Address:		SOUTHERN CALIFORNIA CHEMICAL 8851 S DICE SANTA FE SPRINGS, CA 90670	
Underground Tanks:		4	
Aboveground Tanks:		NOT REPORTED	
Tanks Removed:		NOT REPORTED	
Tank ID:	1U	Tank Status:	CLOSED REMOVED
Tank Contents:	DIESEL	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	10000 (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	2U	Tank Status:	CLOSED REMOVED
Tank Contents:	DIESEL	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	10000 (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	3U	Tank Status:	ACTIVE IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN

Map ID

2A

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PROPERTY AND THE ADJACENT AREA (within 1/8 mile) CONT.

Tank ID:	4U	Tank Status:	ACTIVE IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN

TRIS - Toxic Release Inventory System / SRC# 2587 EPA ID: CAD008488025

Agency Address: SOUTHERN CALIFORNIA CHEMICAL CP CHEMICA
8851 DICE RD
SANTA FE SPRINGS, CA 906700118

Chemical Abstract Service Registry:	Quantity Released:
CHLORINE	205 00 (POUNDS)
NOT REPORTED	192252 00 (POUNDS)
HYDROCHLORIC ACID	330 00 (POUNDS)
SULFURIC ACID	NOT REPORTED (POUNDS)
AMMONIA	406100 00 (POUNDS)

VISTA Address*	SOUTHERN CAL CHEMICAL 8851 DICE RD SANTA FE SPRINGS, CA 90670	VISTA ID#	200036256	Map ID 2A
		Distance/Direction	0.00 MI / ADJACENT	
		Plotted as:	Point	

ERNS - Emergency Response Notification System / SRC# 3006 Agency ID 61248

Agency Address: SOUTHERN CAL CHEMICAL
8851 DICE RD
SANTA FE SPRINGS, CA

Spill Date Time: FEBRUARY 26, 1991 09:00 00 AM

Case Number: 61248

Spill Location: 8851 DICE RD

Source Agency: N

Discharger Name: VIGIL, ED

Discharger Org: SOUTHERN CAL CHEMICAL

Material Spilled: CHLORINE, 10 00 (LBS)

Waterway Affected: AIR

Fields Not Reported: Discharger Phone

Air Release:	Land Release:	Water Release:	Ground Release:	Facility Release:	Other Release:
YES	NO	NO	NO	NO	NO

VISTA Address*	SO CAL CHEM CO. 8851 DICE RD SANTA FE SPRINGS, CA 90670	VISTA ID#	200056759	Map ID 2A
		Distance/Direction:	0 00 MI / ADJACENT	
		Plotted as:	Point	

ERNS - Emergency Response Notification System / SRC# 3006 Agency ID 91-5831

Agency Address: SAME AS ABOVE

Spill Date Time: AUGUST 27, 1991 08 52 00 AM

Case Number: 91-5831

Spill Location: 8851 DICE RD

Source Agency: E

Discharger Org: SO CAL CHEM CO

Material Spilled: HYDROCHLORIC ACID, 0 00 (UNK)

Waterway Affected: NONE

Fields Not Reported: Discharger Name, Discharger Phone

Air Release:	Land Release:	Water Release:	Ground Release:	Facility Release:	Other Release:
YES	NO	NO	NO	NO	NO

DICE 00192



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PROPERTY AND THE ADJACENT AREA (within 1/8 mile) CONT.

VISTA Address*:	SO. CAL CHEMICALS 8851 DICE RD SANTA FE SPRINGS, CA 90670	VISTA ID#:	200037055
		Distance/Direction:	0 00 MI / ADJACENT
		Plotted as:	Point

Map ID

2A

ERNS - Emergency Response Notification System / SRC# 3006		Agency ID:	91-2667		
Agency Address:	SAME AS ABOVE				
Spill Date Time:	FEBRUARY 26, 1991 09 00:00 AM				
Case Number:	91-2667				
Spill Location:	8851 DICE RD				
Source Agency:	E				
Discharger Org:	SO. CAL CHEMICALS				
Material Spilled:	CHLORINE, 10.00 (LBS)				
Waterway Affected:	NONE				
Fields Not Reported:	Discharger Name, Discharger Phone				
Air Release:	Land Release:	Water Release:	Ground Release:	Facility Release:	Other Release:
YES	NO	NO	NO	NO	NO

VISTA Address*:	SO CAL. CHEMICALS 8851 DICE RD SANTA FE SPRINGS, CA 90670	VISTA ID#:	200037056
		Distance/Direction:	0 00 MI / ADJACENT
		Plotted as:	Point

Map ID

2A

ERNS - Emergency Response Notification System / SRC# 3006		Agency ID	91-2668		
Agency Address:	SO CAL CHEMICALS 8851 DICE RD SANTA FE SPRINGS, CA 90740				
Spill Date Time:	FEBRUARY 26, 1991 08 15 00 AM				
Case Number:	91-2668				
Spill Location:	8851 DICE RD				
Source Agency:	E				
Discharger Org:	SO CAL CHEMICALS				
Material Spilled:	CHLORINE GAS, 0 00 (UNK)				
Waterway Affected:	NONE				
Fields Not Reported:	Discharger Name, Discharger Phone				
Air Release:	Land Release:	Water Release:	Ground Release:	Facility Release:	Other Release:
YES	NO	NO	NO	NO	NO

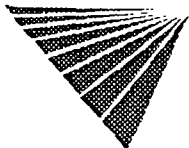
VISTA Address*:	SOUTHERN CALIFORNIA CHEMICAL 8851 DICE RD SANTA FE SPRINGS, CA 90670	VISTA ID#:	200339400
		Distance/Direction:	0 00 MI / ADJACENT
		Plotted as:	Point

Map ID

2A

ERNS - Emergency Response Notification System / SRC# 3006		Agency ID	94-4665		
Agency Address:	SAME AS ABOVE				
Spill Date Time:	MAY 31, 1994 10 39 00 PM				
Case Number:	94-4665				
Spill Location:	8851 DICE RD				
Source Agency:	E				
Discharger Name:	UNKNOWN				
Discharger Org:	SOUTHERN CALIFORNIA CHEMICAL				
Material Spilled:	HYDROCHLORIC ACID, 4 00 (GAL)				
Fields Not Reported:	Discharger Phone, Waterway Affected				
Air Release:	Land Release:	Water Release:	Ground Release:	Facility Release:	Other Release:
NO	YES	NO	NO	NO	NO

DICE 00193



PROPERTY AND THE ADJACENT AREA (within 1/8 mile) CONT.

Map ID

2A

VISTA Address*:	SO CA CHEM CO INC 8851 DICE RD SANTA FE SPRINGS, CA 90670		VISTA ID#:	1183441
			Distance/Direction:	0 00 MI / ADJACENT
			Plotted as:	Point
CERCLIS / SRC# 2977			EPA ID:	CAD008488025
Agency Address:	SAME AS ABOVE			
NPL Status:	NOT A PROPOSED, CURRENT, OR DELETED NPL SITE			
Site Ownership:	UNKNOWN			
Lead Agency:	NOT AVAILABLE			
Site Description:	NOT REPORTED			
Event Type:	Lead Agency:	Event Status:	Start Date:	Completion Date:
DISCOVERY	STATE, FUND FINANCED	UNKNOWN	NOT REPORTED	FEBRUARY 1, 1986
UNKNOWN	EPA FUND-FINANCED	UNKNOWN	NOT REPORTED	JULY 15, 1987
UNKNOWN	EPA FUND-FINANCED	UNKNOWN	NOT REPORTED	SEPTEMBER 30, 1987
PRELIMINARY ASSESSMENT	STATE, FUND FINANCED	DEFERRED TO RCRA (SUBTITLE C) OR NRC	DECEMBER 1, 1985	DECEMBER 1, 1987
SCREENING SITE INSPECTION	STATE, FUND FINANCED	DEFERRED TO RCRA (SUBTITLE C) OR NRC	NOT REPORTED	SEPTEMBER 8, 1989
Regional CERCLIS / SRC# 2462			EPA ID	CAD008488025
Agency Address:	SO CA CHEM CO INC 8851 DICE RD SANTA FE SPRINGS, CA 906700118			
Regional Utility Description: NEW CERCLIS SITE				
Regional CERCLIS / SRC# 2462			EPA ID	CAD008488025
Agency Address:	SO CA CHEM CO INC 8851 DICE RD SANTA FE SPRINGS, CA 906700118			
Regional Utility Description: CALIFORNIA 3012 SITE				
Regional CERCLIS / SRC# 2462			EPA ID	CAD008488025
Agency Address:	SO CA CHEM CO INC 8851 DICE RD SANTA FE SPRINGS, CA 906700118			
Regional Utility Description: RCRA REGULATED GENERATOR SEE NOTIFICATION FILE				
Regional CERCLIS / SRC# 2462			EPA ID	CAD008488025
Agency Address:	SO CA CHEM CO INC 8851 DICE RD SANTA FE SPRINGS, CA 906700118			
Regional Utility Description: IMPOUNDMENTS (SURFACE)				
Regional CERCLIS / SRC# 2462			EPA ID	CAD008488025
Agency Address:	SO CA CHEM CO INC 8851 DICE RD SANTA FE SPRINGS, CA 906700118			
Regional Utility Description: ABOVE GROUND TANK(RAINWATER, WASTE WATER TREATMENT HOLDING)- HA				
Regional CERCLIS / SRC# 2462			EPA ID	CAD008488025
Agency Address:	SO CA CHEM CO INC 8851 DICE RD SANTA FE SPRINGS, CA 906700118			
Regional Utility Description: Z WASTE				

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PROPERTY AND THE ADJACENT AREA (within 1/8 mile) CONT.

Regional CERCLIS / SRC# 2462	EPA ID	CAD008488025
Agency Address: SO CA CHEM CO INC 8851 DICE RD SANTA FE SPRINGS, CA 906700118		
Regional Utility Description: OTHER COPPER SLUDGE CEMENT PONDS, COLLECTION SUMP		
Regional CERCLIS / SRC# 2462	EPA ID	CAD008488025
Agency Address: SO CA CHEM CO INC 8851 DICE RD SANTA FE SPRINGS, CA 906700118		
Regional Utility Description: UNDERGROUND TANKS- GASOLINE DIESEL		
Regional CERCLIS / SRC# 2462	EPA ID	CAD008488025
Agency Address: SO CA CHEM CO INC 8851 DICE RD SANTA FE SPRINGS, CA 906700118		
Regional Utility Description: UNDERGROUND TANKS- HAZ WASTES ACID SOLUTIONS		
Regional CERCLIS / SRC# 2462	EPA ID	CAD008488025
Agency Address: SO CA CHEM CO INC 8851 DICE RD SANTA FE SPRINGS, CA 906700118		
Regional Utility Description: DRUMS, ABOVE GROUND		
Regional CERCLIS / SRC# 2462	EPA ID	CAD008488025
Agency Address: SO CA CHEM CO INC 8851 DICE RD SANTA FE SPRINGS, CA 906700118		
Regional Utility Description: HEAVY METALS IRON, COPPER, CHROMIUM, ZINC, NICKEL, AMMONIA ZINC		
Regional CERCLIS / SRC# 2462	EPA ID	CAD008488025
Agency Address: SO CA CHEM CO INC 8851 DICE RD SANTA FE SPRINGS, CA 906700118		
Regional Utility Description: OXIDE		
Regional CERCLIS / SRC# 2462	EPA ID	CAD008488025
Agency Address: SO CA CHEM CO INC 8851 DICE RD SANTA FE SPRINGS, CA 906700118		
Regional Utility Description: ACIDS CHROMIC, SULFURIC HYDROCHLORIC		
Regional CERCLIS / SRC# 2462	EPA ID	CAD008488025
Agency Address: SO CA CHEM CO INC 8851 DICE RD SANTA FE SPRINGS, CA 906700118		
Regional Utility Description: BASES ALKALINE WASTE WATER		
Regional CERCLIS / SRC# 2462	EPA ID	CAD008488025
Agency Address: SO CA CHEM CO INC 8851 DICE RD SANTA FE SPRINGS, CA 906700118		
Regional Utility Description: OTHER WASTE WATER SURFACE RUNOFF, SLUDGE FROM TREATMENT POND		
Regional CERCLIS / SRC# 2462	EPA ID	CAD008488025
Agency Address: SO CA CHEM CO INC 8851 DICE RD SANTA FE SPRINGS, CA 906700118		
Regional Utility Description: INORGANICS CHLORIDE, CHLORINE		

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PROPERTY AND THE ADJACENT AREA (within 1/8 mile) CONT.

Regional CERCLIS / SRC# 2462		EPA ID	CAD008488025
Agency Address:	SO CA CHEM CO INC 8851 DICE RD SANTA FE SPRINGS, CA 906700118		
Regional Utility Description: BASES- SODIUM HYDROXIDE			
Regional CERCLIS / SRC# 2462		EPA ID	CAD008488025
Agency Address:	SO CA CHEM CO INC 8851 DICE RD SANTA FE SPRINGS, CA 906700118		
Regional Utility Description: OTHER SPENT AMMONICAL ETCHANT, SODIUM, AMMONIA			
Regional CERCLIS / SRC# 2462		EPA ID	CAD008488025
Agency Address:	SO CA CHEM CO INC 8851 DICE RD SANTA FE SPRINGS, CA 906700118		
Regional Utility Description: HIGH PRIORITY REFERRAL TO RCRA			

VISTA Address*	PHIBRO TECH INC 8851 DICE RD SANTA FE SPRINGS, CA 90670	VISTA ID#:	5241067
		Distance/Direction:	0 00 MI / ADJACENT
		Plotted as:	Point
CORRACTS / SRC# 3057		EPA ID	CAD008488025

Map ID
2A

Agency Address:	PHIBRO TECH INC 8851 DICE RD SANTA FE SPRINGS, CA 906700118
Prioritization Status:	HIGH
RCRA Facility Assessment Completed:	YES
Notice of Contamination:	NO
Determination of need For a RFI (RCRA Facility Investigation):	NO
RFI Imposed:	YES
RFI Workplan Notice of Deficiency Issued:	NO
RFI Workplan Approved:	YES
RFI Report Received:	NO
RFI Approved:	NO
No Further Corrective Action at this Time:	NO
Stabilization Mesaures Evaluation:	YES
CMS (Corrective Measure Study) Imposition:	YES
CMS Workplan Approved:	YES
CMS Report Received:	NO
CMS Approved:	YES
Date for Remedy Selection (CM Imposed):	NO
Corrective Measures Design Approved:	NO
Corrective Measures Investigation Workplan Approved:	NO
Certification of Remedy Completion:	NO
Stabilization Measures Implementation:	YES
Stabilization Measures Completed:	NO
Corrective Action Process Termination:	NO

DICE 00196



PROPERTY AND THE ADJACENT AREA (within 1/8 mile) CONT.

RCRA-TSD / SRC# 3057		EPA ID:	CAD008488025
Agency Address:	SAME AS ABOVE		
Off-Site Waste Received:	NO		
Land Disposal:	YES		
Incinerator:	NO		
Storage/Treatment:	YES		
RCRA-LgGen - RCRA-Large Generator / SRC# 3057		EPA ID:	CAD008488025
Agency Address:	SAME AS ABOVE		
Generator Class:	GENERATORS WHO GENERATE AT LEAST 1000 KG/MONTH OF NON-ACUTELY HAZARDOUS WASTE OR 1 KG/MONTH OF ACUTELY HAZARDOUS WASTE.		
RCRA-Violations / SRC# 3057		EPA ID:	CAD008488025
Agency Address:	PHIBRO TECH INC 8851 DICE RD SANTA FE SPRINGS, CA 906700118		
Violation Type:	TSD--GROUNDWATER MONITORING REQ.		
Violation Date:	JUNE 23, 1993		
Violation Class:	1		
Actual Compliance Date:	NOT REPORTED		
Scheduled Compliance Date:	NOT REPORTED		
Violation Type:	TSD--FINANCIAL RESPONSIBILITY REQ		
Violation Date:	FEBRUARY 24, 1987		
Violation Class:	1		
Actual Compliance Date:	OCTOBER 14, 1988		
Scheduled Compliance Date:	NOT REPORTED		
Violation Type:	TSD--FINANCIAL RESPONSIBILITY REQ		
Violation Date:	JANUARY 23, 1991		
Violation Class:	1		
Actual Compliance Date:	NOT REPORTED		
Scheduled Compliance Date:	NOT REPORTED		
Violation Type:	TSD--OTHER REQUIREMENTS (OVERSITE LEVEL)		
Violation Date:	MAY 17, 1989		
Violation Class:	1		
Actual Compliance Date:	FEBRUARY 8, 1991		
Scheduled Compliance Date:	NOT REPORTED		
Violation Type:	TSD--GROUNDWATER MONITORING REQ		
Violation Date:	JUNE 15, 1988		
Violation Class:	1		
Actual Compliance Date:	NOT REPORTED		
Scheduled Compliance Date:	NOT REPORTED		
Violation Type:	TSD--FINANCIAL RESPONSIBILITY REQ.		
Violation Date:	FEBRUARY 8, 1988		
Violation Class:	1		
Actual Compliance Date:	OCTOBER 4, 1988		
Scheduled Compliance Date:	APRIL 10, 1988		
Violation Type:	TSD--OTHER REQUIREMENTS (OVERSITE LEVEL)		
Violation Date:	MARCH 14, 1990		
Violation Class:	1		
Actual Compliance Date:	FEBRUARY 8, 1991		
Scheduled Compliance Date:	AUGUST 5, 1990		
Violation Type:	TSD--FINANCIAL RESPONSIBILITY REQ		
Violation Date:	MARCH 14, 1990		
Violation Class:	1		
Actual Compliance Date:	FEBRUARY 8, 1991		
Scheduled Compliance Date:	AUGUST 5, 1990		

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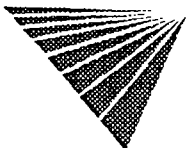
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PROPERTY AND THE ADJACENT AREA (within 1/8 mile) CONT.

Enforcement Number:	870326
Enforcement Agency:	State
Action Date:	MARCH 26, 1987
Action Type:	WRITTEN INFORMAL
Penalty Assessed:	NOT REPORTED
Penalty Settlement:	NOT REPORTED
Enforcement Number:	870828
Enforcement Agency:	State
Action Date:	AUGUST 28, 1987
Action Type:	3008(A) COMPLIANCE ORDER
Penalty Assessed:	138800
Penalty Settlement:	NOT REPORTED
Enforcement Number:	880310002
Enforcement Agency:	State
Action Date:	MARCH 10, 1988
Action Type:	WRITTEN INFORMAL
Penalty Assessed:	NOT REPORTED
Penalty Settlement:	NOT REPORTED
Enforcement Number:	880615
Enforcement Agency:	State
Action Date:	JUNE 15, 1988
Action Type:	STATE TO EPA REFFERAL
Penalty Assessed:	NOT REPORTED
Penalty Settlement:	NOT REPORTED
Enforcement Number:	881208003
Enforcement Agency:	EPA
Action Date:	DECEMBER 8, 1988
Action Type:	3008(H)INTERIM STATUS CORRECTIVE ORDER
Penalty Assessed:	NOT REPORTED
Penalty Settlement:	NOT REPORTED
Enforcement Number:	890706005
Enforcement Agency:	State
Action Date:	JULY 6, 1989
Action Type:	WRITTEN INFORMAL
Penalty Assessed:	NOT REPORTED
Penalty Settlement:	NOT REPORTED
Enforcement Number:	891006004
Enforcement Agency:	State
Action Date:	OCTOBER 6, 1989
Action Type:	3008(A) COMPLIANCE ORDER
Penalty Assessed:	12000
Penalty Settlement:	12000
Enforcement Number:	900705006
Enforcement Agency:	EPA
Action Date:	JULY 5, 1990
Action Type:	WRITTEN INFORMAL
Penalty Assessed:	NOT REPORTED
Penalty Settlement:	NOT REPORTED

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PROPERTY AND THE ADJACENT AREA (within 1/8 mile) CONT.

Enforcement Number:	910228007
Enforcement Agency:	State
Action Date:	FEBRUARY 28, 1991
Action Type:	WRITTEN INFORMAL
Penalty Assessed:	NOT REPORTED
Penalty Settlement:	NOT REPORTED
Enforcement Number:	940110
Enforcement Agency:	State
Action Date:	JANUARY 10, 1994
Action Type:	WRITTEN INFORMAL
Penalty Assessed:	NOT REPORTED
Penalty Settlement:	NOT REPORTED

VISTA Address*:	AIR LIQUIDE AMERICA CORP. COMPRESSED GA 8832 DICE RD. SANTA FE SPRINGS, CA 90670	VISTA ID#:	5520500
		Distance/Direction:	0.00 MI / ADJACENT
		Plotted as:	Point
TRIS - Toxic Release Inventory System / SRC# 2587		EPA ID	CAD000021160
Agency Address:		SAME AS ABOVE	
Chemical Abstract Service Registry:		Quantity Released:	
ACETONE		651.00 (POUNDS)	

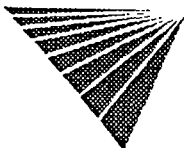
Map ID
2B

VISTA Address*:	LIQUID AIR CORP 8832 DICE RD SANTA FE SPRINGS, CA 90670	VISTA ID#:	245933
		Distance/Direction:	0.00 MI / ADJACENT
		Plotted as:	Point
CERCLIS / SRC# 2977		EPA ID	CAD003312600

Map ID
2B

Agency Address:	SAME AS ABOVE			
NPL Status:	NOT A PROPOSED, CURRENT, OR DELETED NPL SITE			
Site Ownership:	UNKNOWN			
Lead Agency:	NO DETERMINATION			
Site Description:	NOT REPORTED			
Event Type:	Lead Agency:	Event Status:	Start Date:	Completion Date:
DISCOVERY	STATE, FUND FINANCED	UNKNOWN	NOT REPORTED	NOVEMBER 1, 1986
PRELIMINARY ASSESSMENT	STATE, FUND FINANCED	UNKNOWN	NOVEMBER 1, 1986	JUNE 1, 1987
PRELIMINARY ASSESSMENT	EPA FUND-FINANCED	UNKNOWN	NOT REPORTED	AUGUST 1, 1988
SCREENING SITE INSPECTION	EPA FUND-FINANCED	NO FURTHER REMEDIAL ACTION PLANNED	NOT REPORTED	MARCH 23, 1990
SCREENING SITE INSPECTION	EPA FUND-FINANCED	NO FURTHER REMEDIAL ACTION PLANNED	NOT REPORTED	JUNE 8, 1993

Regional CERCLIS / SRC# 2462		EPA ID	CAD003312600
Agency Address: SAME AS ABOVE			
Regional Utility Description: ABOVE GR TANKS - ACETYLENE, CARON DIOXIDE, NITROUS OXIDE, ARGON,			
Regional CERCLIS / SRC# 2462		EPA ID	CAD003312600
Agency Address: SAME AS ABOVE			
Regional Utility Description: OXYGEN, NITROGEN, HELIUM			



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PROPERTY AND THE ADJACENT AREA (within 1/8 mile) CONT.

Regional CERCLIS / SRC# 2462	EPA ID	CAD003312600
Agency Address: SAME AS ABOVE		
Regional Utility Description: ABV GR TANKS - HELIUM, HYDROGEN, PROPANE, FULE GAS, LIME AND ACE		
Regional CERCLIS / SRC# 2462	EPA ID.	CAD003312600
Agency Address: SAME AS ABOVE		
Regional Utility Description: TYLENE SLUDGE (LIQUID AIR CORP)		
Regional CERCLIS / SRC# 2462	EPA ID	CAD003312600
Agency Address: SAME AS ABOVE		
Regional Utility Description: OTHER - SPRAY COOLING WATER, ACETYLENE PROCESS WSTWATER, PAINT S		
Regional CERCLIS / SRC# 2462	EPA ID	CAD003312600
Agency Address: SAME AS ABOVE		
Regional Utility Description: KIMMING (LIQUID AIR CORP)		
Regional CERCLIS / SRC# 2462	EPA ID.	CAD003312600
Agency Address: SAME AS ABOVE		
Regional Utility Description: CA 3012 SITE		
Regional CERCLIS / SRC# 2462	EPA ID	CAD003312600
Agency Address: SAME AS ABOVE		
Regional Utility Description: NEW CERCLIS SITE		
Regional CERCLIS / SRC# 2462	EPA ID	CAD003312600
Agency Address: SAME AS ABOVE		
Regional Utility Description: PIT- ACETYLENE SLUDGE DISPOSED INTO UNLINED PIT SINCE 1949		
Regional CERCLIS / SRC# 2462	EPA ID	CAD003312600
Agency Address: SAME AS ABOVE		
Regional Utility Description: SOIL CONTAM - 1964 CAUSTIC WASTES DISCHARGED ONTO PROPERTY		
Regional CERCLIS / SRC# 2462	EPA ID	CAD003312600
Agency Address: SAME AS ABOVE		
Regional Utility Description: OTHER- 1977 SPRAY COOLING WATER ACETYLENE SLUGGEDISCHARGED INT		
Regional CERCLIS / SRC# 2462	EPA ID	CAD003312600
Agency Address: SAME AS ABOVE		
Regional Utility Description: O COYOTE CREEK		
Regional CERCLIS / SRC# 2462	EPA ID	CAD003312600
Agency Address: SAME AS ABOVE		
Regional Utility Description: OTHER - PRODUCT WASTES- CARBIDE SLUDGE, COOLING WATER BLEED OFF,		
Regional CERCLIS / SRC# 2462	EPA ID	CAD003312600
Agency Address: SAME AS ABOVE		
Regional Utility Description: CAUSTICS, BRINE, LUB OIL, LIME		

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PROPERTY AND THE ADJACENT AREA (within 1/8 mile) CONT.

SCL - State Equivalent CERCLIS List / SRC# 2825		Agency ID:	19280766
Agency Address:	LIQUID AIR 8832 DICE ROAD SANTA FE SPRINGS, CA 90670		
Facility Type:	NOT AVAILABLE		
Lead Agency:	NOT AVAILABLE		
State Status:	NO FURTHER ACTION FOR DTSC		
Pollutant 1:	LIME SLUDGE		
Pollutant 2:	WASTE OIL MIXED OIL		
Pollutant 3:	OXYGENATED SOLVENTS		
Fields Not Reported:	Status		
STATE LUST - State Leaking Underground Storage Tank / SRC# 3056		Agency ID:	I-00225
Agency Address:	LIQUID AIR CORP 8832 DICE RD SANTA FE SPRI, CA 90670		
Tank Status:	NOT AVAILABLE		
Media Affected:	SOIL/SAND/LAND		
Substance:	DIESEL		
Leak Cause:	UNAVAILABLE		
Remedial Action:	NOT AVAILABLE		
Remedial Status 1:	PRELIMINARY ASSESSMENT		
Remedial Status 2:	NOT AVAILABLE		
Fields Not Reported:	Discovery Date, Quantity (Units), Leak Source		
Regional LUST - Regional Leaking Underground Storage Tank / SRC# 3104		Agency ID:	I-00225
Agency Address:	LIQUID AIR CORP 8832 DICE RD S SANTA FE SPRINGS, CA 90670		
Tank Status:	NOT AVAILABLE		
Discovery Date:	APRIL 20, 1990		
Media Affected:	SOIL/SAND/LAND		
Substance:	DIESEL		
Leak Cause:	UNAVAILABLE		
Remedial Action:	NOT AVAILABLE		
Remedial Status 1:	PRELIMINARY ASSESSMENT		
Remedial Status 2:	NOT AVAILABLE		
Fields Not Reported:	Quantity (Units), Leak Source		
STATE UST - State Underground Storage Tank / SRC# 1612		EPA/Agency ID	N/A
Agency Address:	LIQUID AIR INC 8832 S DICE SANTA FE SPRINGS, CA 90670		
Underground Tanks:	1		
Aboveground Tanks:	NOT REPORTED		
Tanks Removed:	NOT REPORTED		
Tank ID:	1U	Tank Status:	CLOSED
Tank Contents:	OIL(NOT SPECIFIED)	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	BARE STEEL
Tank Size (Units):	2000 (GALLONS)	Tank Material:	CONCRETE
CORTESE / SRC# 2298		EPA/Agency ID	N/A
Agency Address:	LIQUID AIR 8832 DICE RD S SANTA FE SPRINGS, CA 90670		
List Name:	CAL SITE		
Site ID:	INV-ID19-002529		

DICE 00201



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PROPERTY AND THE ADJACENT AREA (within 1/8 mile) CONT.

CORTESE / SRC# 2298	EPA/Agency ID.	N/A
Agency Address:	LIQUID AIR CORP. 8832 DICE RD S. SANTA FE SPRINGS, CA 90670	
List Name:	LEAKING TANK	
Site ID:	INV-ID19-002529	

VISTA Address*	BURDETT OXYGEN COMPANY OF CALIFORNIA 8832-8838 SOUTH DICE ROAD SANTA FE SPRINGS, CA 90670	VISTA ID#	62680
		Distance/Direction:	<0.01 MI / SE
		Plotted as:	Point

Map ID
2B

SPL - State Equivalent Priority List / SRC# 2826	Agency ID*	19280224
Agency Address:	SAME AS ABOVE	
Status:	NON-NPL SITE	
Facility Type:	NOT AVAILABLE	
Lead Agency:	EPA FUND-FINANCED	
State Status:	ANNUAL WORK PLAN	
Pollutant 1:	HALOGENATED ORGANIC COMPOUNDS	
Pollutant 2:	UNSPECIFIED SLUDGE WASTE	
Pollutant 3:	PAINT SLUDGE	

CERCLIS / SRC# 2977	EPA ID*	CAD982359747		
Agency Address:	BURDETT OXYGEN CO OF CA #1 8838 S DICE RD SANTA FE SPRINGS, CA 90670			
NPL Status:	NOT A PROPOSED, CURRENT, OR DELETED NPL SITE			
Site Ownership:	PRIVATE/NON-GOVERNMENTAL			
Lead Agency:	NO DETERMINATION			
Site Description:	NOT REPORTED			
Event Type:	Lead Agency:	Event Status:	Start Date:	Completion Date:
DISCOVERY	STATE, FUND FINANCED	UNKNOWN	NOT REPORTED	JANUARY 1, 1988
PRELIMINARY ASSESSMENT	STATE, FUND FINANCED	NO FURTHER REMEDIAL ACTION PLANNED	NOT REPORTED	AUGUST 1, 1988
SCREENING SITE INSPECTION	EPA FUND-FINANCED	NO FURTHER REMEDIAL ACTION PLANNED	NOT REPORTED	OCTOBER 4, 1989

Regional CERCLIS / SRC# 2462	EPA ID	CAD982359747
Agency Address:	BURDETT OXYGEN CO OF CA #1 8838 S DICE RD SANTA FE SPRINGS CA 90670	

Regional Utility Description:
NEW CERCLIS SITE

Regional CERCLIS / SRC# 2462	EPA ID	CAD982359747
Agency Address:	BURDETT OXYGEN CO OF CA #1 8838 S DICE RD SANTA FE SPRINGS, CA 90670	

Regional Utility Description:
MEDIUM PRIORITY

DICE 00202



PROPERTY AND THE ADJACENT AREA (within 1/8 mile) CONT.

VISTA Address*:	PILOT CHEMICAL 11756 BURKE AVE SANTA FE SPRINGS, CA 90670	VISTA ID#:	200066074		
		Distance/Direction:	0.02 MI / N		
		Plotted as:	Point		
ERNS - Emergency Response Notification System / SRC# 3006		Agency ID:	92-0997		
Agency Address:		SAME AS ABOVE			
Spill Date Time:		NOVEMBER 11, 1991 04 00 00 AM			
Case Number:		92-0997			
Spill Location:		11756 BURKE AVE			
Source Agency:		E			
Discharger Org:		PILOT CHEMICAL			
Material Spilled:		SULFUR DIOXIDE, 400 00 (LBS)			
Fields Not Reported:		Discharger Name, Discharger Phone, Waterway Affected			
Air Release:	Land Release:	Water Release:	Ground Release:	Facility Release:	Other Release:
NO	YES	NO	NO	YES	NO

Map ID
3

VISTA Address*:	PILOT CHEMICAL 11756 BURKE ST SANTA FE SPRINGS, CA 90670	VISTA ID#:	200242066		
		Distance/Direction:	0.02 MI / N		
		Plotted as:	Point		
ERNS - Emergency Response Notification System / SRC# 3006		Agency ID:	93-2313		
Agency Address:		PILOT CHEMICAL 11756 BURKE ST SANTA FE, CA 90670			
Spill Date Time:		FEBRUARY 12, 1993 05 00 00 AM			
Case Number:		93-2313			
Spill Location:		11756 BURKE ST			
Source Agency:		E			
Discharger Org:		PILOT CHEMICAL			
Material Spilled:		DODECYLBENZENESULFONIC ACID, 1500 00 (GAL)			
Fields Not Reported:		Discharger Name, Discharger Phone, Waterway Affected			
Air Release:	Land Release:	Water Release:	Ground Release:	Facility Release:	Other Release:
NO	YES	NO	NO	NO	NO

Map ID
3

VISTA Address*:	PILOT CHEMICAL COMPANY 11756 BURKE ST SANTA FE SPRINGS, CA 90670	VISTA ID#:	5352338
		Distance/Direction:	0.02 MI / N
		Plotted as:	Point
CORTESE / SRC# 2298		EPA/Agency ID:	N/A
Agency Address:		SAME AS ABOVE	
List Name:		LEAKING TANK	
Site ID:		INV-ID19-002089	

Map ID
3

DICE 00203



PROPERTY AND THE ADJACENT AREA (within 1/8 mile) CONT.

VISTA Address*:	PILOT CHEMICAL 11756 BURKE ST SANTA FE SPRINGS, CA 90670	VISTA ID#:	200218007
		Distance/Direction:	0.02 MI / N
		Plotted as:	Point
ERNS - Emergency Response Notification System / SRC# 3006		Agency ID:	93-2313
Agency Address:	PILOT CHEMICAL 11756 BURKE ST SANTA FE, CA 90670		
Spill Date Time:	FEBRUARY 12, 1993 05 00:00 AM		
Case Number:	93-2313		
Spill Location:	11756 BURKE ST		
Source Agency:	E		
Discharger Org:	PILOT CHEMICAL		
Material Spilled:	DODECYLBENZENESULFONIC ACID, 1500 00 (GAL)		
Fields Not Reported:	Discharger Name, Discharger Phone, Waterway Affected		
Air Release:	Land Release:	Water Release:	Ground Release:
NO	YES	NO	NO
			Facility Release:
			NO
			Other Release:
			NO

Map ID

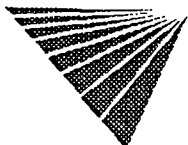
3

VISTA Address*:	PILOT CHEM CO 11756 BURKE ST SANTA FE SPRINGS, CA 90670	VISTA ID#:	330653
		Distance/Direction:	0 02 MI / N
		Plotted as:	Point
CERCLIS / SRC# 2977		EPA ID:	CAD008287823
Agency Address:	SAME AS ABOVE		
NPL Status:	NOT A PROPOSED, CURRENT, OR DELETED NPL SITE		
Site Ownership:	UNKNOWN		
Lead Agency:	NO DETERMINATION		
Site Description:	NOT REPORTED		
Event Type:	Lead Agency:	Event Status:	Start Date:
DISCOVERY	STATE, FUND FINANCED	UNKNOWN	NOT REPORTED
			Completion Date:
			APRIL 1, 1985
PRELIMINARY ASSESSMENT	STATE, FUND FINANCED	UNKNOWN	APRIL 1, 1985
			JULY 1, 1985
SCREENING SITE INSPECTION	EPA FUND-FINANCED	NO FURTHER REMEDIAL ACTION PLANNED	NOT REPORTED
			APRIL 1, 1986
PRELIMINARY ASSESSMENT	EPA FUND-FINANCED	NO FURTHER REMEDIAL ACTION PLANNED	NOT REPORTED
			MARCH 15, 1989
Regional CERCLIS / SRC# 2462		EPA ID	CAD008287823
Agency Address:	SAME AS ABOVE		
Regional Utility Description:	OTHER SULPHURIC ACID SLUDGE, SULPHONIC ACUD SLUDGE, SULGONE SLUD		
Regional CERCLIS / SRC# 2462		EPA ID	CAD008287823
Agency Address:	SAME AS ABOVE		
Regional Utility Description:	GE (CONTAINING SOME XYLENE)		
Regional CERCLIS / SRC# 2462		EPA ID	CAD008287823
Agency Address:	SAME AS ABOVE		
Regional Utility Description:	OTHER SEWER INTERCEPTOR SLUDGE		
Regional CERCLIS / SRC# 2462		EPA ID	CAD008287823
Agency Address:	SAME AS ABOVE		
Regional Utility Description:	ABOVE GROUND TANK- HAZARDOUS WASTE		

Map ID

3

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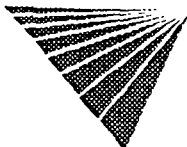
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PROPERTY AND THE ADJACENT AREA (within 1/8 mile) CONT.

Regional CERCLIS / SRC# 2462	EPA ID:	CAD008287823
Agency Address: SAME AS ABOVE		
Regional Utility Description: DRUMS, ABOVE GROUND		
Regional CERCLIS / SRC# 2462	EPA ID:	CAD008287823
Agency Address: SAME AS ABOVE		
Regional Utility Description: SOIL CONTAMINATION		
Regional CERCLIS / SRC# 2462	EPA ID:	CAD008287823
Agency Address: SAME AS ABOVE		
Regional Utility Description: CALIFORNIA 3012 SITE		
Regional CERCLIS / SRC# 2462	EPA ID:	CAD008287823
Agency Address: SAME AS ABOVE		
Regional Utility Description: NEW ERRIS SITE		
Regional CERCLIS / SRC# 2462	EPA ID:	CAD008287823
Agency Address: SAME AS ABOVE		
Regional Utility Description: SITE INSPECTION		
Regional CERCLIS / SRC# 2462	EPA ID:	CAD008287823
Agency Address: SAME AS ABOVE		
Regional Utility Description: RPM BLEVINS SHOULD CALL JOHN HUNTER AT SANTA FE SPRINGS PUBLIC W		
Regional CERCLIS / SRC# 2462	EPA ID:	CAD008287823
Agency Address: SAME AS ABOVE		
Regional Utility Description: ORKS DEPT FOR FOLLOW UP IN SEPT 87		
RCRA-LqGen - RCRA-Large Generator / SRC# 3057	EPA ID:	CAD008287823
Agency Address: PILOT CHEM CO OF CA 11756 BURKE ST SANTA FE SPRINGS, CA 90670		
Generator Class: GENERATORS WHO GENERATE AT LEAST 1000 KG/MONTH OF NON-ACUTELY HAZARDOUS WASTE OR 1 KG/MONTH OF ACUTELY HAZARDOUS WASTE		
STATE LUST - State Leaking Underground Storage Tank / SRC# 3056	Agency ID:	906700107
Agency Address: CALIFORNIA PILOT CHEMICAL CO 11756 BURKE ST SANTA FE SPRI, CA 90670		
Tank Status: NOT AVAILABLE		
Media Affected: GROUNDWATER		
Substance: DIESEL		
Leak Cause: UNAVAILABLE		
Remedial Action: NOT AVAILABLE		
Remedial Status 1: CONTAMINATION ASSESSMENT		
Remedial Status 2: NOT AVAILABLE		
Fields Not Reported: Discovery Date, Quantity (Units), Leak Source		

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PROPERTY AND THE ADJACENT AREA (within 1/8 mile) CONT.

Regional LUST - Regional Leaking Underground Storage Tank / SRC# 3104		Agency ID.	I-02254
Agency Address:	PILOT CHEMICAL COMPANY 11756 BURKE ST SANTA FE SPRINGS, CA 90670		
Tank Status:	NOT AVAILABLE		
Discovery Date:	SEPTEMBER 21, 1988		
Media Affected:	GROUNDWATER		
Substance:	DIESEL		
Leak Cause:	UNAVAILABLE		
Remedial Action:	NOT AVAILABLE		
Remedial Status 1:	CONTAMINATION ASSESSMENT		
Remedial Status 2:	NOT AVAILABLE		
Fields Not Reported:	Quantity (Units), Leak Source		
STATE UST - State Underground Storage Tank / SRC# 1612		EPA/Agency ID	N/A
Agency Address:	PILOT CHEMICAL COMPANY 11756 BURKE SANTA FE SPRINGS, CA 90670		
Underground Tanks:	9		
Aboveground Tanks:	NOT REPORTED		
Tanks Removed:	NOT REPORTED		
Tank ID:	1U	Tank Status:	CLOSED REMOVED
Tank Contents:	MISC CHEMICAL	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	12000 (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	2U	Tank Status:	CLOSED REMOVED
Tank Contents:	MISC CHEMICAL	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	12000 (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	3U	Tank Status:	CLOSED REMOVED
Tank Contents:	MISC CHEMICAL	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	10000 (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	4U	Tank Status:	CLOSED REMOVED
Tank Contents:	MISC CHEMICAL	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	12000 (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	5U	Tank Status:	CLOSED REMOVED
Tank Contents:	MISC CHEMICAL	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	12000 (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	6U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	7U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	8U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN

DICE 00206



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PROPERTY AND THE ADJACENT AREA (within 1/8 mile) CONT.

Tank ID:	9U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN

LA Co Site Mtgn - LA County Site Mitigation / SRC# 2683 Agency ID: 90S212

Agency Address:	PILOT CHEMICAL COMPANY 11756 BURKE ST CA 90670
Waste Name:	TPH
Media Affected:	SOIL
Log Number:	903734
Discovery Date:	OCTOBER 25, 1990
Abate Date:	JUNE 1, 1992
State Status:	ABATED
Description:	NO FURTHER FOLLOW-UP REQUIRED

TRIS - Toxic Release Inventory System / SRC# 2587 EPA ID: CAD008287823

Agency Address:	PILOT CHEMICAL CO OF CALIFORNIA 11756 BURKE ST SANTA FE SPRINGS, CA 90670
Chemical Abstract Service Registry:	Quantity Released:
DIETHANOLAMINE	132.00 (POUNDS)
NOT REPORTED	1.00 (POUNDS)
SULFURIC ACID	NOT REPORTED (POUNDS)
MALEIC ANHYDRIDE	NOT REPORTED (POUNDS)

VISTA Address*:	PILOT CHEMICAL COMPANY 11770 BURKE SANTA FE SPRINGS, CA 90670	VISTA ID#	4020570
		Distance/Direction:	0.03 MI / N
		Plotted as:	Point

Map ID
3

STATE UST - State Underground Storage Tank / SRC# 1612 EPA/Agency ID: N/A

Agency Address:	PILOT CHEMICAL COMPANY 11770 BURKE SANTA FE SPRINGS, CA		
Underground Tanks:	NOT REPORTED		
Aboveground Tanks:	NOT REPORTED		
Tanks Removed:	NOT REPORTED		
Tank ID:	1U	Tank Status:	NOT AVAILABLE
Tank Contents:	NOT REPORTED	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	NOT AVAILABLE
Tank Size (Units):	NOT REPORTED (NOT AVAILABLE)	Tank Material:	NOT AVAILABLE

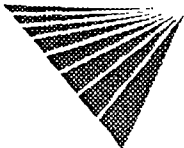
VISTA Address*:	FLIGHT TRUCKING 11770 BURKE STREET SANTA FE SPRINGS, CA 90670	VISTA ID#	1194162
		Distance/Direction:	0.03 MI / N
		Plotted as:	Point

Map ID
3

STATE LUST - State Leaking Underground Storage Tank / SRC# 3056 Agency ID: 014457

Agency Address:	FLIGHT TRUCKING 11770 BURKE STREET SANTA FE SPRINGS, CA 90670
Tank Status:	NOT AVAILABLE
Media Affected:	SOIL/SAND/LAND
Substance:	DIESEL
Leak Cause:	UNAVAILABLE
Remedial Action:	NOT AVAILABLE
Remedial Status 1:	CASE CLOSED/CLEANUP COMPLETE
Remedial Status 2:	NOT AVAILABLE
Fields Not Reported:	Discovery Date, Quantity (Units), Leak Source

DICE 00207



PROPERTY AND THE ADJACENT AREA (within 1/8 mile) CONT.

Regional LUST - Regional Leaking Underground Storage Tank / SRC# 3104	Agency ID	014457
Agency Address:	FLIGHT TRUCKING 11770 BURKE ST SANTA FE SPRINGS, CA 90670	
Tank Status:	NOT AVAILABLE	
Discovery Date:	FEBRUARY 14, 1990	
Media Affected:	SOIL/SAND/LAND	
Substance:	DIESEL	
Leak Cause:	UNAVAILABLE	
Remedial Action:	NOT AVAILABLE	
Remedial Status 1:	CASE CLOSED/CLEANUP COMPLETE	
Remedial Status 2:	NOT AVAILABLE	
Fields Not Reported:	Quantity (Units), Leak Source	

VISTA Address*	DIVERSEY WYANDOTTE CORPORATION 8921 DICE RD SANTA FE SPRINGS, CA 90670	VISTA ID#:	5354007
		Distance/Direction	0.08 MI / S
		Plotted as	Point
CORTESE / SRC# 2298		EPA/Agency ID.	N/A
Agency Address:	DIVERSEY WYANDOTTE CORPORATION 8921 DICE RD SANTA FE SPRINGS, CA 906700000		
List Name:	CALSITE		
Site ID:	INV-ID19-029260		

Map ID
4

DICE 00208



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PROPERTY AND THE ADJACENT AREA (within 1/8 mile) CONT.

VISTA Address*:	DIVERSEY CORP 8921 DICE RD SANTA FE SPRINGS, CA 90670	VISTA ID#:	123068
		Distance/Direction:	0.08 MI / S
		Plotted as:	Point

Map ID

4

CORRACTS / SRC# 3057	EPA ID:	CAD046455747
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Agency Address:	SAME AS ABOVE
Prioritization Status:	MEDIUM
RCRA Facility Assessment Completed:	NO
Notice of Contamination:	NO
Determination of need For a RFI (RCRA Facility Investigation):	NO
RFI Imposed:	NO
RFI Workplan Notice of Deficiency Issued:	NO
RFI Workplan Approved:	NO
RFI Report Received:	NO
RFI Approved:	NO
No Further Corrective Action at this Time:	NO
Stabilization Mesaures Evaluation: CMS (Corrective Measure Study) Imposition:	YES
CMS Workplan Approved:	NO
CMS Report Received:	NO
CMS Approved:	NO
Date for Remedy Selection (CM Imposed):	NO
Corrective Measures Design Approved:	NO
Corrective Measures Investigation Workplan Approved:	NO
Certification of Remedy Completion:	NO
Stabilization Measures Implementation:	NO
Stabilization Measures Completed:	NO
Corrective Action Process Termination:	NO

RCRA-TSD / SRC# 3057	EPA ID	CAD046455747
-----------------------------	--------	--------------

Agency Address:	SAME AS ABOVE
Off-Site Waste Received:	NO
Land Disposal:	NO
Incinerator:	NO
Storage/Treatment:	NO

RCRA-LgGen - RCRA-Large Generator / SRC# 3057	EPA ID	CAD046455747
--	--------	--------------

Agency Address:	SAME AS ABOVE
Generator Class:	GENERATORS WHO GENERATE AT LEAST 1000 KG/MONTH OF NON-ACUTELY HAZARDOUS WASTE OR 1 KG/MONTH OF ACUTELY HAZARDOUS WASTE

RCRA-Violations / SRC# 3057	EPA ID	CAD046455747
------------------------------------	--------	--------------

Agency Address:	SAME AS ABOVE
Violation Type:	TSD--FINANCIAL RESPONSIBILITY REQ
Violation Date:	MARCH 1, 1988
Violation Class:	1
Actual Compliance Date:	JULY 13, 1992
Scheduled Compliance Date:	NOT REPORTED

DICE 00209



PROPERTY AND THE ADJACENT AREA (within 1/8 mile) CONT.

Violation Type:	TSD-OTHER REQUIREMENTS (OVERSITE LEVEL)
Violation Date:	MARCH 9, 1988
Violation Class:	1
Actual Compliance Date:	JANUARY 21, 1992
Scheduled Compliance Date:	MAY 18, 1988
Violation Type:	TSD-CLOSURE/POST-CLOSURE REQ.
Violation Date:	MARCH 9, 1988
Violation Class:	1
Actual Compliance Date:	JANUARY 21, 1992
Scheduled Compliance Date:	MAY 18, 1988
Enforcement Number:	861010
Enforcement Agency:	State
Action Date:	OCTOBER 10, 1986
Action Type:	WRITTEN INFORMAL
Penalty Assessed:	NOT REPORTED
Penalty Settlement:	NOT REPORTED
Enforcement Number:	880418001
Enforcement Agency:	State
Action Date:	APRIL 18, 1988
Action Type:	WRITTEN INFORMAL
Penalty Assessed:	NOT REPORTED
Penalty Settlement:	NOT REPORTED

VISTA Address*	DIVERSEY WYANDOTTE CORP 8921 DICE RD SANTA FE SPRINGS, CA 90670	VISTA ID#	517328
		Distance/Direction	0 08 MI / S
		Plotted as	Point

Map ID
4

CERCLIS / SRC# 2977	EPA ID	CAD046455747
Agency Address:	SAME AS ABOVE	
NPL Status:	NOT A PROPOSED, CURRENT, OR DELETED NPL SITE	
Site Ownership:	UNKNOWN	
Lead Agency:	NO DETERMINATION	
Site Description:	NOT REPORTED	

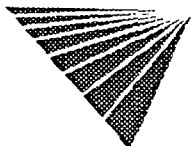
Event Type:	Lead Agency:	Event Status:	Start Date:	Completion Date:
DISCOVERY	EPA FUND-FINANCED	UNKNOWN	NOT REPORTED	AUGUST 1, 1980
PRELIMINARY ASSESSMENT	STATE, FUND FINANCED	UNKNOWN	JUNE 1, 1984	SEPTEMBER 1, 1984
PRELIMINARY ASSESSMENT	EPA FUND-FINANCED	NO FURTHER REMEDIAL ACTION PLANNED	NOT REPORTED	SEPTEMBER 10, 1990

Regional CERCLIS / SRC# 2462	EPA ID	CAD046455747
Agency Address:	SAME AS ABOVE	
Regional Utility Description:	ACIDS	

Regional CERCLIS / SRC# 2462	EPA ID	CAD046455747
Agency Address:	SAME AS ABOVE	
Regional Utility Description:	BASES	

Regional CERCLIS / SRC# 2462	EPA ID	CAD046455747
Agency Address:	SAME AS ABOVE	
Regional Utility Description:	INORGANICS	

DICE 00210



* VISTA address includes enhanced city and ZIP.

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Date of Report September 3, 1996

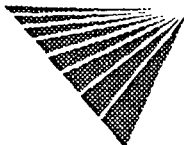
Version 2 4 1

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PROPERTY AND THE ADJACENT AREA (within 1/8 mile) CONT.

Regional CERCLIS / SRC# 2462	EPA ID:	CAD046455747
Agency Address:	SAME AS ABOVE	
Regional Utility Description:	ORGANICS	
Regional CERCLIS / SRC# 2462	EPA ID:	CAD046455747
Agency Address:	SAME AS ABOVE	
Regional Utility Description:	OTHER- SODIUM HYDROXIDE, SODIUM CARBONATE, PHOSPHORIC ACIDVARIDU	
Regional CERCLIS / SRC# 2462	EPA ID:	CAD046455747
Agency Address:	SAME AS ABOVE	
Regional Utility Description:	S VESSEL WASINGS	
Regional CERCLIS / SRC# 2462	EPA ID:	CAD046455747
Agency Address:	SAME AS ABOVE	
Regional Utility Description:	DRUMS	
Regional CERCLIS / SRC# 2462	EPA ID:	CAD046455747
Agency Address:	SAME AS ABOVE	
Regional Utility Description:	TANKS	
Regional CERCLIS / SRC# 2462	EPA ID:	CAD046455747
Agency Address:	SAME AS ABOVE	
Regional Utility Description:	UNDERGROUND INJECTION	
Regional CERCLIS / SRC# 2462	EPA ID:	CAD046455747
Agency Address:	SAME AS ABOVE	
Regional Utility Description:	RCRA REGULATED GENERATOR TREAT STORE DISPOSE FACIL (NON HANDL	
Regional CERCLIS / SRC# 2462	EPA ID:	CAD046455747
Agency Address:	SAME AS ABOVE	
Regional Utility Description:	ERJ SEENOTIFICATION PART A FILE	
Regional CERCLIS / SRC# 2462	EPA ID:	CAD046455747
Agency Address:	SAME AS ABOVE	
Regional Utility Description:	NOTIS 103(C) SITE	
SCL - State Equivalent CERCLIS List / SRC# 2825	Agency ID:	19280834
Agency Address:	DIVERSEY WYANDOTTE CORPORATION 8921 SOUTH DICE ROAD SANTA FE SPRINGS, CA 90670	
Facility Type:	NOT AVAILABLE	
Lead Agency:	NOT AVAILABLE	
State Status:	VOLUNTARY CLEANUP	
Pollutant 1:	HALOGENATED ORGANIC COMPOUNDS	
Pollutant 2:	CONTAMINATED SOIL	
Pollutant 3:	UNSPECIFIED ORGANIC LIQUID MIXTURE	
Fields Not Reported:	Status	
STATE UST - State Underground Storage Tank / SRC# 1612	EPA/Agency ID	N/A
Agency Address:	DIVERSEY WYANDOTTE 8921 DICE SANTA FE SPRINGS, CA	
Underground Tanks:	NOT REPORTED	
Aboveground Tanks:	NOT REPORTED	
Tanks Removed:	NOT REPORTED	

DICE 00211



PROPERTY AND THE ADJACENT AREA (within 1/8 mile) CONT.

Tank ID:	1U	Tank Status:	NOT AVAILABLE
Tank Contents:	NOT REPORTED	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	NOT AVAILABLE
Tank Size (Units):	NOT REPORTED (NOT AVAILABLE)	Tank Material:	NOT AVAILABLE

VISTA Address*:	CITY OF SANTA FE SPRINGS FIRE 8634 S DICE SANTE FE SPRINGS, CA	VISTA ID#:	4824475
		Distance/Direction:	0.09 MI / NE
		Plotted as:	Point

Map ID
5

STATE UST - State Underground Storage Tank / SRC# 1612	EPA/Agency ID	N/A
Agency Address:	SAME AS ABOVE	
Underground Tanks:	2	
Aboveground Tanks:	NOT REPORTED	
Tanks Removed:	NOT REPORTED	

Tank ID:	1U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN

Tank ID:	2U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN

VISTA Address*:	WEST BENT BOLT 8623 DICE RD SANTA FE SPRINGS, CA 90670	VISTA ID#:	5354006
		Distance/Direction:	0.09 MI / N
		Plotted as:	Point

Map ID
5

CORTESE / SRC# 2298	EPA/Agency ID	N/A
Agency Address:	SAME AS ABOVE	
List Name:	CALSITE	
Site ID:	INV-ID19-000008	

VISTA Address*:	MID WEST FABR CO 8623 DICE RD SANTA FE SPRINGS, CA 90670	VISTA ID#:	274221
		Distance/Direction:	0.09 MI / N
		Plotted as:	Point

Map ID
5

RCRA-LgGen - RCRA-Large Generator / SRC# 3057	EPA ID:	CAD004295572
Agency Address:	SAME AS ABOVE	
Generator Class:	GENERATORS WHO GENERATE AT LEAST 1000 KG/MONTH OF NON-ACUTELY HAZARDOUS WASTE OR 1 KG/MONTH OF ACUTELY HAZARDOUS WASTE	

VISTA Address*:	WEST BENT BOLT 8623 S DICE RD SANTA FE SPRINGS, CA 90670	VISTA ID#:	1183438
		Distance/Direction:	0.09 MI / NE
		Plotted as:	Point

Map ID
5

CERCLIS / SRC# 2977	EPA ID:	CAD004295572
Agency Address:	SAME AS ABOVE	
NPL Status:	NOT A PROPOSED, CURRENT, OR DELETED NPL SITE	
Site Ownership:	UNKNOWN	
Lead Agency:	NO DETERMINATION	
Site Description:	NOT REPORTED	

DICE 00212



* VISTA address includes enhanced city and ZIP.

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Date of Report September 3, 1996

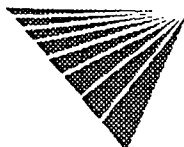
Version 2.4.1

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PROPERTY AND THE ADJACENT AREA (within 1/8 mile) CONT.

Event Type:	Lead Agency:	Event Status:	Start Date:	Completion Date:
DISCOVERY	STATE, FUND FINANCED	UNKNOWN	NOT REPORTED	APRIL 1, 1985
PRELIMINARY ASSESSMENT	STATE, FUND FINANCED	UNKNOWN	APRIL 9, 1985	JULY 1, 1985
SCREENING SITE INSPECTION	EPA FUND-FINANCED	UNKNOWN	NOT REPORTED	OCTOBER 1, 1986
SCREENING SITE INSPECTION	EPA FUND-FINANCED	NO FURTHER REMEDIAL ACTION PLANNED	NOT REPORTED	SEPTEMBER 19, 1990
Regional CERCLIS / SRC# 2462			EPA ID:	CAD004295572
Agency Address:		SAME AS ABOVE		
Regional Utility Description:				
OTHER SLUDGES, WHITTISH GRAY POWDER				
Regional CERCLIS / SRC# 2462			EPA ID:	CAD004295572
Agency Address:		SAME AS ABOVE		
Regional Utility Description:				
OTHER CYANIDE, OVERFLOW RINSE FROM ZINC PLATING NEUTRALIZED SUL				
Regional CERCLIS / SRC# 2462			EPA ID	CAD004295572
Agency Address:		SAME AS ABOVE		
Regional Utility Description:				
FURIC ACID, SODIUM HYDROXIDE				
Regional CERCLIS / SRC# 2462			EPA ID	CAD004295572
Agency Address:		SAME AS ABOVE		
Regional Utility Description:				
ABOVE GROUND TANKS (HOLDING TANKS)-HAZ WASTES				
Regional CERCLIS / SRC# 2462			EPA ID	CAD004295572
Agency Address:		SAME AS ABOVE		
Regional Utility Description:				
DRUMS, ABOVE GROUND				
Regional CERCLIS / SRC# 2462			EPA ID	CAD004295572
Agency Address:		SAME AS ABOVE		
Regional Utility Description:				
OTHER 2-3 FT WIDE DITCH				
Regional CERCLIS / SRC# 2462			EPA ID	CAD004295572
Agency Address:		SAME AS ABOVE		
Regional Utility Description:				
OTHER SUMP, DISCHARGE TO SEWER				
Regional CERCLIS / SRC# 2462			EPA ID	CAD004295572
Agency Address:		SAME AS ABOVE		
Regional Utility Description:				
SOIL CONTAMINATION				
Regional CERCLIS / SRC# 2462			EPA ID	CAD004295572
Agency Address:		SAME AS ABOVE		
Regional Utility Description:				
CALIFORNIA 3012 SITE				
Regional CERCLIS / SRC# 2462			EPA ID	CAD004295572
Agency Address:		SAME AS ABOVE		
Regional Utility Description:				
NEWERRIS SITE				
Regional CERCLIS / SRC# 2462			EPA ID	CAD004295572
Agency Address:		SAME AS ABOVE		
Regional Utility Description:				
RCRA REGULATED GENERATOR SEE NOTIFICATION FILE				

DICE 00213



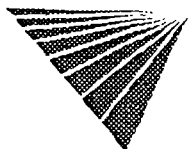
PROPERTY AND THE ADJACENT AREA (within 1/8 mile) CONT.

Regional CERCLIS / SRC# 2462	EPA ID:	CAD004295572
Agency Address:	SAME AS ABOVE	
Regional Utility Description:	OILY LIQUIDS	
Regional CERCLIS / SRC# 2462	EPA ID:	CAD004295572
Agency Address:	SAME AS ABOVE	
Regional Utility Description:	SITE INSPECTION, CHECK STATUS OF STATE ACTION	
Regional CERCLIS / SRC# 2462	EPA ID:	CAD004295572
Agency Address:	SAME AS ABOVE	
Regional Utility Description:	OTHER. MFG OF METAL BOLTS, SCREWS, MACHINERY, ETC ZINC PLATING	
Regional CERCLIS / SRC# 2462	EPA ID:	CAD004295572
Agency Address:	SAME AS ABOVE	
Regional Utility Description:	UNDERGROUND TANK (CLARIFIERS)	
Regional CERCLIS / SRC# 2462	EPA ID:	CAD004295572
Agency Address:	SAME AS ABOVE	
Regional Utility Description:	OIL SOAKED SOIL REMOVED	
Regional CERCLIS / SRC# 2462	EPA ID:	CAD004295572
Agency Address:	SAME AS ABOVE	
Regional Utility Description:	30-GAL CYANIDE SPILL CLEANED UP	
Regional CERCLIS / SRC# 2462	EPA ID:	CAD004295572
Agency Address:	SAME AS ABOVE	
Regional Utility Description:	CLARIFIER (3)	
Regional CERCLIS / SRC# 2462	EPA ID:	CAD004295572
Agency Address:	SAME AS ABOVE	
Regional Utility Description:	30-40 GAL CYANIDE SPILLED, NEUTRALIZED AND PICKED-UP	
SCL - State Equivalent CERCLIS List / SRC# 2825	Agency ID	19340439
Agency Address:	WEST BENT BOLT 8623 SOUTH DICE ROAD SANTA FE SPRINGS, CA 90670	
Facility Type:	NOT AVAILABLE	
Lead Agency:	NOT AVAILABLE	
State Status:	REFERRED TO ANOTHER AGENCY	
Pollutant 1:	CYANIDES	
Pollutant 2:	HOUSEHOLD WASTES	
Pollutant 3:	UNSPECIFIED SLUDGE WASTE	
Fields Not Reported:	Status	

VISTA Address*:	TALCO PLASTICS INC 11650 BURKE WHITTIER, CA 90606	VISTA ID#	1237544
		Distance/Direction:	0 11 MI / W
		Plotted as	Point
STATE UST - State Underground Storage Tank / SRC# 1612	EPA/Agency ID	N/A	
Agency Address:	TALCO PLASTICS INC 11650 BURKE WHITTIER, CA		
Underground Tanks:	2		
Aboveground Tanks:	NOT REPORTED		
Tanks Removed:	NOT REPORTED		

Map ID
6

DICE 00214



PROPERTY AND THE ADJACENT AREA (within 1/8 mile) CONT.

Tank ID:	1U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	2U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN

SITES IN THE SURROUNDING AREA (within 1/8 - 1/4 mile)

VISTA Address*	PALLEY PROPERTY 11630 BURKE ST CA 90606	VISTA ID#:	5404254
		Distance/Direction:	0 13 MI / W
		Plotted as:	Point
LA Co Site Mtgn - LA County Site Mitigation / SRC# 2683		Agency ID:	95S369
Agency Address:	SAME AS ABOVE		
Waste Name:	TPH		
Media Affected:	SOIL		
Log Number:	950293		
Discovery Date:	JANUARY 30, 1995		
Abate Date:	NOT REPORTED		
State Status:	PI		
Description:	2 DBA ON-SITE, ONE ACTIVE GENERATOR		

Map ID

6

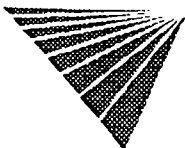
VISTA Address*	T CHEM PRODUCTS INC 9028 DICE RD SANTA FE SPRINGS, CA 90670	VISTA ID#:	418301
		Distance/Direction:	0 16 MI / S
		Plotted as:	Point
Regional LUST - Regional Leaking Underground Storage Tank / SRC# 3104		Agency ID	R-04511
Agency Address:	T-CHEM PRODUCTS 9028 DICE RD S SANTA FE SPRINGS, CA 90670		
Tank Status:	NOT AVAILABLE		
Discovery Date:	FEBRUARY 26, 1996		
Media Affected:	SOIL/SAND/LAND		
Leak Cause:	UNAVAILABLE		
Remedial Action:	NOT AVAILABLE		
Remedial Status 1:	CASE CLOSED/CLEANUP COMPLETE		
Remedial Status 2:	NOT AVAILABLE		
Fields Not Reported:	Substance, Quantity (Units), Leak Source		

Map ID

7

STATE UST - State Underground Storage Tank / SRC# 1612		EPA/Agency ID	N/A
Agency Address:	T-CHEM PRODUCTS 9028 S DICE SANTA FE SPRINGS, CA		
Underground Tanks:	1		
Aboveground Tanks:	NOT REPORTED		
Tanks Removed:	NOT REPORTED		
Tank ID:	1U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN

DICE 00215



* VISTA address includes enhanced city and ZIP.

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SITES IN THE SURROUNDING AREA (within 1/8 - 1/4 mile) CONT.

TRIS - Toxic Release Inventory System / SRC# 2587		EPA ID	CAD051482784
Agency Address:	T-CHEM PRODS 9028 DICE RD SANTA FE SPRINGS, CA 906701807		
Chemical Abstract Service Registry:		Quantity Released:	
CHLORINE		5 00 (POUNDS)	
AMMONIA		1622 00 (POUNDS)	

VISTA Address*:	PARKER HANNIFIN CORP 11808 BURKE ST SPRINGS SANTA FE SPRINGS, CA 90670	VISTA ID#:	319868
		Distance/Direction:	0 16 MI / NE
		Plotted as:	Point

Map ID
8

TRIS - Toxic Release Inventory System / SRC# 2587		EPA ID	CAD981973357
Agency Address:	PARKER HANNIFIN CORP 11808 BURKE ST. SANTA FE SPRINGS, CA 90670		
Chemical Abstract Service Registry:		Quantity Released:	
1,1,1-TRICHLOROETHANE		6750 00 (POUNDS)	

VISTA Address*:	AEROSPACE RIVET MFG. CORP. MANUFACTURER 8535 DICE RD. SANTA FE SPRINGS, CA 90670	VISTA ID#:	1268062
		Distance/Direction:	0 18 MI / N
		Plotted as:	Point

Map ID
9

TRIS - Toxic Release Inventory System / SRC# 2587		EPA ID	CAD981417751
Agency Address:	SAME AS ABOVE		
Chemical Abstract Service Registry:		Quantity Released:	
SULFURIC ACID		5 00 (POUNDS)	

VISTA Address*:	A-W ENGINEERING CO 8518 DICE SANTA FE SPRINGS, CA 90670	VISTA ID#:	34957
		Distance/Direction:	0.19 MI / N
		Plotted as:	Point

Map ID
9

STATE UST - State Underground Storage Tank / SRC# 1612		EPA/Agency ID	N/A
Agency Address:	A-W ENGINEERING CO 8518 DICE SANTA FE SPRINGS, CA		
Underground Tanks:	NOT REPORTED		
Aboveground Tanks:	NOT REPORTED		
Tanks Removed:	NOT REPORTED		
Tank ID:	1U	Tank Status:	NOT AVAILABLE
Tank Contents:	NOT REPORTED	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	NOT AVAILABLE
Tank Size (Units):	NOT REPORTED (NOT AVAILABLE)	Tank Material:	NOT AVAILABLE

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SITES IN THE SURROUNDING AREA (within 1/8 - 1/4 mile) CONT.

Map ID

10

VISTA Address*:	BARRETT SERVICE STATION 8728 NORWALK BLVD WHITTIER, CA 90606	VISTA ID#:	1203224
		Distance/Direction:	0.18 MI / W
		Plotted as:	Point
Regional LUST - Regional Leaking Underground Storage Tank / SRC# 3104		Agency ID:	I-04174

Agency Address:	BARRETT SERVICE STATION 8728 NORWALK BLVD LOS NIETOS, CA 90606
Tank Status:	NOT AVAILABLE
Discovery Date:	AUGUST 15, 1990
Media Affected:	GROUNDWATER
Substance:	GASOLINE (UNSPECIFIED)
Leak Cause:	UNAVAILABLE
Remedial Action:	NOT AVAILABLE
Remedial Status 1:	PRELIMINARY ASSESSMENT
Remedial Status 2:	NOT AVAILABLE
Fields Not Reported:	Quantity (Units), Leak Source

STATE UST - State Underground Storage Tank / SRC# 1612	EPA/Agency ID	N/A
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Agency Address:	BARRETT SERVICE STATION 8728 NORWALK LOS NIETOS, CA 90606
Underground Tanks:	4
Aboveground Tanks:	NOT REPORTED
Tanks Removed:	NOT REPORTED

Tank ID:	1U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	LEADED GAS	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	BARE STEEL
Tank Size (Units):	10000 (GALLONS)	Tank Material:	BARE STEEL

Tank ID:	2U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	LEADED GAS	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	BARE STEEL
Tank Size (Units):	550 (GALLONS)	Tank Material:	BARE STEEL

Tank ID:	3U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	LEADED GAS	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	BARE STEEL
Tank Size (Units):	550 (GALLONS)	Tank Material:	BARE STEEL

Tank ID:	4U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	UNLEADED GAS	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	BARE STEEL
Tank Size (Units):	3500 (GALLONS)	Tank Material:	BARE STEEL

CORTESE / SRC# 2298	EPA/Agency ID	N/A
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Agency Address:	BARRET STATION 8728 NORWALK BLVD WHITTIER, CA 90606
List Name:	LEAKING TANK
Site ID:	INV-ID19-001765

DICE 00217



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SITES IN THE SURROUNDING AREA (within 1/8 - 1/4 mile) CONT.

VISTA Address* BARRETT SERVICE STATION 8728 NORWALK BLVD WHITTIER, CA 90606	VISTA ID#:	6478853
	Distance/Direction:	0.18 MI / W
	Plotted as:	Point
STATE LUST - State Leaking Underground Storage Tank / SRC# 3056		Agency ID: I-04174
Agency Address:	BARRETT SERVICE STATION 8728 NORWALK BLVD LOS NIETOS, CA 90606	
Tank Status:	NOT AVAILABLE	
Media Affected:	GROUNDWATER	
Substance:	GASOLINE (UNSPECIFIED)	
Leak Cause:	UNAVAILABLE	
Remedial Action:	NOT AVAILABLE	
Remedial Status 1:	PRELIMINARY ASSESSMENT	
Remedial Status 2:	NOT AVAILABLE	
Fields Not Reported:	Discovery Date Quantity (Units), Leak Source	

Map ID

10

VISTA Address* C.F. PENG SERVICE STATION 8905 NORWALK BLVD. SANTA FE SPRINGS, CA 90670	VISTA ID#:	2748870
	Distance/Direction:	0.19 MI / W
	Plotted as:	Point
STATE LUST - State Leaking Underground Storage Tank / SRC# 3056		Agency ID I-02290
Agency Address:	SAME AS ABOVE	
Tank Status:	NOT AVAILABLE	
Media Affected:	SOIL/SAND/LAND	
Substance:	GASOLINE (UNSPECIFIED)	
Leak Cause:	UNAVAILABLE	
Remedial Action:	NOT AVAILABLE	
Remedial Status 1:	PRELIMINARY ASSESSMENT	
Remedial Status 2:	NOT AVAILABLE	
Fields Not Reported:	Discovery Date, Quantity (Units), Leak Source	

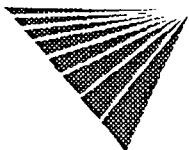
Map ID

11A

Regional LUST - Regional Leaking Underground Storage Tank / SRC# 3104	Agency ID	I-02290
Agency Address:	C F PENG SERVICE STATION 8905 NORWALK BLVD SANTA FE SPRINGS, CA 90670	
Tank Status:	NOT AVAILABLE	
Discovery Date:	NOVEMBER 26, 1991	
Media Affected:	SOIL/SAND/LAND	
Substance:	GASOLINE (UNSPECIFIED)	
Leak Cause:	UNAVAILABLE	
Remedial Action:	NOT AVAILABLE	
Remedial Status 1:	PRELIMINARY ASSESSMENT	
Remedial Status 2:	NOT AVAILABLE	
Fields Not Reported:	Quantity (Units), Leak Source	

CORTESE / SRC# 2298	EPA/Agency ID.	N/A
Agency Address:	C F PENG SERVICE STATION 8905 NORWALK BLVD SANTA FE SPRINGS CA 90670	
List Name:	LEAKING TANK	
Site ID:	INV-ID19-003372	

DICE 00218



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SITES IN THE SURROUNDING AREA (within 1/8 - 1/4 mile) CONT.

VISTA Address*:	NACHO'S BATTERIES 8917 NORWALK CA 90606	VISTA ID#:	4825493
		Distance/Direction:	0.19 MI / W
		Plotted as:	Point
LA Co Site Mtgn - LA County Site Mitigation / SRC# 2683		Agency ID:	88S003
Agency Address:	SAME AS ABOVE		
Waste Name:	LEAD		
Media Affected:	SOIL		
Waste Name:	ACID		
Media Affected:	SOIL		
Log Number:	882781		
Discovery Date:	JANUARY 14, 1988		
Abate Date:	SEPTEMBER 25, 1989		
State Status:	ABATED		
Description:	NO FOLLOW-UP REQUIRED		

Map ID

11A

VISTA Address*:	ACI GLASS PRODUCTS INC 9010 S NORWALK BLVD SANTA FE SPRINGS, CA 90670	VISTA ID#:	4497
		Distance/Direction:	0.20 MI / W
		Plotted as:	Point
STATE LUST - State Leaking Underground Storage Tank / SRC# 3056		Agency ID:	061390-02
Agency Address:	ACI GLASS PRODUCTS INC 9010 S NORWALK BLVD SANTA FE SPRING, CA 90670		
Tank Status:	NOT AVAILABLE		
Media Affected:	UNKNOWN		
Substance:	GASOLINE (UNSPECIFIED)		
Leak Cause:	UNAVAILABLE		
Remedial Action:	NOT AVAILABLE		
Remedial Status 1:	NO ACTION TAKEN BY RESPONSIBLE PARTY		
Remedial Status 2:	NOT AVAILABLE		
Fields Not Reported:	Discovery Date, Quantity (Units), Leak Source		

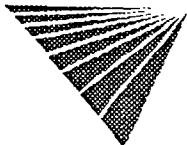
Map ID

11B

Regional LUST - Regional Leaking Underground Storage Tank / SRC# 3104		Agency ID	061390-02
Agency Address:	ACI GLASS PRODUCTS INC 9010 S NORWALK BLVD SANTA FE SPRING, CA 90670		
Tank Status:	NOT AVAILABLE		
Discovery Date:	APRIL 19, 1990		
Media Affected:	UNKNOWN		
Substance:	GASOLINE (UNSPECIFIED)		
Leak Cause:	UNAVAILABLE		
Remedial Action:	NOT AVAILABLE		
Remedial Status 1:	NO ACTION TAKEN BY RESPONSIBLE PARTY		
Remedial Status 2:	NOT AVAILABLE		
Fields Not Reported:	Quantity (Units), Leak Source		

STATE UST - State Underground Storage Tank / SRC# 1612		EPA/Agency ID:	N/A
Agency Address:	ACI GLASS 9010 S NORWALK SANTA FE SPRINGS, CA		
Underground Tanks:	1		
Aboveground Tanks:	NOT REPORTED		
Tanks Removed:	NOT REPORTED		

DICE 00219



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SITES IN THE SURROUNDING AREA (within 1/8 - 1/4 mile) CONT.

Tank ID:	1U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN

CORTESE / SRC# 2298		EPA/Agency ID:	N/A
Agency Address:	ACI GLASS PRODUCTS 9010 NORWALK BLVD S SANTA FE SPRINGS, CA 90670		
List Name:	CALSITE		
Site ID:	INV-ID19-002528		

VISTA Address*:	TECHNI-BRAZE INC 11845 BURKE STREET SANTA FE SPRINGS, CA 90670	VISTA ID#:	418570
		Distance/Direction:	0.21 MI / NE
		Plotted as:	Point

Map ID
12

SCL - State Equivalent CERCLIS List / SRC# 2825		Agency ID:	19340742
Agency Address:	SAME AS ABOVE		
Facility Type:	NOT AVAILABLE		
Lead Agency:	NOT AVAILABLE		
State Status:	FORMER ANNUAL WORKPLAN SITE REFERRED TO RWQCB		
Pollutant 1:	GAS SCRUBBER WASTE		
Pollutant 2:	PAINT SLUDGE		
Pollutant 3:	PHOSPHATE SLUDGE		
Fields Not Reported:	Status		

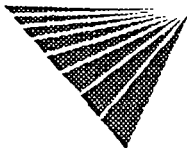
VISTA Address*:	ANGELES CHEMICAL COMPANY INC 8915 SORENSEN AVENUE SANTA FE SPRINGS, CA 90670	VISTA ID#:	22476
		Distance/Direction:	0.22 MI / E
		Plotted as:	Point

Map ID
13

SPL - State Equivalent Priority List / SRC# 2826		Agency ID:	19290306
Agency Address:	SAME AS ABOVE		
Status:	NON-NPL SITE		
Facility Type:	NOT AVAILABLE		
Lead Agency:	DEPT OF TOXIC SUBSTANCES CONTROL		
State Status:	ANNUAL WORK PLAN		
Pollutant 1:	UNKNOWN		
Pollutant 2:	UNKNOWN		
Pollutant 3:	UNKNOWN		

STATE LUST - State Leaking Underground Storage Tank / SRC# 3056		Agency ID:	032091-02
Agency Address:	ANGELES CHEM CO INC 8915 SORENSEN AVE SANTA FE SPRI, CA 90670		
Tank Status:	NOT AVAILABLE		
Media Affected:	GROUNDWATER		
Leak Cause:	UNAVAILABLE		
Remedial Action:	NOT AVAILABLE		
Remedial Status 1:	PRELIMINARY ASSESSMENT		
Remedial Status 2:	NOT AVAILABLE		
Fields Not Reported:	Discovery Date, Substance, Quantity (Units), Leak Source		

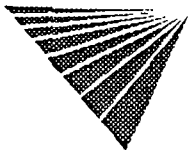
DICE 00220



SITES IN THE SURROUNDING AREA (within 1/8 - 1/4 mile) CONT.

Regional LUST - Regional Leaking Underground Storage Tank / SRC# 3104		Agency ID	032091-02
Agency Address:	ANGELES CHEM CO INC 8915 SORENSEN AVE SANTA FE SPRI, CA 90670		
Tank Status:	NOT AVAILABLE		
Discovery Date:	MARCH 12, 1991		
Media Affected:	GROUNDWATER		
Substance:	SOLVENTS		
Leak Cause:	UNAVAILABLE		
Remedial Action:	NOT AVAILABLE		
Remedial Status 1:	PRELIMINARY ASSESSMENT		
Remedial Status 2:	NOT AVAILABLE		
Fields Not Reported:	Quantity (Units), Leak Source		
STATE UST - State Underground Storage Tank / SRC# 1612		EPA/Agency ID:	N/A
Agency Address:	ANGELES CHEMICAL CO INC 8915 SORENSEN SANTE FE SPRINGS, CA 34		
Underground Tanks:	34		
Aboveground Tanks:	NOT REPORTED		
Tanks Removed:	NOT REPORTED		
Tank ID:	1U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	2U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	3U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	4U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	5U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	6U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	7U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN

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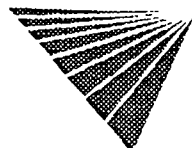
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SITES IN THE SURROUNDING AREA (within 1/8 - 1/4 mile) CONT.

Tank ID:	8U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	9U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	10U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	11U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	12U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	13U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	14U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	15U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	16U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	17U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	18U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN

DICE 00222



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SITES IN THE SURROUNDING AREA (within 1/8 - 1/4 mile) CONT.

Tank ID:	19U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	20U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	21U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	22U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	23U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	24U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	25U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	26U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	27U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	28U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	29U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN

DICE 00223



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SITES IN THE SURROUNDING AREA (within 1/8 - 1/4 mile) CONT.

Tank ID:	30U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	31U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	32U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	33U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	34U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN

CORTESE / SRC# 2298	EPA/Agency ID	N/A
Agency Address:	ANGELES CHEMICAL COMPANY INC 8915 SORENSEN AVE SANTA FE SPRINGS, CA 90670	
List Name:	CALSITE	
Site ID:	INV-ID19-003042	

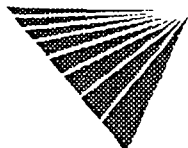
CORTESE / SRC# 2298	EPA/Agency ID	N/A
Agency Address:	ANGELES CHEMICAL CO 8915 SORENSEN AVE SANTA FE SPRINGS, CA 90670	
List Name:	LEAKING TANK	
Site ID:	INV-ID -	

VISTA Address*	H H MACHINE CO 8612 NORWALK BLVD WHITTIER, CA 90606	VISTA ID#:	1160309
		Distance/Direction	0.22 MI / NW
		Plotted as:	Point

Map ID
14

STATE UST - State Underground Storage Tank / SRC# 1612	EPA/Agency ID	N/A	
Agency Address:	HH MACHINE CO 8612 NORWALK WHITTIER, CA		
Underground Tanks:	1		
Aboveground Tanks:	NOT REPORTED		
Tanks Removed:	NOT REPORTED		
Tank ID:	1U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN

DICE 00224



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SITES IN THE SURROUNDING AREA (within 1/8 - 1/4 mile) CONT.

VISTA Address*:	VANDENBERG AFB 8815 SORENSEN S. SANTA FE SPRINGS, CA 90670	VISTA ID#:	5356622
		Distance/Direction:	0.23 MI / E
		Plotted as:	Point
CORTESE / SRC# 2298		EPA/Agency ID	N/A
Agency Address:	VANDENBERG AFB 8815 SORENSEN S. SANTA FE SPRINGS, CA 906700000		
List Name:	LEAKING TANK		
Site ID:	INV-ID19-007195		

Map ID
15A

VISTA Address*:	PLAS-TAL MFG CO 8815 S SORENSEN AVE SANTA FE SPRINGS, CA 90670	VISTA ID#:	5718420
		Distance/Direction:	0.23 MI / E
		Plotted as:	Point
STATE LUST - State Leaking Underground Storage Tank / SRC# 3056		Agency ID	R-22676
Agency Address:	PLAS-TAL MFG CO 8815 S SORENSEN AVE NOT IN A CITY, CA 90670		
Tank Status:	NOT AVAILABLE		
Media Affected:	SOIL/SAND/LAND		
Substance:	GASOLINE (UNSPECIFIED)		
Leak Cause:	UNAVAILABLE		
Remedial Action:	EXCAVATE DISPOSE		
Remedial Status 1:	CASE CLOSED/CLEANUP COMPLETE		
Remedial Status 2:	NOT AVAILABLE		
Fields Not Reported:	Discovery Date, Quantity (Units), Leak Source		

Map ID
15A

Regional LUST - Regional Leaking Underground Storage Tank / SRC# 3104		Agency ID	R-22676
Agency Address:	PLAS-TAL MFG CO 8815 SORENSEN AVE S SANTA FE SPRINGS, CA 90670		
Tank Status:	NOT AVAILABLE		
Discovery Date:	AUGUST 8, 1995		
Media Affected:	SOIL/SAND/LAND		
Substance:	GASOLINE (UNSPECIFIED)		
Leak Cause:	UNAVAILABLE		
Remedial Action:	NOT AVAILABLE		
Remedial Status 1:	CASE CLOSED/CLEANUP COMPLETE		
Remedial Status 2:	NOT AVAILABLE		
Fields Not Reported:	Quantity (Units), Leak Source		

VISTA Address*:	SO PACIFIC TRANS CO 8834 SORENSON SANTA FE SPRINGS, CA 90670	VISTA ID#:	4043436
		Distance/Direction:	0.24 MI / E
		Plotted as:	Point
STATE UST - State Underground Storage Tank / SRC# 1612		EPA/Agency ID	N/A
Agency Address:	SO PACIFIC TRANS CO 8834 SORENSON SANTA FE SPRINGS, CA		
Underground Tanks:	NOT REPORTED		
Aboveground Tanks:	NOT REPORTED		
Tanks Removed:	NOT REPORTED		
Tank ID:	1U	Tank Status:	NOT AVAILABLE
Tank Contents:	NOT REPORTED	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	NOT AVAILABLE
Tank Size (Units):	NOT REPORTED (NOT AVAILABLE)	Tank Material:	NOT AVAILABLE

Map ID
15B

DICE 00225

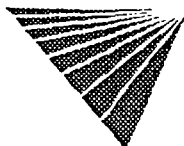


SITES IN THE SURROUNDING AREA (within 1/8 - 1/4 mile) CONT.

Map ID
16A

VISTA Address*:	CAL WESTERN PAINT CORP 11748 SLAUSON AVE SANTA FE SPRINGS, CA 90670	VISTA ID#:	15315
		Distance/Direction:	0.24 MI / NE
		Plotted as:	Point
CERCLIS / SRC# 2977		EPA ID:	CAD008300717
Agency Address:	SAME AS ABOVE		
NPL Status:	NOT A PROPOSED, CURRENT, OR DELETED NPL SITE		
Site Ownership:	UNKNOWN		
Lead Agency:	NOT AVAILABLE		
Site Description:	NOT REPORTED		
Event Type:	Lead Agency:	Event Status:	Start Date:
DISCOVERY	EPA FUND-FINANCED	UNKNOWN	NOT REPORTED
Completion Date:	AUGUST 1, 1980		
PRELIMINARY ASSESSMENT	STATE, FUND FINANCED	NO FURTHER REMEDIAL ACTION PLANNED	MAY 1, 1984
			OCTOBER 1, 1986
Regional CERCLIS / SRC# 2462		EPA ID:	CAD008300717
Agency Address:	SAME AS ABOVE		
Regional Utility Description:	SOLVENTS		
Regional CERCLIS / SRC# 2462		EPA ID:	CAD008300717
Agency Address:	SAME AS ABOVE		
Regional Utility Description:	ORGANICS		
Regional CERCLIS / SRC# 2462		EPA ID:	CAD008300717
Agency Address:	SAME AS ABOVE		
Regional Utility Description:	LANDFILL		
Regional CERCLIS / SRC# 2462		EPA ID:	CAD008300717
Agency Address:	SAME AS ABOVE		
Regional Utility Description:	INORGANICS		
Regional CERCLIS / SRC# 2462		EPA ID:	CAD008300717
Agency Address:	SAME AS ABOVE		
Regional Utility Description:	OTHER SOLVENTS RECLAIMER		
Regional CERCLIS / SRC# 2462		EPA ID:	CAD008300717
Agency Address:	SAME AS ABOVE		
Regional Utility Description:	RCRA REGULATED GENERATOR- SEE NOTIFICATION FILE		
Regional CERCLIS / SRC# 2462		EPA ID:	CAD008300717
Agency Address:	SAME AS ABOVE		
Regional Utility Description:	NOTIS 103(C) SITE		
Regional CERCLIS / SRC# 2462		EPA ID:	CAD008300717
Agency Address:	SAME AS ABOVE		
Regional Utility Description:	NOTIS (103C) SITE		
Regional CERCLIS / SRC# 2462		EPA ID:	CAD008300717
Agency Address:	SAME AS ABOVE		
Regional Utility Description:	UNDERGROUND TANK-4 TANKS 2000-8000 GAL EA CONTAINING PAINT THINNER		
Regional CERCLIS / SRC# 2462		EPA ID:	CAD008300717
Agency Address:	SAME AS ABOVE		
Regional Utility Description:	OTHER MFG OIL AND WATER-BASED PAINTS		

DICE 00226



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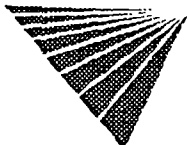
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SITES IN THE SURROUNDING AREA (within 1/8 - 1/4 mile) CONT.

Regional CERCLIS / SRC# 2462		EPA ID:	CAD008300717
Agency Address:		SAME AS ABOVE	
Regional Utility Description:			
WATER CLEANING WASTES, PAINT SLUDGE, LATEX SLUDGE, SOLVENTS CLEAN			
Regional CERCLIS / SRC# 2462		EPA ID:	CAD008300717
Agency Address:		SAME AS ABOVE	
Regional Utility Description:			
ING SLUDGE			
SCL - State Equivalent CERCLIS List / SRC# 2825		Agency ID	19280375
Agency Address:		CAL WESTERN PAINTS 11748 SLAUSON AVENUE SANTA FE SPRINGS, CA 90670	
Facility Type:	NOT AVAILABLE		
Lead Agency:	NOT AVAILABLE		
State Status:	NO FURTHER ACTION FOR DTSC		
Pollutant 1:	LATEX WASTE		
Pollutant 2:	UNSPECIFIED SOLVENT MIXTURES		
Pollutant 3:	UNKNOWN		
Fields Not Reported:	Status		
STATE UST - State Underground Storage Tank / SRC# 1612		EPA/Agency ID	N/A
Agency Address:		CAL WESTERN PAINTS INC 11748 E SLAUSON SANTA FE SPRINGS, CA 4	
Underground Tanks:	NOT REPORTED		
Aboveground Tanks:	NOT REPORTED		
Tanks Removed:	NOT REPORTED		
Tank ID:	1U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	2U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	3U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	4U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN
VISTA Address*:	WESTERN SCREW PRODUCTS #1 11770 SLAUSON AVE E. SANTA FE SPRINGS, CA 90670	VISTA ID#:	5357834
		Distance/Direction:	0.24 MI / NE
		Plotted as:	Point
CORTESE / SRC# 2298		EPA/Agency ID	N/A
Agency Address:		WESTERN SCREW PRODUCTS #1 11770 SLAUSON AVE E. SANTA FE SPRINGS, CA 906700000	
List Name:		CALSITE	
Site ID:		INV-ID19-020538	

Map ID
16B

DICE 00227



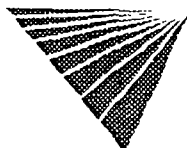
SITES IN THE SURROUNDING AREA (within 1/8 - 1/4 mile) CONT.

Map ID

16B

VISTA Address*	WESTERN SCREW PRODUCTS 11770 - 11780 SLAUSON BLVD SANTA FE SPRINGS, CA 90670	VISTA ID#:	465500
		Distance/Direction:	0.24 MI / NE
		Plotted as:	Point
CERCLIS / SRC# 2977		EPA ID.	CAD981401706
Agency Address:	SAME AS ABOVE		
NPL Status:	NOT A PROPOSED, CURRENT, OR DELETED NPL SITE		
Site Ownership:	UNKNOWN		
Lead Agency:	NOT AVAILABLE		
Site Description:	NOT REPORTED		
Event Type:	Lead Agency:	Event Status:	Start Date:
DISCOVERY	STATE, FUND FINANCED	UNKNOWN	NOT REPORTED
			Completion Date:
			SEPTEMBER 1, 1986
PRELIMINARY ASSESSMENT	STATE, FUND FINANCED	UNKNOWN	SEPTEMBER 1, 1986
			JANUARY 1, 1987
PRELIMINARY ASSESSMENT	EPA FUND-FINANCED	NO FURTHER REMEDIAL ACTION PLANNED	NOT REPORTED
			JANUARY 18, 1989
Regional CERCLIS / SRC# 2462		EPA ID	CAD981401706
Agency Address:	SAME AS ABOVE		
Regional Utility Description:	DRUMS, ABOVE GROUND		
Regional CERCLIS / SRC# 2462		EPA ID	CAD981401706
Agency Address:	SAME AS ABOVE		
Regional Utility Description:	OTHER: ROLL-OFF BIN		
Regional CERCLIS / SRC# 2462		EPA ID	CAD981401706
Agency Address:	SAME AS ABOVE		
Regional Utility Description:	OILY WASTE - CUTTING OILS		
Regional CERCLIS / SRC# 2462		EPA ID	CAD981401706
Agency Address:	SAME AS ABOVE		
Regional Utility Description:	OTHER - TRIM-SOL, DUPONT FREON 1, RECON 11		
Regional CERCLIS / SRC# 2462		EPA ID	CAD981401706
Agency Address:	SAME AS ABOVE		
Regional Utility Description:	RCRA REG GEN		
Regional CERCLIS / SRC# 2462		EPA ID	CAD981401706
Agency Address:	SAME AS ABOVE		
Regional Utility Description:	CALIFORNIA 3012 SITE		
Regional CERCLIS / SRC# 2462		EPA ID	CAD981401706
Agency Address:	SAME AS ABOVE		
Regional Utility Description:	NEW CERCLIS SITE		
SCL - State Equivalent CERCLIS List / SRC# 2825		Agency ID	19340377
Agency Address:	WESTERN SCREW PRODUCTS #1 11770 EAST SLAUSON AVENUE SANTA FE SPRINGS, CA 90670		
Facility Type:	NOT AVAILABLE		
Lead Agency:	NOT AVAILABLE		
State Status:	REFERRED TO ANOTHER AGENCY		
Pollutant 1:	UNSPECIFIED OIL CONTAINING WASTE		
Pollutant 2:	HALOGENATED SOLVENTS		
Pollutant 3:	UNSPECIFIED AQUEOUS SOLUTION		
Fields Not Reported:	Status		

DICE 00228



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SITES IN THE SURROUNDING AREA (within 1/8 - 1/4 mile) CONT.

Map ID

17

VISTA Address*: E.A. MENDOZA INC. 11574 PERKINS AVE. WHITTIER, CA 90606	VISTA ID#: 3768036
	Distance/Direction: 0.24 MI / W
	Plotted as: Point
STATE LUST - State Leaking Underground Storage Tank / SRC# 3056	Agency ID: I-16500
Agency Address: E.A. MENDOZA INC. 11574 PERKINS AVE. WHITTIER, CA 90601 Tank Status: NOT AVAILABLE Media Affected: UNKNOWN Substance: GASOLINE (UNSPECIFIED) Leak Cause: UNAVAILABLE Remedial Action: NOT AVAILABLE Remedial Status 1: LEAK BEING CONFIRMED Remedial Status 2: NOT AVAILABLE Fields Not Reported: Discovery Date, Quantity (Units), Leak Source	
Regional LUST - Regional Leaking Underground Storage Tank / SRC# 3104	Agency ID: I-16500
Agency Address: E.A. MENDOZA INC. 11574 PERKINS AVE. WHITTIER, CA 90601 Tank Status: NOT AVAILABLE Discovery Date: MAY 5, 1992 Media Affected: SOIL/SAND/LAND Substance: WASTE OIL Leak Cause: UNAVAILABLE Remedial Action: NOT AVAILABLE Remedial Status 1: PRELIMINARY ASSESSMENT Remedial Status 2: NOT AVAILABLE Fields Not Reported: Quantity (Units), Leak Source	
STATE UST - State Underground Storage Tank / SRC# 1612	EPA/Agency ID N/A
Agency Address: E.A. MENDOZA INC. 11574 PERKINS WHITTIER, CA 90601 Underground Tanks: 3 Aboveground Tanks: NOT REPORTED Tanks Removed: NOT REPORTED	
Tank ID: 1U	Tank Status: CLOSED REMOVED
Tank Contents: REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring: UNKNOWN
Tank Age: NOT REPORTED	Tank Piping: UNKNOWN
Tank Size (Units): 800 (GALLONS)	Tank Material: UNKNOWN
Tank ID: 2U	Tank Status: CLOSED REMOVED
Tank Contents: REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring: UNKNOWN
Tank Age: NOT REPORTED	Tank Piping: BARE STEEL
Tank Size (Units): 100 (GALLONS)	Tank Material: BARE STEEL
Tank ID: 3U	Tank Status: CLOSED REMOVED
Tank Contents: REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring: UNKNOWN
Tank Age: NOT REPORTED	Tank Piping: BARE STEEL
Tank Size (Units): 800 (GALLONS)	Tank Material: BARE STEEL

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SITES IN THE SURROUNDING AREA (within 1/8 - 1/4 mile) CONT.

CORTESE / SRC# 2298		EPA/Agency ID	N/A
Agency Address:	E A. MENDOZA INC 11574 PERKINS AVE WHITTIER, CA 90601		
List Name:	LEAKING TANK		
Site ID:	INV-ID19-003612		

VISTA Address*:	MOBILE INSP SERVICE INC	VISTA ID#	1161989
	9110 DICE	Distance/Direction:	0.25 MI / S
	SANTA FE SPRINGS, CA 90670	Plotted as:	Point

Map ID
18A

STATE UST - State Underground Storage Tank / SRC# 1612		EPA/Agency ID	N/A
Agency Address:	MOBILE INSP SERVICE INC 9110 DICE SANTA FE SPRINGS, CA		
Underground Tanks:	2		
Aboveground Tanks:	NOT REPORTED		
Tanks Removed:	NOT REPORTED		
Tank ID:	1U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN
Tank ID:	2U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	REPORTED AS "UNKNOWN" BY AGENCY	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN

DICE 00230



SITES IN THE SURROUNDING AREA (within 1/4 - 1/2 mile)

VISTA Address*:	DICE ROAD 9165 DICE ROAD SANTA FE SPRINGS, CA	VISTA ID#:	5435856
		Distance/Direction:	0.29 MI / S
		Plotted as:	Point
WMUDS / SRC# 2463		Agency ID:	4 190281NUR
Agency Address:		SAME AS ABOVE	
Solid Waste Inventory System ID:		NOT REPORTED	
Facility Type:		Not reported	
Facility In State Board Waste Discharger System:		NO	
Chapter 15 Facility:		NO	
Solid Waste Assessment Test Facility:		YES	
Toxic Pits Cleanup Act Facility:		NO	
RCRA Facility:		NO	
Department of Defense Facility:		NO	
Open To Public:		NO	
Number Of Waste Management Units:		1	
Threat To Water:		Not reported	
Complexity:		Not reported	
Facility Status:		Not reported	
Waste 1 (Nature/Type):		NOT REPORTED	
Waste 2 (Nature/Type):		NOT REPORTED	
Rank:		11	
Enforcements At Facility:		NO	
Violations At Facility:		NO	

Map ID
18

VISTA Address*:	DICE ROAD 9165 DICE ROAD SANTA FE SPRINGS, CA 90670	VISTA ID#:	4824476
		Distance/Direction:	0.29 MI / S
		Plotted as:	Point
County SWLF - County Solid Waste Landfill / SRC# 2783		Agency ID:	19-AI-5011
Agency Address:		DICE ROAD 9165 DICE ROAD SANTA FE SPRINGS, CA	
Facility Class:		REGULAR LANDFILL	
Facility Type:		SANITARY LANDFILL/LANDFILL	
Public Status:		CLOSED	
Solid Waste Status:		INACTIVE/CLOSED	
SWIS Permit Status:		INACTIVE	

Map ID
18

VISTA Address*:	DICE RD LOS NIETOS RD DUMP 9165 DICE RD SANTA FE SPRINGS, CA 90670	VISTA ID#:	121556
		Distance/Direction:	0.29 MI / S
		Plotted as:	Point
CERCLIS / SRC# 2977		EPA ID:	CAD980884860
Agency Address:		SAME AS ABOVE	
NPL Status:		NOT A PROPOSED, CURRENT, OR DELETED NPL SITE	
Site Ownership:		UNKNOWN	
Lead Agency:		NOT AVAILABLE	
Site Description:		NOT REPORTED	

Map ID
18

DICE 00231



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SITES IN THE SURROUNDING AREA (within 1/4 - 1/2 mile) CONT.

Event Type:	Lead Agency:	Event Status:	Start Date:	Completion Date:
DISCOVERY	STATE, FUND FINANCED	UNKNOWN	NOT REPORTED	JULY 1, 1985
PRELIMINARY ASSESSMENT	STATE, FUND FINANCED	UNKNOWN	JULY 1, 1985	JULY 1, 1986
PRELIMINARY ASSESSMENT	EPA FUND-FINANCED	NO FURTHER REMEDIAL ACTION PLANNED	NOT REPORTED	FEBRUARY 22, 1989
Regional CERCLIS / SRC# 2462			EPA ID	CAD980884860
Agency Address: SAME AS ABOVE				
Regional Utility Description: OTHER RUBBISH, TRASH				
Regional CERCLIS / SRC# 2462			EPA ID	CAD980884860
Agency Address: SAME AS ABOVE				
Regional Utility Description: OTHER LAND DSPL				
Regional CERCLIS / SRC# 2462			EPA ID	CAD980884860
Agency Address: SAME AS ABOVE				
Regional Utility Description: CALIFORNIA 3012 SITE				
Regional CERCLIS / SRC# 2462			EPA ID	CAD980884860
Agency Address: SAME AS ABOVE				
Regional Utility Description: NEWERRIS SITE				
Regional CERCLIS / SRC# 2462			EPA ID	CAD980884860
Agency Address: SAME AS ABOVE				
Regional Utility Description: CALL CITY CONTACT DURING SUMMER '87 TO CHECK ON SAMPLE RESULTS				
Regional CERCLIS / SRC# 2462			EPA ID	CAD980884860
Agency Address: SAME AS ABOVE				
Regional Utility Description: CLOSE OUT WHEN POSSIBLE (G101A)				
SCL - State Equivalent CERCLIS List / SRC# 2825			Agency ID.	19490148
Agency Address: DICE ROAD/LOS NIETOS ROAD DUMP 9165 DICE ROAD SANTA FE SPRINGS, CA 90670				
Facility Type: NOT AVAILABLE				
Lead Agency: NOT AVAILABLE				
State Status: NO FURTHER ACTION FOR DTSC				
Pollutant 1: DRILLING MUD/CHEMICALS				
Pollutant 2: OTHER ORGANIC SOLIDS				
Pollutant 3: UNSPECIFIED OIL CONTAINING WASTE				
Fields Not Reported: Status				

VISTA Address*	MCKESSON CHEMICAL COMPANY 9005 SORENSEN AVENUE SANTA FE SPRINGS, CA 90670	VISTA ID#	1188537
		Distance/Direction	0.26 MI / SE
		Plotted as	Point
SPL - State Equivalent Priority List / SRC# 2826		Agency ID	19280440
Agency Address: SAME AS ABOVE			
Status: NON-NPL SITE			
Facility Type: NOT AVAILABLE			
Lead Agency: DEPT OF TOXIC SUBSTANCES CONTROL			
State Status: ANNUAL WORK PLAN			
Pollutant 1: TETRAETHYL LEAD SLUDGE			
Pollutant 2: UNSPECIFIED SOLVENT MIXTURES			
Pollutant 3: HYDROCARBON SOLVENTS			

Map ID

19

DICE 00232



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SITES IN THE SURROUNDING AREA (within 1/4 - 1/2 mile) CONT.

STATE LUST - State Leaking Underground Storage Tank / SRC# 3056	Agency ID:	R-02130
Agency Address:	MCKESSON CHEMICAL COMPANY 9005 SORENSEN AVENUE SANTA FE SPRI, CA 90670	
Tank Status:	NOT AVAILABLE	
Media Affected:	UNKNOWN	
Leak Cause:	UNAVAILABLE	
Remedial Action:	NOT AVAILABLE	
Remedial Status 1:	LEAK BEING CONFIRMED	
Remedial Status 2:	NOT AVAILABLE	
Fields Not Reported:	Discovery Date, Substance, Quantity (Units), Leak Source	

Regional LUST - Regional Leaking Underground Storage Tank / SRC# 3104	Agency ID	R-02130
Agency Address:	MCKESSON CHEMICAL COMPANY 9005 SORENSON AVE S SANTA FE SPRINGS, CA 90670	
Tank Status:	NOT AVAILABLE	
Discovery Date:	DECEMBER 11, 1995	
Media Affected:	UNKNOWN	
Leak Cause:	UNAVAILABLE	
Remedial Action:	NOT AVAILABLE	
Remedial Status 1:	LEAK BEING CONFIRMED	
Remedial Status 2:	NOT AVAILABLE	
Fields Not Reported:	Substance, Quantity (Units), Leak Source	

CORTESE / SRC# 2298	EPA/Agency ID	N/A
Agency Address:	MCKESSON CHEMICAL COMPANY 9005 SORENSEN AVE SANTA FE SPRINGS, CA 906700000	
List Name:	CALSITE	
Site ID:	INV-ID19-029592	

VISTA Address*	FOREMOST MCKESSON INC 9005 SORENSEN AVE SANTA FE SPRINGS, CA 90670	VISTA ID#	156385
		Distance/Direction	0.26 MI / SE
		Plotted as:	Point

Map ID
19

CERCLIS / SRC# 2977	EPA ID	CAD060395753		
Agency Address:	SAME AS ABOVE			
NPL Status:	NOT A PROPOSED, CURRENT, OR DELETED NPL SITE			
Site Ownership:	UNKNOWN			
Lead Agency:	NO DETERMINATION			
Site Description:	NOT REPORTED			
Event Type:	Lead Agency:	Event Status:	Start Date:	Completion Date:
DISCOVERY	EPA FUND-FINANCED	UNKNOWN	NOT REPORTED	AUGUST 1, 1980
PRELIMINARY ASSESSMENT	STATE, FUND FINANCED	UNKNOWN	MAY 1, 1984	AUGUST 1, 1984
SCREENING SITE INSPECTION	EPA FUND-FINANCED	UNKNOWN	NOT REPORTED	SEPTEMBER 1, 1986
SCREENING SITE INSPECTION	EPA FUND-FINANCED	UNKNOWN	NOT REPORTED	SEPTEMBER 10, 1990

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SITES IN THE SURROUNDING AREA (within 1/4 - 1/2 mile) CONT.

Event Type:	Lead Agency:	Event Status:	Start Date:	Completion Date:
SCREENING SITE INSPECTION	EPA FUND-FINANCED	NO FURTHER REMEDIAL ACTION PLANNED	NOT REPORTED	OCTOBER 11, 1991
Regional CERCLIS / SRC# 2462			EPA ID:	CAD060395753
Agency Address:		SAME AS ABOVE		
Regional Utility Description:				
OTHER CORROSIVE AND IGNITABLE WASTES				
Regional CERCLIS / SRC# 2462			EPA ID:	CAD060395753
Agency Address:		SAME AS ABOVE		
Regional Utility Description:				
TANKS				
Regional CERCLIS / SRC# 2462			EPA ID:	CAD060395753
Agency Address:		SAME AS ABOVE		
Regional Utility Description:				
ACIDS				
Regional CERCLIS / SRC# 2462			EPA ID:	CAD060395753
Agency Address:		SAME AS ABOVE		
Regional Utility Description:				
SOLVENTS				
Regional CERCLIS / SRC# 2462			EPA ID:	CAD060395753
Agency Address:		SAME AS ABOVE		
Regional Utility Description:				
HAZARD TARGET GROUNDWATER POTENTIAL				
Regional CERCLIS / SRC# 2462			EPA ID:	CAD060395753
Agency Address:		SAME AS ABOVE		
Regional Utility Description:				
DRUMS, ABOVE GROUND				
Regional CERCLIS / SRC# 2462			EPA ID:	CAD060395753
Agency Address:		SAME AS ABOVE		
Regional Utility Description:				
RCRA REGULATED GENERATOR, TRANSPORTER (NON HANDLER) SEE NOTIFIC				
Regional CERCLIS / SRC# 2462			EPA ID:	CAD060395753
Agency Address:		SAME AS ABOVE		
Regional Utility Description:				
ATIONFILE				
Regional CERCLIS / SRC# 2462			EPA ID:	CAD060395753
Agency Address:		SAME AS ABOVE		
Regional Utility Description:				
NOTIS 103(C) SITE				

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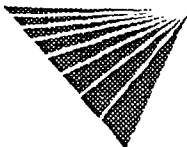
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SITES IN THE SURROUNDING AREA (within 1/4 - 1/2 mile) CONT.

CORRACTS / SRC# 3057	EPA ID.	CAD060395753
Agency Address:	FOREMOST MCKESSON INC CHEM DIV 9005 SORENSON AVE SANTA FE SPRINGS, CA 90670	
Prioritization Status:	MEDIUM	
RCRA Facility Assessment Completed:	YES	
Notice of Contamination:	NO	
Determination of need For a RFI (RCRA Facility Investigation):	NO	
RFI Imposed:	YES	
RFI Workplan Notice of Deficiency Issued:	NO	
RFI Workplan Approved:	NO	
RFI Report Received:	NO	
RFI Approved:	YES	
No Further Corrective Action at this Time:	NO	
Stabilization Mesaures Evaluation:	YES	
CMS (Corrective Measure Study) Imposition:	YES	
CMS Workplan Approved:	NO	
CMS Report Received:	NO	
CMS Approved:	YES	
Date for Remedy Selection (CM Imposed):	YES	
Corrective Measures Design Approved:	YES	
Corrective Measures Investigation Workplan Approved:	YES	
Certification of Remedy Completion:	NO	
Stabilization Measures Implementation:	YES	
Stabilization Measures Completed:	YES	
Corrective Action Process Termination:	NO	
RCRA-TSD / SRC# 3057	EPA ID	CAD060395753
Agency Address:	FOREMOST MCKESSON INC CHEM DIV 9005 SORENSON AVE SANTA FE SPRINGS, CA 90670	
Off-Site Waste Received:	NO	
Land Disposal:	NO	
Incinerator:	NO	
Storage/Treatment:	NO	

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SITES IN THE SURROUNDING AREA (within 1/4 - 1/2 mile) CONT.

VISTA Address*	PETERSON/PURITAN INC 9101 S SORENSEN AVE SANTA FE SPRINGS, CA 90670	VISTA ID#:	327119
		Distance/Direction:	0.31 MI / SE
		Plotted as:	Point
STATE LUST - State Leaking Underground Storage Tank / SRC# 3056		Agency ID:	906700016C
Agency Address:		PETERSON/PURITAN INC 9101 S SORENSEN AVE SANTA FE SPRING, CA 90670	
Tank Status:		NOT AVAILABLE	
Media Affected:		SOIL/SAND/LAND	
Substance:		SOLVENTS	
Leak Cause:		UNAVAILABLE	
Remedial Action:		NOT AVAILABLE	
Remedial Status 1:		CASE CLOSED/CLEANUP COMPLETE	
Remedial Status 2:		NOT AVAILABLE	
Fields Not Reported:		Discovery Date, Quantity (Units), Leak Source	
Regional LUST - Regional Leaking Underground Storage Tank / SRC# 3104		Agency ID	906700016
Agency Address:		PETERSON/PURITAN INC 9101 SORENSEN AVE S SANTA FE SPRINGS, CA 90670	
Tank Status:		NOT AVAILABLE	
Discovery Date:		FEBRUARY 20, 1985	
Media Affected:		SOIL/SAND/LAND	
Substance:		SOLVENTS	
Leak Cause:		UNAVAILABLE	
Remedial Action:		NOT AVAILABLE	
Remedial Status 1:		CASE CLOSED/CLEANUP COMPLETE	
Remedial Status 2:		NOT AVAILABLE	
Fields Not Reported:		Quantity (Units), Leak Source	
VISTA Address*	SHELL STATION NO 204-8458-1600 11515 E SLAUSON WHITTIER, CA 90604	VISTA ID#:	377479
		Distance/Direction:	0.27 MI / NW
		Plotted as:	Point
STATE LUST - State Leaking Underground Storage Tank / SRC# 3056		Agency ID	I-05612
Agency Address:		SAME AS ABOVE	
Tank Status:		NOT AVAILABLE	
Media Affected:		GROUNDWATER	
Substance:		GASOLINE (UNSPECIFIED)	
Leak Cause:		UNAVAILABLE	
Remedial Action:		EXCAVATE DISPOSE	
Remedial Status 1:		MONITORING	
Remedial Status 2:		NOT AVAILABLE	
Fields Not Reported:		Discovery Date, Quantity (Units), Leak Source	

Map ID
19

Map ID
20

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SITES IN THE SURROUNDING AREA (within 1/4 - 1/2 mile) CONT.

Regional LUST - Regional Leaking Underground Storage Tank / SRC# 3104	Agency ID.	I-05612
Agency Address:	SHELL #204-8454-1600 11515 SLAUSON AVE E WHITTIER, CA 90606	
Tank Status:	NOT AVAILABLE	
Discovery Date:	APRIL 1, 1993	
Media Affected:	GROUNDWATER	
Substance:	GASOLINE (UNSPECIFIED)	
Leak Cause:	UNAVAILABLE	
Remedial Action:	NOT AVAILABLE	
Remedial Status 1:	MONITORING	
Remedial Status 2:	NOT AVAILABLE	
Fields Not Reported:	Quantity (Units), Leak Source	

CORTESE / SRC# 2298	EPA/Agency ID	N/A
Agency Address:	SHELL # 11515 SLAUSON WHITTIER, CA 90604	
List Name:	LEAKING TANK	
Site ID:	INV-ID19-002048	

VISTA Address*	CIRCLE K CORPORATION	VISTA ID#.	2749552
	11462 SLAUSON AVENUE E.	Distance/Direction	0.32 MI / NW
	SANTA FE SPRINGS, CA 90670	Plotted as:	Point

Map ID
20

STATE LUST - State Leaking Underground Storage Tank / SRC# 3056	Agency ID	000312
Agency Address:	SAME AS ABOVE	
Tank Status:	NOT AVAILABLE	
Media Affected:	UNKNOWN	
Substance:	GASOLINE (UNSPECIFIED)	
Leak Cause:	UNAVAILABLE	
Remedial Action:	NOT AVAILABLE	
Remedial Status 1:	NO ACTION TAKEN BY RESPONSIBLE PARTY	
Remedial Status 2:	NOT AVAILABLE	
Fields Not Reported:	Discovery Date, Quantity (Units), Leak Source	

Regional LUST - Regional Leaking Underground Storage Tank / SRC# 3104	Agency ID.	000312
Agency Address:	CIRCLE K 11462 SLAUSON AVE E SANTA FE SPRINGS, CA 90670	
Tank Status:	NOT AVAILABLE	
Discovery Date:	JUNE 24, 1986	
Media Affected:	UNKNOWN	
Substance:	GASOLINE (UNSPECIFIED)	
Leak Cause:	UNAVAILABLE	
Remedial Action:	NOT AVAILABLE	
Remedial Status 1:	NO ACTION TAKEN BY RESPONSIBLE PARTY	
Remedial Status 2:	NOT AVAILABLE	
Fields Not Reported:	Quantity (Units), Leak Source	

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SITES IN THE SURROUNDING AREA (within 1/4 - 1/2 mile) CONT.

VISTA Address*:	CALAVAR CORP 9200 SORENSEN AVE SANTA FE SPRINGS, CA 90670	VISTA ID#:	65745
		Distance/Direction:	0.36 MI / SE
		Plotted as:	Point
STATE LUST - State Leaking Underground Storage Tank / SRC#	3056	Agency ID:	I-06744
Agency Address:	CALAVAR CORP 9200 SORENSEN AVE SANTA FE SPRI, CA 90670		
Tank Status:	NOT AVAILABLE		
Media Affected:	SOIL/SAND/LAND		
Substance:	GASOLINE (UNSPECIFIED)		
Leak Cause:	UNAVAILABLE		
Remedial Action:	NOT AVAILABLE		
Remedial Status 1:	PRELIMINARY ASSESSMENT		
Remedial Status 2:	NOT AVAILABLE		
Fields Not Reported:	Discovery Date, Quantity (Units), Leak Source		
Regional LUST - Regional Leaking Underground Storage Tank / SRC#	3104	Agency ID:	I-06744
Agency Address:	CALAVAR CORP. 9200 SORENSEN AVE S SANTA FE SPRINGS, CA 90670		
Tank Status:	NOT AVAILABLE		
Discovery Date:	APRIL 29, 1992		
Media Affected:	SOIL/SAND/LAND		
Substance:	GASOLINE (UNSPECIFIED)		
Leak Cause:	UNAVAILABLE		
Remedial Action:	NOT AVAILABLE		
Remedial Status 1:	PRELIMINARY ASSESSMENT		
Remedial Status 2:	NOT AVAILABLE		
Fields Not Reported:	Quantity (Units), Leak Source		
CORTESE / SRC#	2298	EPA/Agency ID	N/A
Agency Address:	CALAVAR CORP. 9200 SORENSEN AVE S SANTA FE SPRINGS, CA 90670		
List Name:	LEAKING TANK		
Site ID:	INV-ID19-003566		
VISTA Address*:	TUBE SERVICE COMPANY 9351 SO. NORWALK BLVD. SANTA FE SPRINGS, CA 90670	VISTA ID#:	1237432
		Distance/Direction:	0.38 MI / SW
		Plotted as:	Point
STATE LUST - State Leaking Underground Storage Tank / SRC#	3056	Agency ID	I-10296
Agency Address:	TUBE SERVICE COMPANY 9351 SO NORWALK BLVD SANTA FE SPRI, CA 90670		
Tank Status:	NOT AVAILABLE		
Media Affected:	SOIL/SAND/LAND		
Substance:	GASOLINE (UNSPECIFIED)		
Leak Cause:	UNAVAILABLE		
Remedial Action:	NO ACTION TAKEN		
Remedial Status 1:	NO ACTION TAKEN BY RESPONSIBLE PARTY		
Remedial Status 2:	NOT AVAILABLE		
Fields Not Reported:	Discovery Date, Quantity (Units), Leak Source		

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Map ID
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SITES IN THE SURROUNDING AREA (within 1/4 - 1/2 mile) CONT.

Regional LUST - Regional Leaking Underground Storage Tank / SRC# 3104	Agency ID	I-10296
Agency Address:	TUBE SERVICE COMPANY 9351 NORWALK BLVD S SANTA FE SPRINGS, CA 90670	
Tank Status:	NOT AVAILABLE	
Discovery Date:	FEBRUARY 2, 1995	
Media Affected:	SOIL/SAND/LAND	
Substance:	GASOLINE (UNSPECIFIED)	
Leak Cause:	UNAVAILABLE	
Remedial Action:	NOT AVAILABLE	
Remedial Status 1:	CASE CLOSED/CLEANUP COMPLETE	
Remedial Status 2:	NOT AVAILABLE	
Fields Not Reported:	Quantity (Units), Leak Source	

VISTA Address*	FINE LINE PAINT CORP 12200 LOS NIETOS RD SANTA FE SPRINGS, CA 90670	VISTA ID#:	151703
		Distance/Direction	0.42 MI / S
		Plotted as:	Point

Map ID

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CERCLIS / SRC# 2977	EPA ID	CAD008263048		
Agency Address:	SAME AS ABOVE			
NPL Status:	NOT A PROPOSED, CURRENT, OR DELETED NPL SITE			
Site Ownership:	UNKNOWN			
Lead Agency:	NO DETERMINATION			
Site Description:	NOT REPORTED			
Event Type:	Lead Agency:	Event Status:	Start Date:	Completion Date:
DISCOVERY	STATE, FUND FINANCED	UNKNOWN	NOT REPORTED	JULY 1, 1986
PRELIMINARY ASSESSMENT	STATE, FUND FINANCED	UNKNOWN	JULY 1, 1986	JANUARY 1, 1987
SCREENING SITE INSPECTION	EPA FUND-FINANCED	NO FURTHER REMEDIAL ACTION PLANNED	NOT REPORTED	JULY 1, 1988

Regional CERCLIS / SRC# 2462	EPA ID	CAD008263048
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Agency Address: SAME AS ABOVE

Regional Utility Description:
CALIFORNIA 3012 SITE

Regional CERCLIS / SRC# 2462	EPA ID	CAD008263048
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Agency Address: SAME AS ABOVE

Regional Utility Description:
RCRA REGULATED GEN

Regional CERCLIS / SRC# 2462	EPA ID	CAD008263048
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Agency Address: SAME AS ABOVE

Regional Utility Description:
DRUMS, ABOVE GROUND

Regional CERCLIS / SRC# 2462	EPA ID	CAD008263048
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Agency Address: SAME AS ABOVE

Regional Utility Description:
UNDERGROUND TANK- SOLVENTS 3 EA

Regional CERCLIS / SRC# 2462	EPA ID	CAD008263048
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Agency Address: SAME AS ABOVE

Regional Utility Description:
UNDERGROUND TANKS- OTHER 2 EA, RAW MATERIALS STORAGE

Regional CERCLIS / SRC# 2462	EPA ID	CAD008263048
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Agency Address: SAME AS ABOVE

Regional Utility Description:
IMPOUNDMENTS SUMP

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SITES IN THE SURROUNDING AREA (within 1/4 - 1/2 mile) CONT.

Regional CERCLIS / SRC# 2462	EPA ID	CAD008263048
Agency Address: SAME AS ABOVE		
Regional Utility Description: SOLVENTS		
Regional CERCLIS / SRC# 2462	EPA ID	CAD008263048
Agency Address: SAME AS ABOVE		
Regional Utility Description: ORGANICS WASH THINNER PAINT SLUDGE		
Regional CERCLIS / SRC# 2462	EPA ID	CAD008263048
Agency Address: SAME AS ABOVE		
Regional Utility Description: NEW CERCLIS SITE		
Regional CERCLIS / SRC# 2462	EPA ID	CAD008263048
Agency Address: SAME AS ABOVE		
Regional Utility Description: SOIL CONTAMINATION WASTEWATER DISCHARGE ALONG RAILROAD TRACKS-		
Regional CERCLIS / SRC# 2462	EPA ID	CAD008263048
Agency Address: SAME AS ABOVE		
Regional Utility Description: CONTAINING THANIUM		
Regional CERCLIS / SRC# 2462	EPA ID	CAD008263048
Agency Address: SAME AS ABOVE		
Regional Utility Description: SOIL CONTAMINATION (CONTINUED) WASTEWATER CONTAIN-ING CHROMIUM,		
Regional CERCLIS / SRC# 2462	EPA ID	CAD008263048
Agency Address: SAME AS ABOVE		
Regional Utility Description: CADMIUM, LEAD, MERCURY		
SCL - State Equivalent CERCLIS List / SRC# 2825	Agency ID	19280908
Agency Address: FINE LINE PAINT CORPORATION 12200 LOS NIETOS ROAD SANTA FE SPRINGS, CA 90670		
Facility Type: NOT AVAILABLE		
Lead Agency: NOT AVAILABLE		
State Status: REFERRED TO ANOTHER AGENCY		
Pollutant 1: LEAD		
Pollutant 2: CHROMIUM (VI)		
Pollutant 3: CONTAMINATED SOIL		
Fields Not Reported: Status		
STATE LUST - State Leaking Underground Storage Tank / SRC# 3056	Agency ID	I-07632
Agency Address: SAME AS ABOVE		
Tank Status: NOT AVAILABLE		
Media Affected: GROUNDWATER		
Substance: GASOLINE (UNSPECIFIED)		
Leak Cause: UNAVAILABLE		
Remedial Action: NOT AVAILABLE		
Remedial Status 1: CASE CLOSED/CLEANUP COMPLETE		
Remedial Status 2: NOT AVAILABLE		
Fields Not Reported: Discovery Date, Quantiy (Units), Leak Source		

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SITES IN THE SURROUNDING AREA (within 1/4 - 1/2 mile) CONT.

Regional LUST - Regional Leaking Underground Storage Tank / SRC# 3104		Agency ID	I-07632
Agency Address:	FINELINE PAINT CORP. 12200 LOS NIETOS RD E SANTA FE SPRINGS, CA 90670		
Tank Status:	NOT AVAILABLE		
Discovery Date:	FEBRUARY 25, 1992		
Media Affected:	GROUNDWATER		
Substance:	GASOLINE (UNSPECIFIED)		
Leak Cause:	UNAVAILABLE		
Remedial Action:	NOT AVAILABLE		
Remedial Status 1:	CASE CLOSED/CLEANUP COMPLETE		
Remedial Status 2:	NOT AVAILABLE		
Fields Not Reported:	Quantity (Units), Leak Source		

CORTESE / SRC# 2298		EPA/Agency ID.	N/A
Agency Address:	FINELINE PAINT CORP. 12200 LOS NIETOS RD E. SANTA FE SPRINGS, CA 90670		
List Name:	LEAKING TANK		
Site ID:	INV-ID19-003468		

VISTA Address*:	CALIFORNIA CORRUGATED	VISTA ID#:	4032431
	11600 LOS NIETOS	Distance/Direction:	0 43 MI / W
	SANTA FE SPRINGS, CA 90670	Plotted as:	Point

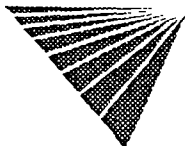
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24

STATE LUST - State Leaking Underground Storage Tank / SRC# 3056		Agency ID	I-03283
Agency Address:	CALIFORNIA CORRUGATED 11600 E LOS NIETOS SANTA FE SPRINGS, CA 90670		
Tank Status:	NOT AVAILABLE		
Media Affected:	SOIL/SAND/LAND		
Substance:	HYDROCARBONS		
Leak Cause:	UNAVAILABLE		
Remedial Action:	OTHER		
Remedial Status 1:	LEAK BEING CONFIRMED		
Remedial Status 2:	NOT AVAILABLE		
Fields Not Reported:	Discovery Date, Quantity (Units), Leak Source		

Regional LUST - Regional Leaking Underground Storage Tank / SRC# 3104		Agency ID	I-03283
Agency Address:	CALIFORNIA CORRUGATED INC 11600 LOS NIETOS RD E SANTA FE SPRINGS, CA 90670		
Tank Status:	NOT AVAILABLE		
Discovery Date:	JUNE 17, 1993		
Media Affected:	SOIL/SAND/LAND		
Substance:	HYDROCARBONS		
Leak Cause:	UNAVAILABLE		
Remedial Action:	NOT AVAILABLE		
Remedial Status 1:	LEAK BEING CONFIRMED		
Remedial Status 2:	NOT AVAILABLE		
Fields Not Reported:	Quantity (Units), Leak Source		

CORTESE / SRC# 2298		EPA/Agency ID	N/A
Agency Address:	CALIFORNIA CORRUGATED INC. 11600 LOS NIETOS RD E SANTA FE SPRINGS, CA 90670		
List Name:	LEAKING TANK		
Site ID:	INV-ID19-003907		

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SITES IN THE SURROUNDING AREA (within 1/4 - 1/2 mile) CONT.

VISTA Address*:	CAL-TRON PLATING, INC 11919 EAST RIVERA ROAD SANTA FE SPRINGS, CA 90670	VISTA ID#:	66594
		Distance/Direction:	0.46 MI / NE
		Plotted as:	Point
SCL - State Equivalent CERCLIS List / SRC# 2825		Agency ID:	19340340
Agency Address:	SAME AS ABOVE		
Facility Type:	NOT AVAILABLE		
Lead Agency:	NOT AVAILABLE		
State Status:	REFERRED TO ANOTHER AGENCY		
Pollutant 1:	UNKNOWN		
Pollutant 2:	UNKNOWN		
Pollutant 3:	UNKNOWN		
Fields Not Reported:	Status		

Map ID

25

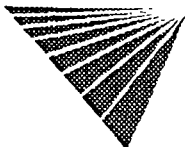
VISTA Address*:	U.S. GYPSUM COMPANY 9306 SORENSEN SANTA FE SPRINGS, CA 90670	VISTA ID#:	1158976
		Distance/Direction:	0.47 MI / SE
		Plotted as:	Point
STATE LUST - State Leaking Underground Storage Tank / SRC# 3056		Agency ID	I-006134-
Agency Address:	U.S. GYPSUM COMPANY 9306 SORENSEN SANTA FE SPRINGS, CA 90670		
Tank Status:	NOT AVAILABLE		
Media Affected:	UNKNOWN		
Substance:	DIESEL		
Leak Cause:	UNAVAILABLE		
Remedial Action:	NOT AVAILABLE		
Remedial Status 1:	CASE CLOSED/CLEANUP COMPLETE		
Remedial Status 2:	NOT AVAILABLE		
Fields Not Reported:	Discovery Date, Quantity (Units), Leak Source		

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Regional LUST - Regional Leaking Underground Storage Tank / SRC# 3104		Agency ID	I-06134
Agency Address:	US GYPSUM CO 9306 SORENSEN AVE SANTA FE SPRINGS, CA 90670		
Tank Status:	NOT AVAILABLE		
Discovery Date:	FEBRUARY 9, 1990		
Media Affected:	UNKNOWN		
Substance:	DIESEL		
Leak Cause:	UNAVAILABLE		
Remedial Action:	NOT AVAILABLE		
Remedial Status 1:	CASE CLOSED/CLEANUP COMPLETE		
Remedial Status 2:	NOT AVAILABLE		
Fields Not Reported:	Quantity (Units), Leak Source		

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SITES IN THE SURROUNDING AREA (within 1/4 - 1/2 mile) CONT.

VISTA Address*:	VALVOLINE OIL CO 9520 JOHN ST SANTA FE SPRINGS, CA 90670	VISTA ID#:	450897
		Distance/Direction:	0.47 MI / SE
		Plotted as:	Point

Map ID

27

STATE LUST - State Leaking Underground Storage Tank / SRC# 3056	Agency ID:	I-03240
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Agency Address: VALVOLINE OIL COMPANY
9520 JOHN ST
SANTA FE SPRI, CA 90670

Tank Status: NOT AVAILABLE

Media Affected: GROUNDWATER

Substance: DIESEL

Leak Cause: UNAVAILABLE

Remedial Action: EXCAVATE DISPOSE

Remedial Status 1: REM ACTION TAKEN

Remedial Status 2: NOT AVAILABLE

Fields Not Reported: Discovery Date, Quantity (Units), Leak Source

Regional LUST - Regional Leaking Underground Storage Tank / SRC# 3104	Agency ID	I-03240
---	-----------	---------

Agency Address: VALVOLINE OIL COMPANY
9520 JOHN ST S
SANTA FE SPRINGS, CA 90670

Tank Status: NOT AVAILABLE

Discovery Date: FEBRUARY 1, 1988

Media Affected: GROUNDWATER

Substance: DIESEL

Leak Cause: UNAVAILABLE

Remedial Action: NOT AVAILABLE

Remedial Status 1: REM ACTION PLAN

Remedial Status 2: NOT AVAILABLE

Fields Not Reported: Quantity (Units), Leak Source

VISTA Address*:	WHITTIER PLATTING CO INC 11642 E PIKE ST SANTA FE SPRINGS, CA 90670	VISTA ID#:	468915
		Distance/Direction:	0.47 MI / SW
		Plotted as:	Point

Map ID

28

CERCLIS / SRC# 2977	EPA ID	CAD008495129
---------------------	--------	--------------

Agency Address: SAME AS ABOVE

NPL Status: NOT A PROPOSED, CURRENT, OR DELETED NPL SITE

Site Ownership: PRIVATE/NON-GOVERNMENTAL

Lead Agency: NOT AVAILABLE

Site Description: NOT REPORTED

Event Type:	Lead Agency:	Event Status:	Start Date:	Completion Date:
DISCOVERY	EPA FUND-FINANCED	UNKNOWN	NOT REPORTED	JANUARY 1, 1991
PRELIMINARY ASSESSMENT	EPA FUND-FINANCED	DEFERRED TO RCRA (SUBTITLE C) OR NRC	NOT REPORTED	AUGUST 9, 1991

DICE 00243



* VISTA address includes enhanced city and ZIP.

For more information call VISTA Information Solutions, Inc at 1 - 800 - 767 - 0403.

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SITES IN THE SURROUNDING AREA (within 1/4 - 1/2 mile) CONT.

CORRACTS / SRC# 3057	EPA ID	CAD008495129
Agency Address:	WHITTIER PLATING CO ,INC 11642 E PIKE ST SANTA FE SPRINGS, CA 90670	
Prioritization Status:	LOW	
RCRA Facility Assessment Completed:	NO	
Notice of Contamination:	NO	
Determination of need For a RFI (RCRA Facility Investigation):	NO	
RFI Imposed:	NO	
RFI Workplan Notice of Deficiency Issued:	NO	
RFI Workplan Approved:	NO	
RFI Report Received:	NO	
RFI Approved:	NO	
No Further Corrective Action at this Time:	NO	
Stabilization Mesasures Evaluation:	NO	
CMS (Corrective Measure Study) Imposition:	NO	
CMS Workplan Approved:	NO	
CMS Report Received:	NO	
CMS Approved:	NO	
Date for Remedy Selection (CM Imposed):	NO	
Corrective Measures Design Approved:	NO	
Corrective Measures Investigation Workplan Approved:	NO	
Certification of Remedy Completion:	NO	
Stabilization Measures Implementation:	NO	
Stabilization Measures Completed:	NO	
Corrective Action Process Termination:	NO	

VISTA Address*	MCKESSON CHEM CO 11600 PIKE ST SANTA FE SPRINGS, CA 90670	VISTA ID#:	264990
		Distance/Direction	0.48 MI / SW
		Plotted as	Point

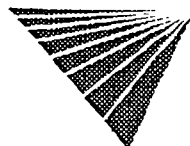
Map ID

28

CERCLIS / SRC# 2977	EPA ID	CAD000633313		
Agency Address:	SAME AS ABOVE			
NPL Status:	NOT A PROPOSED, CURRENT, OR DELETED NPL SITE			
Site Ownership:	UNKNOWN			
Lead Agency:	NOT AVAILABLE			
Site Description:	NOT REPORTED			
Event Type:	Lead Agency:	Event Status:	Start Date:	Completion Date:
DISCOVERY	EPA FUND-FINANCED	UNKNOWN	NOT REPORTED	AUGUST 1, 1980
PRELIMINARY ASSESSMENT	STATE, FUND FINANCED	NO FURTHER REMEDIAL ACTION PLANNED	MARCH 1, 1984	MAY 1, 1985

Regional CERCLIS / SRC# 2462	EPA ID	CAD000633313
Agency Address:	SAME AS ABOVE	
Regional Utility Description:	NOTIS SITE	

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* VISTA address includes enhanced city and ZIP.

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SITES IN THE SURROUNDING AREA (within 1/4 - 1/2 mile) CONT.

Regional CERCLIS / SRC# 2462	EPA ID:	CAD000633313
Agency Address: SAME AS ABOVE		
Regional Utility Description: RCRA REGULATED GENERATOR SEE NOTIFICATION FILE		
Regional CERCLIS / SRC# 2462	EPA ID:	CAD000633313
Agency Address: SAME AS ABOVE		
Regional Utility Description: OTHER NON-LISTED CORROSIVE TOXIC WASTE, SODIUM HYDROCHLORIDE		
Regional CERCLIS / SRC# 2462	EPA ID:	CAD000633313
Agency Address: SAME AS ABOVE		
Regional Utility Description: OTHER TANKS, DRUMS (ABOVE OR BELOW GROUND UNKNOWN)		
Regional CERCLIS / SRC# 2462	EPA ID:	CAD000633313
Agency Address: SAME AS ABOVE		
Regional Utility Description: OTHER MFG DISTRIBUTE ORGANIC INORGANIC MATERIALS		

VISTA Address*	ALLPURE CHEMICAL COMPANY 11600 PIKE STREET SANTA FE SPRINGS, CA 90670	VISTA ID#: 493950	Map ID 28
		Distance/Direction: 0.48 MI / SW	
		Plotted as: Point	
SCL - State Equivalent CERCLIS List / SRC# 2825		Agency ID: 19281186	
Agency Address: SAME AS ABOVE			
Facility Type: NOT AVAILABLE			
Lead Agency: NOT AVAILABLE			
State Status: REFERRED TO ANOTHER AGENCY			
Pollutant 1: UNKNOWN			
Pollutant 2: UNKNOWN			
Pollutant 3: UNKNOWN			
Fields Not Reported: Status			

VISTA Address*	SOUTHERN STEEL SUPPLY CO. 12350 LOS NIETOS ROAD SANTA FE SPRINGS, CA 90670	VISTA ID#: 1245694	Map ID 29
		Distance/Direction: 0.48 MI / S	
		Plotted as: Point	
STATE LUST - State Leaking Underground Storage Tank / SRC# 3056		Agency ID: 012789-02	
Agency Address: SOUTHERN STEEL SUPPLY CO 12350 LOS NIETOS ROAD SANTA FE SPRING, CA 90670			
Tank Status: NOT AVAILABLE			
Media Affected: SOIL/SAND/LAND			
Substance: GASOLINE (UNSPECIFIED)			
Leak Cause: UNAVAILABLE			
Remedial Action: EXCAVATE DISPOSE			
Remedial Status 1: MONITORING			
Remedial Status 2: NOT AVAILABLE			
Fields Not Reported: Discovery Date, Quantity (Units), Leak Source			

DICE 00245



* VISTA address includes enhanced city and ZIP.

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SITES IN THE SURROUNDING AREA (within 1/4 - 1/2 mile) CONT.

Regional LUST - Regional Leaking Underground Storage Tank / SRC# 3104		Agency ID	012789-02
Agency Address:	SOUTHERN STEEL SUPPLY CO, INC 12350 LOS NIETOS RD SANTA FE SPRINGS, CA 90670		
Tank Status:	NOT AVAILABLE		
Discovery Date:	JANUARY 17, 1989		
Media Affected:	SOIL/SAND/LAND		
Substance:	GASOLINE (UNSPECIFIED)		
Leak Cause:	UNAVAILABLE		
Remedial Action:	NOT AVAILABLE		
Remedial Status 1:	MONITORING		
Remedial Status 2:	NOT AVAILABLE		
Fields Not Reported:	Quantity (Units), Leak Source		

CORTESE / SRC# 2298		EPA/Agency ID	N/A
Agency Address:	SOUTHERN STEEL SUPPLY CO INC 12350 LOS NIETOS RD SANTA FE SPRINGS, CA 90670		
List Name:	LEAKING TANK		
Site ID:	INV-ID19-001885		

VISTA Address*	SUR-LITE CORPORATION 8124 ALLPORT AVE. SANTA FE SPRINGS, CA 90670	VISTA ID#	413978
		Distance/Direction	0.49 MI / N
		Plotted as	Point

Map ID
30

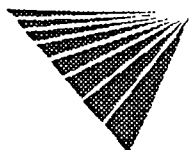
CERCLIS / SRC# 2977		EPA ID	CAD981687114
Agency Address:	SAME AS ABOVE		
NPL Status:	NOT VALID SITE		
Site Ownership:	PRIVATE/NON-GOVERNMENTAL		
Lead Agency:	NO DETERMINATION		
Site Description:	NOT REPORTED		
Event Type:	Lead Agency:	Event Status:	Start Date:
DISCOVERY	EPA FUND-FINANCED	UNKNOWN	NOT REPORTED
			Completion Date: JULY 9, 1991

VISTA Address*	THIEM INDUSTRIES 8311 SORENSEN SANTA FE SPRINGS, CA 90670	VISTA ID#	4043434
		Distance/Direction	0.50 MI / NE
		Plotted as	Point

Map ID
31

STATE LUST - State Leaking Underground Storage Tank / SRC# 3056		Agency ID	R-13299
Agency Address:	THIEM INDUSTRIES 8311 SORENSEN SANTA FE SPRINGS, CA		
Tank Status:	NOT AVAILABLE		
Media Affected:	SOIL/SAND/LAND		
Substance:	GASOLINE (UNSPECIFIED)		
Leak Cause:	UNAVAILABLE		
Remedial Action:	NOT AVAILABLE		
Remedial Status 1:	LEAK BEING CONFIRMED		
Remedial Status 2:	NOT AVAILABLE		
Fields Not Reported:	Discovery Date, Quantity (Units), Leak Source		

DICE 00246



* VISTA address includes enhanced city and ZIP.

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Report ID 113596-001

Date of Report September 3, 1996

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SITES IN THE SURROUNDING AREA (within 1/4 - 1/2 mile) CONT.

Regional LUST - Regional Leaking Underground Storage Tank / SRC# 3104		Agency ID	R-13299
Agency Address:	THIEM INDUSTRIES (FORMER) 8311 SORENSON AVE SANTA FE SPRINGS, CA 90670		
Tank Status:	NOT AVAILABLE		
Discovery Date:	FEBRUARY 28, 1995		
Media Affected:	SOIL/SAND/LAND		
Substance:	GASOLINE (UNSPECIFIED)		
Leak Cause:	UNAVAILABLE		
Remedial Action:	NOT AVAILABLE		
Remedial Status 1:	LEAK BEING CONFIRMED		
Remedial Status 2:	NOT AVAILABLE		
Fields Not Reported:	Quantity (Units), Leak Source		

SITES IN THE SURROUNDING AREA (within 1/2 - 1 mile)

VISTA Address*	WASTE DISPOSAL INC 12731 E LOS NIETOS RD SANTA FE SPRINGS, CA 90670	VISTA ID#	460238	Map ID 32
		Distance	0.53 MI	
		Plotted as:	Polygon	
NPL - National Priority List / SRC# 3064		EPA ID	CAD980884357	
Agency Address:	WASTE DISPOSAL INC 12731 E LOS NIETOS RD SANTA FE SPRING, CA 90670			
NPL Status:	CURRENTLY ON FINAL NPL			
Site Ownership:	PRIVATE/NON-GOVERNMENTAL			
Lead Agency:	NOT AVAILABLE			
Site Description:	THE SITE WAS USED AS AN INDUSTRIAL WASTE LANDFILL FROM THE LATE 1920'S UNTIL THE MID 1960'S			
Event Type:	Lead Agency:	Event Status:	Start Date:	Completion Date:
TECHNICAL ASSISTANCE IN RIFS	EPA FUND-FINANCED	UNKNOWN	NOT REPORTED	NOT REPORTED
MANAGEMENT ASSISTANCE (FEDERAL RENUMERATION)	EPA FUND-FINANCED	UNKNOWN	NOT REPORTED	NOT REPORTED
COMMUNITY RELATIONS PLAN	FEDERAL ENFORCEMENT	UNKNOWN	MARCH 30, 1987	NOT REPORTED
ADMINISTRATIVE RECORD	EPA FUND-FINANCED	ADMIN RECORD COMPILATION / REMOVAL EVENT	AUGUST 12, 1993	NOT REPORTED
DISCOVERY	EPA FUND-FINANCED	UNKNOWN	NOT REPORTED	JANUARY 1, 1985
PRELIMINARY ASSESSMENT	STATE, FUND FINANCED	HIGHER PRIORITY	JANUARY 1, 1985	FEBRUARY 1, 1985
SCREENING SITE INSPECTION	EPA FUND-FINANCED	HIGHER PRIORITY	NOT REPORTED	JULY 1, 1985
HAZARD RANKING SYSTEM SCORE	EPA FUND-FINANCED	UNKNOWN	NOT REPORTED	JULY 1, 1985

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SITES IN THE SURROUNDING AREA (within 1/2 - 1 mile) CONT.

Event Type:	Lead Agency:	Event Status:	Start Date:	Completion Date:
PROPOSED FOR NPL	EPA FUND-FINANCED	UNKNOWN	NOT REPORTED	JUNE 10, 1986
FINAL LISTING ON NPL	EPA FUND-FINANCED	UNKNOWN	NOT REPORTED	JULY 22, 1987
REMOVAL ACTION	EPA FUND-FINANCED	STABILIZATION	MARCH 28, 1988	APRIL 27, 1988
REMOVAL INVESTIGATION AT NPL SITES	EPA FUND-FINANCED	UNKNOWN	JULY 2, 1990	JULY 2, 1990
REMOVAL INVESTIGATION AT NPL SITES	EPA FUND-FINANCED	UNKNOWN	AUGUST 13, 1991	AUGUST 13, 1991
RECORD OF DECISION	EPA FUND-FINANCED	UNKNOWN	NOT REPORTED	DECEMBER 27, 1993
COMBINED R/FS	EPA FUND-FINANCED	UNKNOWN	DECEMBER 22, 1987	DECEMBER 27, 1993

SPL - State Equivalent Priority List / SRC# 2826		Agency ID:	19490194
Agency Address:	WASTE DISPOSAL, INC 12731 EAST LOS NIETOS ROAD SANTA FE SPRINGS, CA 90670 CURRENTLY ON FINAL NPL		
Status:	NOT AVAILABLE		
Facility Type:	EPA FUND-FINANCED		
Lead Agency:	ANNUAL WORK PLAN		
State Status:	HALOGENATED ORGANIC COMPOUNDS		
Pollutant 1:	CONTAMINATED SOIL		
Pollutant 2:	DRILLING MUD/CHEMICALS		
Pollutant 3:			

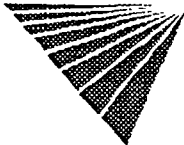
DICE 00248



UNMAPPED SITES

VISTA Address*:	ROSE HILLS WHITTIER, CA	VISTA ID#	5739042
County SWLF - County Solid Waste Landfill / SRC# 2783		Agency ID.	19-AH-5001
Agency Address:	SAME AS ABOVE		
Facility Class:	unknown		
Facility Type:	SANITARY LANDFILL/LANDFILL		
Public Status:	CLOSED		
Solid Waste Status:	INACTIVE/CLOSED		
SWIS Permit Status:	INACTIVE		

DICE 00249



SITE ASSESSMENT PLUS REPORT

DESCRIPTION OF DATABASES SEARCHED

A) DATABASES SEARCHED TO 1 MILE

NPL
SRC#: 3064 VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for NPL was June, 1996.

The National Priorities List (NPL) is the EPA's database of uncontrolled or abandoned hazardous waste sites identified for priority remedial actions under the Superfund program. A site must meet or surpass a predetermined hazard ranking system score, be chosen as a state's top priority site, or meet three specific criteria set jointly by the US Dept of Health and Human Services and the US EPA in order to become an NPL site.

SPL
SRC#: 2826 VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for Calsites Database: Annual Workplan Sites was January, 1996.

This database is provided by the Cal Environmental Protection Agency, Dept of Toxic Substances Control.

CORRACTS
SRC#: 3057 VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for RCRA Corrective Action Sites List was May, 1996.

The EPA maintains this database of RCRA facilities which are undergoing "corrective action". A "corrective action order" is issued pursuant to RCRA Section 3008 (h) when there has been a release of hazardous waste or constituents into the environment from a RCRA facility. Corrective actions may be required beyond the facility's boundary and can be required regardless of when the release occurred, even if it predates RCRA.

RCRA-TSD
SRC#: 3057 VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for RCRIS was May, 1996.

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA TSDs are facilities which treat, store and/or dispose of hazardous waste.

B) DATABASES SEARCHED TO 1/2 MILE

CERCLIS
SRC#: 2976 VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for CERCLIS was March, 1996.

The CERCLIS List contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL. The information on each site includes a history of all pre-remedial, remedial, removal and community relations activities or events at the site, financial funding information for the events, and unrestricted enforcement activities.

DICE 00250



NFRAP
SRC#: 2977 VISTA conducts a database search to identify all sites within 1/2 mile of your property
The agency release date for CERCLIS-NFRAP was March, 1996.

NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly, or the contamination was not serious enough to require Federal Superfund action or NPL consideration.

Cal Cerclis
SRC#: 2462 VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for Ca Cerclis w/Regional Utility Description was June, 1995.

This database is provided by the U S Environmental Protection Agency, Region 9. These are regional utility descriptions for California CERCLIS sites

SCL
SRC#: 2825 VISTA conducts a database search to identify all sites within 1/2 mile of your property
The agency release date for Calsites Database: All Sites except Annual Workplan Sites (incl. ASPIS) was January, 1996.

This database is provided by the Department of Toxic Substances Control.

SWLF
SRC#: 2882 VISTA conducts a database search to identify all sites within 1/2 mile of your property
The agency release date for Ca Solid Waste Information System (SWIS) was March, 1996.

This database is provided by the Integrated Waste Management Board

LAC-Landfills
SRC#: 2783 VISTA conducts a database search to identify all sites within 1/2 mile of your property
The agency release date for Los Angeles County Landfills and Transfer Stations was October, 1995.

This database is provided by the Public Health Investigations, Hazardous Material Control Program

WMUDS
SRC#: 2463 VISTA conducts a database search to identify all sites within 1/2 mile of your property
The agency release date for Waste Management Unit Database System (WMUDS) was June, 1995.

This database is provided by the State Water Resources Control Board This is used for program tracking and inventory of waste management units This system contains information from the following eight main databases Facility, Waste Management Unit, SWAT Program Information, SWAT Report Summary Information, Chapter 15 (formerly Subchapter 15), TPCA Program Information, RCRA Program Information, Closure Information, also some information from the WDS (Waste Discharge System)

LUST
SRC#: 3056 VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for Lust Information System (LUSTIS) was April, 1996.

This database is provided by the California Environmental Protection Agency

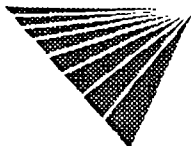
LUST RG4
SRC#: 3104 VISTA conducts a database search to identify all sites within 1/2 mile of your property
The agency release date for Region #4-UST Leak List was July, 1996.

This database is provided by the Regional Water Quality Control Board, Region #4

LUST RG6
SRC#: 3105 VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for Region #6-Leaking Underground Storage Tank Listing was June, 1996.

This database is provided by the Regional Water Quality Control Board, Region #6

DICE 00251



CORTESE VISTA conducts a database search to identify all sites within 1/2 mile of your property
SRC#: 2298 The agency release date for Cortese List-Hazardous Waste Substance Site List was February, 1995.

This database is provided by the Office of Environmental Protection, Office of Hazardous Materials

Deed VISTA conducts a database search to identify all sites within 1/2 mile of your property
Restrictions The agency release date for Deed Restriction Properties Report was April, 1994.
SRC#: 1703

This database is provided by the Department of Health Services-Land Use and Air Assessment These are voluntary deed restriction agreements with owners of property who propose building residences, schools, hospitals, or day care centers on property that is "on or within 2,000 feet of a significant disposal of hazardous waste"

Toxic Pits VISTA conducts a database search to identify all sites within 1/2 mile of your property
SRC#: 2229 The agency release date for Summary of Toxic Pits Cleanup Facilities was February, 1995.

This database is provided by the Water Quality Control Board, Division of Loans Grants

C) DATABASES SEARCHED TO 1/4 MILE

RCRA-Viols/En VISTA conducts a database search to identify all sites within 1/4 mile of your property
SRC#: 3057 The agency release date for RCRIS was May, 1996.

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste RCRA Violators are facilities which have been cited for RCRA Violations at least once since 1980 RCRA Enforcements are enforcement actions taken against RCRA violators

UST's VISTA conducts a database search to identify all sites within 1/4 mile of your property
SRC#: 1612 The agency release date for Underground Storage Tank Registrations Database was January, 1994.

This database is provided by the State Water Resources Control Board, Office of Underground Storage Tanks, Caution-Many states do not require registration of heating oil tanks, especially those used for residential purposes

AST's VISTA conducts a database search to identify all sites within 1/4 mile of your property
SRC#: 2824 The agency release date for Aboveground Storage Tank Database was February, 1996.

This database is provided by the State Water Resources Control Board

LAC-Site Miti. VISTA conducts a database search to identify all sites within 1/4 mile of your property
SRC#: 2683 The agency release date for LA County-Site Mitigation Complaint Control Log was October, 1995.

This database is provided by the Department of Health Services, LA County Public Health Investigations

DICE 00252



Appendix F - Chain-of-Custody

DICE 00253


ESC

No. 008540

CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJECT NAME AND LOCATION.			NO OF CONTAINERS	VOC	PAH						REMARKS
21344	Waters Santa Fe 7-35											
SAMPLERS: (Signature) <i>Bob Beal</i>		PRINT NAME Bob Beal										
SAMPLE IDENTIFICATION				DATE	TIME	MATRIX						
				1996								
TW-1				8-22	1320	water	4	Y	X			Analytical results
TW-2					1530		4	Y	Y			due 8-27-96
TW-3					1770		4	Y	Y			
TW-4					1800		4	Y	Y			
TW-5				8-23			4	X	X			
300	ER	TW-4		8-22	-		3	X				std TAT
201	Dup	TW-5		8-23	-		3	X				std TAT

DICE 00254


Relinquished by (Signature) <i>Bob Beal</i>	Date Time 8-23-96	Received by (Signature)	LAB NAME IEA	ENVIRONMENTAL STRATEGIES CORPORATION 11911 Freedom Drive Reston, Virginia 22090 (703) 709-6500 
Relinquished by (Signature)	Date Time	Received by (Signature)	CITY Cary NC	
Relinquished by (Signature)	Date Time	Received by (Signature)	COURIER Fed Ex	
Relinquished by (Signature)	Date Time	Received by (Signature)	AIRBILL NO 542924823	
Received for Laboratory by (Signature)	PRINT NAME	Date Time	CUSTODY SEAL NOS	
			COOLER NO 26	

ATTENTION LAB SEND ANALYTICAL RESULTS TO THE FOLLOWING ESC STAFF MEMBER *Bob Beal*
John Johnson

No. 008538

CHAIN OF CUSTODY RECORD

PROJECT NO		PROJECT NAME AND LOCATION			NO OF CONTAINERS	VOC	PAH	ZINC				REMARKS	
N/A		Wifeo Santa Fe Springs											
SAMPLERS: (Signature)				PRINT NAME									
[Signature]				Bob Beutner									
SAMPLE IDENTIFICATION				DATE	TIME	MATRIX							
				1996									
NW-1A-6'				8-17	6940	Soil	1	X	X				1st TAT
NE-4-2'					1320				X				
NE-1-6'					1235								
NW-3-6'					0905								
NE-5-1'					1305								
NW-2-8'					1120								
200 dup S-4-1B					-	Water	1						STJ TAT
201 equipment blank NE-5-1'					-	Water	3	X					STJ TAT

Relinquished by (Signature)	Date/Time	Received by (Signature)	LAB NAME	ENVIRONMENTAL STRATEGIES CORPORATI... 11911 Freedom Drive Reston, Virginia 22090 (703) 709-6500
[Signature]	8-15-96		CITY	
Relinquished by (Signature)	Date/Time	Received by (Signature)	COURIER	
			AIRBILL NO	
Received for Laboratory by (Signature)	PRINT NAME	Date Time	CUSTODY SEAL NOS	
			COOLER NO	


ATTENTION LAB SEND ANALYTICAL RESULTS TO THE FOLLOWING ESC STAFF MEMBER. Bob Beutner - John Johnson

DICE 00255

No. 008539

CHAIN OF CUSTODY RECORD

PROJECT NO		PROJECT NAME AND LOCATION			NO OF CONTAINERS							REMARKS			
SAMPLERS: (Signature)		PRINT NAME													
SAMPLE IDENTIFICATION					DATE	TIME	MATRIX								
NE-2-1'					8-14	1310	soil	1	✓	✓					1 wk TAT
S-2-1'A						1531									
S-2-1'D						1520									
S-2-1'C						1510									
S-1-8'						1645									
S-4-1'A						1415									
S-2-1'B						1500									
S-3-1'						1434									
NW-5-1'						1350									
S-4-1'B						1410									
NW-1B-6'						1455									
NW-4-3						1020									
NE-3-1'					✓	1358	✓	✓	✓	✓					✓

Relinquished by (Signature)	Date/Time	Received by (Signature)	LAB NAME	ENVIRONMENTAL STRATEGIES CORPORA. 11911 Freedom Drive Reston, Virginia 22090 (703) 709-6500 
<i>Bob Berkowski</i>	8-15-91		IEA	
Relinquished by (Signature)	Date Time	Received by (Signature)	CITY	
			Carly NC.	
Received for Laboratory by (Signature)	PRINT NAME	Date Time	COURIER	
			Fed ex	
			AIRBILL NO	
			1179282053	
			CUSTODY SEAL NOS	
			COOLER NO	
			88115	

ATTENTION LAB SEND ANALYTICAL RESULTS TO THE FOLLOWING ESC STAFF MEMBER *D.L. H. +*

CA MA PA MN

DISTRIBUTION ORIGINAL ACCOMPANIES SHIPMENT COPY TO ESC FILES

Appendix G - Boring Logs, Well Construction Details, and Permits

DICE 00257

ESC

BORING LOG Environmental Strategies Corporation 101 Metro Drive, Suite 650 San Jose, CA 95110	PROJECT Witco Santa Fe Springs	Borehole No. <u>TW-3</u> Sheet <u>1</u> of <u>3</u> Date Drilled <u>8-22-96</u>	Approved by:
	Drilling Co. <u>West Hazmat</u> Driller <u>Tracy</u> ESC Geologist <u>Bob Bealkowski</u>	Boring Location <u>NE property downgradient</u> Ground Elevation _____ TOC Elevation _____	Boring Method <u>Hollow Stem Auger</u> Hole Diameter <u>7-1/4"</u> Inside Diameter _____ Total Depth <u>55'</u>

Outer Casing Type _____ Diameter _____ Length _____	Well Casing/Screen/Filter Pack Type/Diameter <u>PVC/1-inch</u> Screen Length <u>5-foot</u> Screen Slot Size <u>.010</u> Filter Pack <u>#3</u> Total Depth <u>55'</u>	Sampler Method <u>Split Spoon</u> Length (ft) <u>18"</u> Hammer (lbs)/Fall (ins) _____
---	---	--

Blows/Ft Sample Depth Water Level Time & Date Sample Time PID (ppm) Core Sample Number	Depth (ft)	Description	Graphic Log	Well Construction
---	-------------------	--------------------	--------------------	--------------------------

Blows/Ft	Sample Depth	Water Level Time & Date	Sample Time	PID (ppm)	Core Sample Number	Depth (ft)	Description	Graphic Log	Well Construction
						1	Dark brown fine sandy silt	ML	
						2			
						3			
						4			
						5			
						6			
						7			
						8			
						9			
						10	Light brown fine sandy silt dense moist	SM	
						11			
						12			
						13			
						14			
						15			
						16			
						17			

DICE 00258

BORING LOG
 Environmental Strategies Corporation
 101 Metro Drive, Suite 650
 San Jose, CA 95110

PROJECT

Witco
Santa Fe Springs

Bor. o. TW-3
 Sheet 2 of 3
 Date Drilled 8-22-96

Approved by:

Blows/Ft.	Sample Depth	Water Level Time & Date	Sample Time	PID (ppm)	Core Sample Number	Depth (ft)	Description	Graphic Log	Well Construction
						18			
						19			
						20			
						21			
						22			
						23			
						24			
						25			
						26			
						27			
						28			
						29			
						30			
						31			
						32			
						33			
						34			
						35			
						36			
						37			
						38			

DICE 00259

BORING LOG
 Environmental Strategies Corporation
 101 Metro Drive, Suite 650
 San Jose, CA 95110

PROJECT
Witco
Santa Fe Springs

Boi no. TW-3
 Sheet 3 of 3
 Date Drilled 8-22-96

Approved by:

Blows/Ft.	Sample Depth	Water Level Time & Date	Sample Time	PID (ppm)	Core Sample Number	Depth (ft)	Description	Graphic Log	Well Construction
						39			
6						40	Light brown mottled grey silt	ML	
7						41			
12						42			
						43			
						44			
						45			
						46			
						47			
						48		▼	
						49			
21						50	Reddish brown silty clay fine sand	CL	
17						51			
						52	Dark brown edium to coarse dense sand saturated		
						53			
						54			
						55			
						56			
						57			
						59			
						60			

DICE 00260

Appendix H - Field Sampling Forms

DICE 00261

ESC

Environmental Strategies Corporation
Water Sampling Form

Sample Desig. TW-3 Job / task # 213414 Sampled By Bob Bealkowski
 Sample Type Temp Well Site Name Witco Santa Fe Springs Date 8/22/96
(monitoring well, treatment syst., etc.)
 Sample Method Bailer
 Field Conditions 100° F

Water Level Information

Measuring Point N/A Instrument Used N/A W.L. for 80% recovery _____
(mp, TOC, north point TOC, etc.)
 W.L. Before Purge _____ W.L. After purge _____ W.L. Time of Sample _____
 Time _____ Time _____ Date _____ Time _____

Purge Information

Purge Start _____ Purge Device _____
 Well Depth _____ Screened Interval _____
 Well Dia. _____ Purge Calculation _____ Actual Amt. Removed _____
(well depth-depth to water) X # of casing Vol = Purge Vol

Purge Volume Multipliers

Casing Dia	1 Casing Vol	3 Casing Vol	5 Casing Vol
1.0	0.04	0.12	0.20
2.0	0.16	0.49	0.82
3.0	0.37	1.10	1.84
3.5	0.50	1.50	2.50
4.0	0.65	1.96	3.26
4.5	0.83	2.48	4.13
6.0	1.47	4.41	7.34
8.0	2.61	7.83	13.06
10.0	4.08	12.24	20.40

QA/QC Information

	X if Present	Designation
Trp blank	_____	_____
Duplicate	_____	_____
Field blank	_____	_____
Q.C Spike	_____	_____
Other	_____	_____

Parameter Readings/Notes

Time	Amt. remv'd	Temp.	Cond.	pH	Turb.	Observations/Notes
						Turbid/no odors

Sample Time 1720 Sample / Lab Information _____ Sample Device 1/2 inch disposable bailers
 Laboratory name and Location : IEA Cary N.C.

Analysis	Container(s)	No.	Volume	Preservative	Filtration
8270	1	IL		none	
8260	3	40 ml		HCL	

DICE 00262

Decon. Information

Purge Device(s) / Equipment 1/2 - inch disposable bailer (briefly describe) _____ Sampling Device(s) / Equipment _____

Appendix I - Laboratory Data

DICE 00263

ESC

IEA, Inc.
IEA Project NO.: 978_065RP
SDG: 08311
Client Project ID: Wico Santa Fe Springs
Data Summary Package

IEA

SDG NARRATIVE VOLATILE FRACTION

PROJECT:978-065

BATCH:08311

METHOD:SW-846 (8260)

Samples: Nineteen (19) Soil Samples

The samples were received at Industrial and Environmental Analysts, Inc. (IEA) on August 16, 1996. Each sample was assigned a 9-character "IEA" lab identification number (lab ID) and a truncated client ID (for forms generation). This package makes reference to these ID's as listed on the IEA Assigned Number Index. All analyses were performed according to approved methodologies and meet the requirements of the IEA Quality Assurance Program. Please see the enclosed data package for your results and Chain of Custody (COC) documentation.

There is an air peak that is common to all of the volatile analyses and a solvent peak common to some volatile analyses. These peaks are present at the beginning of the Reconstructed Ion Chromatograms (RIC) and are labeled. These peaks are not searched as Tentatively Identified Compounds (TIC's).

The SW-846 8260 methodology states if all % RSD's (relative standard deviation) of the relative response factors for each compound is less than 15% then the curve average may be used. However, if the %RSD's are above 15% then linear regression is preferred. In order to simplify the quantitation, linear regression forced origin is the quantitation mode for all compounds. The curve is plotted using response factors, not RRF's, versus the concentration level. The slope of the response factors is provided on a Form 6D following the relative response factor Initial Calibration Form 6A. The calculation is in the form $y = mx + b$ where, $b = 0$; $m = \text{slope}$; $y = \text{response factor of the target compound in the sample}$ and $x = \text{concentration to be determined from the curve}$. When calculating a final concentration the "x" value must be multiplied by the concentration of the internal standard and consequently, multiplied by the dilution factor.

The "N" flag used on the Form I VOA-TIC indicates that there is the presumptive evidence of a compound based on the mass spectral library search and the interpretation of the mass spectral interpretation specialist.

The "Y" flag is used as a qualifier on the Form I VOA-TIC to indicate a siloxane contaminant attributed to trap breakdown. This also indicates non target compounds introduced by the laboratory.

The "M" flag used on the data system report form designates that a manual integration was required to provide an accurate quantification of that analyte. Manual integrations have been initialed and dated by the analyst.

IEA

SDG NARRATIVE VOLATILE FRACTION

I certify that this data package is in compliance with the procedures and methods defined for this project, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data (if applicable) as submitted has been authorized by the laboratory manager or his designee, as verified by the following signature.

Brian D. Neptune 08/26/96

Brian D. Neptune
Lead Analyst, GC/MS Final Review
IEA, Inc.

IEA

SDG NARRATIVE SEMIVOLATILE FRACTION

PROJECT: 978-065

BATCH: 08311

METHOD: SW-846 8270

Samples: Nineteen (19) Soil Samples

The samples were received at Industrial and Environmental Analysts, Inc. (IEA) on 08/16/96. Each sample was assigned a 9-character "IEA" lab identification number (lab ID) and an abbreviated client ID which is referenced on the IEA Assigned Number Index. All analyses are performed in accordance with EPA approved methodologies and meet the requirements of the IEA Quality Assurance Program. Please see the enclosed data package for your results and Chain of Custody documentation.

The chromatographic separation of the analytes was performed using a Restek 30 X 0.32 XTI-5 fused silica capillary column with a 0.5 μ m bonded phase film thickness.

Instrument data printouts identify the compound 2,2'-oxybis(1-Chloropropane) with CAS number 108-60-1. Alternative nomenclature for this compound is bis(2-Chloroisopropyl)ether which is included on report forms submitted.

The "J" flag used on the Form I SV indicates an estimated concentration between the CRQL and the Method Detection Limit (MDL).

The "M" flag used on the data system report form designates that a manual integration was required to provide an accurate quantification of that analyte. Manual integrations have been initialed and dated by the analyst.

Sample NW28 (9608311-19) was reported at a ten-fold dilution due to the high concentration of non-target compounds present.

Any nonconformances associated with the analysis of the samples in this case are noted as follows:

The Laboratory Control Sample (LCS521) percent recovery for Acenaphthene exceeded the limits specified for this method due to better than expected extraction efficiency.

I certify that this data package is in compliance with the procedures and methods defined for this project, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data (if applicable) as submitted has been authorized by the laboratory manager or his designee, as verified by the following signature.

 08/23/96

David F. Morse
GC/MS SV Lead Analyst
IEA, Inc.

IEA

SDG NARRATIVE INORGANIC/METALS FRACTION

CASE:978-065

SDG NO.:08311

Sample Numbers: 960831115 (NE42). A total of one (1) soil sample was received for Zinc analysis by Method 6010.

This case was closed on July 16, 1996. The temperature of the samples upon receipt by the Industrial and Environmental Analysts, Inc. (IEA) was 6°C. All samples were received intact.

Each sample has been assigned a 9-character IEA lab identification number. Client identifiers have been truncated to a maximum of 6-characters to accommodate the software constraints, and are cross referenced in the IEA Assigned Number Index (enclosed).

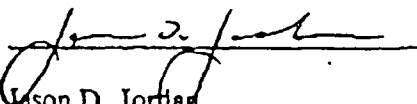
The "*" flag is used to identify the sample duplicate analysis exceeds the 20% RPD criteria. The following sample(s) are flagged with a "*" for the metal(s) listed:

<u>Sample ID</u>	<u>Metal</u>
960831115 (NE42)	Zinc

Any nonconformances associated with the analysis of samples in this case are noted as follows:

There are no nonconformances associated with this case.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the laboratory manager or his designee, as verified by the following signature.

 08/23/96
Jason D. Jordan
Inorganic Data Reviewer
IEA, Inc.

1A
SW-846 VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S-2-1'A

Lab Name: IEA-NC

Method: 8260

Lab Code: IEA

Case No.: 978-065

SDG No.: 08311

Matrix: (soil/water) SOIL

Lab Sample ID: 960831102

Sample wt/vol: 5 (g/mL) g

Lab File ID: 0819710.D

Level: (low/med) LOW

Date Received: 08/16/96

% Moisture: not dec. 15

Date Analyzed: 08/19/96

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

(ug/L or ug/Kg) ug/kg Q

CAS NO.	COMPOUND	ug/kg	Q
67-64-1	Acetone	44	JB
107-13-1	Acrylonitrile	6	U
107-05-1	Allyl Chloride	6	U
71-43-2	Benzene	6	U
108-86-1	Bromobenzene	6	U
74-97-5	Bromochloromethane	6	U
75-27-4	Bromodichloromethane	6	U
75-25-2	Bromoform	6	U
74-83-9	Bromomethane	12	U
78-93-3	2-Butanone	12	U
104-51-8	N-Butylbenzene	6	U
135-98-8	Sec-Butylbenzene	6	U
98-06-6	Tert-Butylbenzene	6	U
75-15-0	Carbon Disulfide	6	U
56-23-5	Carbon Tetrachloride	6	U
108-90-7	Chlorobenzene	6	U
124-48-1	Chlorodibromomethane	6	U
75-00-3	Chloroethane	12	U
110-75-8	2-Chloroethyl Vinyl Ether	12	U
67-66-3	Chloroform	6	U
74-87-3	Chloromethane	12	U
95-49-8	2-Chlorotoluene	6	U
106-43-4	4-Chlorotoluene	6	U
96-12-8	1,2-Dibromo-3-Chloropropane	6	U
106-93-4	1,2-Dibromoethane	6	U
74-95-3	Dibromomethane	6	U
95-50-1	1,2-Dichlorobenzene	6	U
541-73-1	1,3-Dichlorobenzene	6	U
106-46-7	1,4-Dichlorobenzene	6	U
75-71-8	Dichlorodifluoromethane	12	U
75-34-3	1,1-Dichloroethane	6	U
107-06-2	1,2-Dichloroethane	6	U
75-35-4	1,1-Dichloroethene	6	U
156-59-2	Cis-1,2-Dichloroethene	6	U

1A
SW-846 VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S-2-1'A

Lab Name: IEA-NC

Method: 8260

Lab Code: IEA

Case No.: 978-065

SDG No.: 08311

Matrix: (soil/water) SOIL

Lab Sample ID: 960831102

Sample wt/vol: 5 (g/mL) g

Lab File ID: 0819710.D

Level: (low/med) LOW

Date Received: 08/16/96

% Moisture: not dec. 15

Date Analyzed: 08/19/96

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg Q

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg)	ug/kg	Q
156-60-5	Trans-1,2-Dichloroethene		6	U
78-87-5	1,2-Dichloropropane		6	U
142-28-9	1,3-Dichloropropane		6	U
594-20-7	2,2-Dichloropropane		6	U
563-58-6	1,1-Dichloropropene		6	U
10061-01-5	Cis-1,3-Dichloropropene		6	U
10061-02-6	Trans-1,3-Dichloropropene		6	U
110-57-6	Cis-1,4-Dichloro-2-Butene		6	U
110-57-6	Trans-1,4-Dichloro-2-Butene		6	U
100-41-4	Ethylbenzene		6	U
97-63-2	Ethyl Methacrylate		6	U
87-68-3	Hexachlorobutadiene		6	U
591-78-6	2-Hexanone		12	U
74-88-4	Iodomethane		6	U
98-82-8	Isopropylbenzene		6	U
99-87-6	p-Isopropyltoluene		6	U
126-98-7	Methacrylonitrile		6	U
75-09-2	Methylene Chloride		12	U
80-62-6	Methyl Methacrylate		6	U
108-10-1	4-Methyl-2-Pentanone		12	U
1634-04-4	Methyl-tert-Butyl ether		6	U
91-20-3	Naphthalene		6	U
76-01-7	Pentachloroethane		6	U
103-65-1	N-Propylbenzene		6	U
100-42-5	Styrene		6	U
630-20-6	1,1,1,2-Tetrachloroethane		6	U
79-34-5	1,1,2,2-Tetrachloroethane		6	U
127-18-4	Tetrachloroethene		6	U
108-88-3	Toluene		6	U
87-61-6	1,2,3-Trichlorobenzene		6	U
120-82-1	1,2,4-Trichlorobenzene		6	U
71-55-6	1,1,1-Trichloroethane		6	U
79-00-5	1,1,2-Trichloroethane		6	U
79-01-6	Trichloroethene		6	U

1A
SW-846 VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S-2-1'A

Lab Name: IEA-NC

Method: 8260

Lab Code: IEA

Case No.: 978-065

SDG No.: 08311

Matrix: (soil/water) SOIL

Lab Sample ID: 960831102

Sample wt/vol: 5 (g/mL) g

Lab File ID: 0819710.D

Level: (low/med) LOW

Date Received: 08/16/96

‡ Moisture: not dec. 15

Date Analyzed: 08/19/96

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/Kg)	ug/kg	
75-69-4	Trichlorofluoromethane		6	U
96-18-4	1,2,3-Trichloropropane		6	U
95-63-6	1,2,4-Trimethylbenzene		6	U
108-67-8	1,3,5-Trimethylbenzene		6	U
108-05-4	Vinyl Acetate		12	U
75-01-4	Vinyl Chloride		12	U
1330-20-7	Xylene (Total)		6	U

1E
 SW-846 VOLATILE ORGANICS ANALYSIS DATA SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

S-2-1'A

Lab Name: IEA-NC

Method: 8260

Lab Code: IEA

Case No.: 978-065

SDG No.: 08311

Matrix: (soil/water) SOIL

Lab Sample ID: 960831102

Sample wt/vol: 5 (g/mL) g

Lab File ID: 0819710.D

Level: (low/med) LOW

Date Received: 08/16/96

% Moisture: not dec. 15

Date Analyzed: 08/19/96

GC Column: DB-624 ID: 0.53(mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs Found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
SW-846 VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S-2-1'D

Lab Name: IEA-NC

Method: 8260

Lab Code: IEA

Case No.: 978-065

'SDG' No.: 08311

Matrix: (soil/water) SOIL

Lab Sample ID: 960831103

Sample wt/vol: 5 (g/mL) g

Lab File ID: 0819711.D

Level: (low/med) LOW

Date Received: 08/16/96

Moisture: not dec. 15

Date Analyzed: 08/19/96

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

CAS NO. COMPOUND Q

CAS NO.	COMPOUND	ug/L or ug/Kg	Q
67-64-1	Acetone	16	JB
107-13-1	Acrylonitrile	6	U
107-05-1	Allyl Chloride	6	U
71-43-2	Benzene	6	U
108-86-1	Bromobenzene	6	U
74-97-5	Bromochloromethane	6	U
75-27-4	Bromodichloromethane	6	U
75-25-2	Bromoform	6	U
74-83-9	Bromomethane	12	U
78-93-3	2-Butanone	12	U
104-51-8	N-Butylbenzene	6	U
135-98-8	Sec-Butylbenzene	6	U
98-06-6	Tert-Butylbenzene	6	U
75-15-0	Carbon Disulfide	6	U
56-23-5	Carbon Tetrachloride	6	U
108-90-7	Chlorobenzene	6	U
124-48-1	Chlorodibromomethane	6	U
75-00-3	Chloroethane	12	U
110-75-8	2-Chloroethyl Vinyl Ether	12	U
67-66-3	Chloroform	6	U
74-87-3	Chloromethane	12	U
95-49-8	2-Chlorotoluene	6	U
106-43-4	4-Chlorotoluene	6	U
96-12-8	1,2-Dibromo-3-Chloropropane	6	U
106-93-4	1,2-Dibromoethane	6	U
74-95-3	Dibromomethane	6	U
95-50-1	1,2-Dichlorobenzene	6	U
541-73-1	1,3-Dichlorobenzene	6	U
106-46-7	1,4-Dichlorobenzene	6	U
75-71-8	Dichlorodifluoromethane	12	U
75-34-3	1,1-Dichloroethane	6	U
107-06-2	1,2-Dichloroethane	6	U
75-35-4	1,1-Dichloroethene	6	U
156-59-2	Cis-1,2-Dichloroethene	6	U

1A
SW-846 VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S-2-1'D

Lab Name: IEA-NC

Method: 8260

Lab Code: IEA

Case No.: 978-065

SDG No.: 08311

Matrix: (soil/water) SOIL

Lab Sample ID: 960831103

Sample wt/vol: 5 (g/mL) g

Lab File ID: 0819711.D

Level: (low/med) LOW

Date Received: 08/16/96

% Moisture: not dec. 15

Date Analyzed: 08/19/96

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

CAS NO. COMPOUND

CAS NO.	COMPOUND	ug/kg	Q
156-60-5	Trans-1,2-Dichloroethene	6	U
78-87-5	1,2-Dichloropropane	6	U
142-28-9	1,3-Dichloropropane	6	U
594-20-7	2,2-Dichloropropane	6	U
563-58-6	1,1-Dichloropropane	6	U
10061-01-5	Cis-1,3-Dichloropropene	6	U
10061-02-6	Trans-1,3-Dichloropropene	6	U
110-57-6	Cis-1,4-Dichloro-2-Butene	6	U
110-57-6	Trans-1,4-Dichloro-2-Butene	6	U
100-41-4	Ethylbenzene	6	U
97-63-2	Ethyl Methacrylate	6	U
87-68-3	Hexachlorobutadiene	6	U
591-78-6	2-Hexanone	12	U
74-88-4	Iodomethane	6	U
98-82-8	Isopropylbenzene	6	U
99-87-6	P-Isopropyltoluene	6	U
126-98-7	Methacrylonitrile	6	U
75-09-2	Methylene Chloride	12	U
80-62-6	Methyl Methacrylate	6	U
108-10-1	4-Methyl-2-Pentanone	12	U
1634-04-4	Methyl-tert-Butyl ether	6	U
91-20-3	Naphthalene	6	U
76-01-7	Pentachloroethane	6	U
103-65-1	N-Propylbenzene	6	U
100-42-5	Styrene	6	U
630-20-6	1,1,1,2-Tetrachloroethane	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
127-18-4	Tetrachloroethene	13	U
108-88-3	Toluene	6	U
87-61-6	1,2,3-Trichlorobenzene	6	U
120-82-1	1,2,4-Trichlorobenzene	6	U
71-55-6	1,1,1-Trichloroethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
79-01-6	Trichloroethene	6	U

FORM I VOA

DICE 00274

1A
SW-846 VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S-2-1'D

Lab Name: IEA-NC

Method: 8260

Lab Code: IEA

Case No.: 978-065

SDG No.: 08311

Matrix: (soil/water) SOIL

Lab Sample ID: 960831103

Sample wt/vol: 5 (g/mL) g

Lab File ID: 0819711.D

Level: (low/med) LOW

Date Received: 08/16/96

Moisture: not dec. 15

Date Analyzed: 08/19/96

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg Q

CAS NO.	COMPOUND	(ug/L or ug/Kg)	ug/kg	Q
75-69-4	Trichlorofluoromethane	6		U
96-18-4	1,2,3-Trichloropropane	6		U
95-63-6	1,2,4-Trimethylbenzene	6		U
108-67-8	1,3,5-Trimethylbenzene	6		U
108-05-4	Vinyl Acetate	12		U
75-01-4	Vinyl Chloride	12		U
1330-20-7	Xylene (Total)	6		U

1A
SW-846 VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S-2-1'C

Lab Name: IEA-NC

Method: 8260

Lab Code: IEA

Case No.: 978-065

SDG No.: 08311

Matrix: (soil/water) SOIL

Lab Sample ID: 960831104

Sample wt/vol: 5 (g/mL) g

Lab File ID: 0819712.D

Level: (low/med) LOW

Date Received: 08/16/96

% Moisture: not dec. 15

Date Analyzed: 08/19/96

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

(ug/L or ug/Kg) ug/kg Q

CAS NO.	COMPOUND	ug/L or ug/Kg	Q
67-64-1	Acetone	12	JB
107-13-1	Acrylonitrile	6	U
107-05-1	Allyl Chloride	6	U
71-43-2	Benzene	6	U
108-86-1	Bromobenzene	6	U
74-97-5	Bromochloromethane	6	U
75-27-4	Bromodichloromethane	6	U
75-25-2	Bromoform	6	U
74-83-9	Bromomethane	12	U
78-93-3	2-Butanone	12	U
104-51-8	N-Butylbenzene	6	U
135-98-8	Sec-Butylbenzene	6	U
98-06-6	Tert-Butylbenzene	6	U
75-15-0	Carbon Disulfide	6	U
56-23-5	Carbon Tetrachloride	6	U
108-90-7	Chlorobenzene	6	U
124-48-1	Chlorodibromomethane	6	U
75-00-3	Chloroethane	12	U
110-75-8	2-Chloroethyl Vinyl Ether	12	U
67-66-3	Chloroform	6	U
74-87-3	Chloromethane	12	U
95-49-8	2-Chlorotoluene	6	U
106-43-4	4-Chlorotoluene	6	U
96-12-8	1,2-Dibromo-3-Chloropropane	6	U
106-93-4	1,2-Dibromoethane	6	U
74-95-3	Dibromomethane	6	U
95-50-1	1,2-Dichlorobenzene	6	U
541-73-1	1,3-Dichlorobenzene	6	U
106-46-7	1,4-Dichlorobenzene	6	U
75-71-8	Dichlorodifluoromethane	12	U
75-34-3	1,1-Dichloroethane	6	U
107-06-2	1,2-Dichloroethane	6	U
75-35-4	1,1-Dichloroethene	6	U
156-59-2	Cis-1,2-Dichloroethene	6	U

1A
SW-846 VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S-2-1'C

Lab Name: IEA-NC

Method: 8260

Lab Code: IEA

Case No.: 978-065

SDG No.: 08311

Matrix: (soil/water) SOIL

Lab Sample ID: 960831104

Sample wt/vol: 5 (g/mL) g.

Lab File ID: 0819712.D

Level: (low/med) LOW

Date Received: 08/16/96

% Moisture: not dec. 15

Date Analyzed: 08/19/96

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg Q

156-60-5	Trans-1,2-Dichloroethene	6	U
78-87-5	1,2-Dichloropropane	6	U
142-28-9	1,3-Dichloropropane	6	U
594-20-7	2,2-Dichloropropane	6	U
563-58-6	1,1-Dichloropropene	6	U
10061-01-5	Cis-1,3-Dichloropropene	6	U
10061-02-6	Trans-1,3-Dichloropropene	6	U
110-57-6	Cis-1,4-Dichloro-2-Butene	6	U
110-57-6	Trans-1,4-Dichloro-2-Butene	6	U
100-41-4	Ethylbenzene	6	U
97-63-2	Ethyl Methacrylate	6	U
87-68-3	Hexachlorobutadiene	6	U
591-78-6	2-Hexanone	12	U
74-88-4	Iodomethane	6	U
98-82-8	Isopropylbenzene	6	U
99-87-6	P-Isopropyltoluene	6	U
126-98-7	Methacrylonitrile	6	U
75-09-2	Methylene Chloride	12	U
80-62-6	Methyl Methacrylate	6	U
108-10-1	4-Methyl-2-Pentanone	12	U
1634-04-4	Methyl-tert-Butyl ether	6	U
91-20-3	Naphthalene	6	U
76-01-7	Pentachloroethane	6	U
103-65-1	N-Propylbenzene	6	U
100-42-5	Styrene	6	U
630-20-6	1,1,1,2-Tetrachloroethane	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
127-18-4	Tetrachloroethene	6	U
108-88-3	Toluene	6	U
87-61-6	1,2,3-Trichlorobenzene	6	U
120-82-1	1,2,4-Trichlorobenzene	6	U
71-55-6	1,1,1-Trichloroethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
79-01-6	Trichloroethene	6	U

1A
SW-846 VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S-2-1'C

Lab Name: IEA-NC

Method: 8260

Lab Code: IEA

Case No.: 978-065

SDG No.: 08311

Matrix: (soil/water) SOIL

Lab Sample ID: 960831104

Sample wt/vol: 5 (g/mL) g

Lab File ID: 0819712.D

Level: (low/med) LOW

Date Received: 08/16/96

% Moisture: not dec. 15

Date Analyzed: 08/19/96

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg Q

CAS NO.	COMPOUND	(ug/L or ug/Kg)	ug/kg	Q
75-69-4	Trichlorofluoromethane	6		U
96-18-4	1,2,3-Trichloropropane	6		U
95-63-6	1,2,4-Trimethylbenzene	6		U
108-67-8	1,3,5-Trimethylbenzene	6		U
108-05-4	Vinyl Acetate	12		U
75-01-4	Vinyl Chloride	12		U
1330-20-7	Xylene (Total)	6		U

1E
 SW-846 VOLATILE ORGANICS ANALYSIS DATA SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

S-2-1'C

Lab Name: IEA-NC

Method: 8260

Lab Code: IEA

Case No.: 978-065

SDG No.: 08311

Matrix: (soil/water) SOIL

Lab Sample ID: 960831104

Sample wt/vol: 5 (g/mL) g

Lab File ID: 0819712.D

Level: (low/med) LOW

Date Received: 08/16/96

% Moisture: not dec. 15

Date Analyzed: 08/19/96

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs Found: 0

CONCENTRATION UNITS:
 (ug/L or ug/Kg) ug/kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
SW-846 VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S-1-8'

Lab Name: IEA-NC

Method: 8260

Lab Code: IEA

Case No.: 978-065

SDG No.: 08311

Matrix: (soil/water) SOIL

Lab Sample ID: 960831105

Sample wt/vol: 5 (g/mL) g

Lab File ID: 0819713.D

Level: (low/med) LOW

Date Received: 08/16/96

% Moisture: not dec. 15

Date Analyzed: 08/19/96

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

(ug/L or ug/kg) ug/kg Q

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg)	ug/kg	Q
67-64-1	Acetone		15	JB
107-13-1	Acrylonitrile		6	U
107-05-1	Allyl Chloride		6	U
71-43-2	Benzene		6	U
108-86-1	Bromobenzene		6	U
74-97-5	Bromochloromethane		6	U
75-27-4	Bromodichloromethane		6	U
75-25-2	Bromoform		6	U
74-83-9	Bromomethane		12	U
78-93-3	2-Butanone		12	U
104-51-8	N-Butylbenzene		6	U
135-98-8	Sec-Butylbenzene		6	U
98-06-6	Tert-Butylbenzene		6	U
75-15-0	Carbon Disulfide		6	U
56-23-5	Carbon Tetrachloride		6	U
108-90-7	Chlorobenzene		6	U
124-48-1	Chlorodibromomethane		6	U
75-00-3	Chloroethane		12	U
110-75-8	2-Chloroethyl Vinyl Ether		12	U
67-66-3	Chloroform		6	U
74-87-3	Chloromethane		12	U
95-49-8	2-Chlorotoluene		6	U
106-43-4	4-Chlorotoluene		6	U
96-12-8	1,2-Dibromo-3-Chloropropane		6	U
106-93-4	1,2-Dibromoethane		6	U
74-95-3	Dibromomethane		6	U
95-50-1	1,2-Dichlorobenzene		6	U
541-73-1	1,3-Dichlorobenzene		6	U
106-46-7	1,4-Dichlorobenzene		6	U
75-71-8	Dichlorodifluoromethane		12	U
75-34-3	1,1-Dichloroethane		6	U
107-06-2	1,2-Dichloroethane		6	U
75-35-4	1,1-Dichloroethene		6	U
156-59-2	Cis-1,2-Dichloroethene		6	U

1A
SW-846 VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S-1-8'

Lab Name: IEA-NC	Method: 8260	
Lab Code: IEA	Case No.: 978-065	SDG No.: 08311
Matrix: (soil/water) SOIL		Lab Sample ID: 960831105
Sample wt/vol: 5 (g/mL) g		Lab File ID: 0819713.D
Level: (low/med) LOW		Date Received: 08/16/96
% Moisture: not dec. 15		Date Analyzed: 08/19/96
GC Column: DB-624	ID: 0.53 (mm)	Dilution Factor: 1.0
Soil Extract Volume: (uL)		Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg Q

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg)	ug/kg	Q
156-60-5	Trans-1,2-Dichloroethene	6		U
78-87-5	1,2-Dichloropropane	6		U
142-28-9	1,3-Dichloropropane	6		U
594-20-7	2,2-Dichloropropane	6		U
563-58-6	1,1-Dichloropropene	6		U
10061-01-5	Cis-1,3-Dichloropropene	6		U
10061-02-6	Trans-1,3-Dichloropropene	6		U
110-57-6	Cis-1,4-Dichloro-2-Butene	6		U
110-57-6	Trans-1,4-Dichloro-2-Butene	6		U
100-41-4	Ethylbenzene	6		U
97-63-2	Ethyl Methacrylate	6		U
87-68-3	Hexachlorobutadiene	6		U
591-78-6	2-Hexanone	12		U
74-88-4	Iodomethane	6		U
98-82-8	Isopropylbenzene	6		U
99-87-6	P-Isopropyltoluene	6		U
126-98-7	Methacrylonitrile	6		U
75-09-2	Methylene Chloride	12		U
80-62-6	Methyl Methacrylate	6		U
108-10-1	4-Methyl-2-Pentanone	12		U
1634-04-4	Methyl-tert-Butyl ether	6		U
91-20-3	Naphthalene	6		U
76-01-7	Pentachloroethane	6		U
103-65-1	N-Propylbenzene	6		U
100-42-5	Styrene	6		U
630-20-6	1,1,1,2-Tetrachloroethane	6		U
79-34-5	1,1,2,2-Tetrachloroethane	6		U
127-18-4	Tetrachloroethene	2		J
108-88-3	Toluene	6		U
87-61-6	1,2,3-Trichlorobenzene	6		U
120-82-1	1,2,4-Trichlorobenzene	6		U
71-55-6	1,1,1-Trichloroethane	6		U
79-00-5	1,1,2-Trichloroethane	6		U
79-01-6	Trichloroethene	6		U

1A
SW-846 VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S-1-8'

Lab Name: IEA-NC	Method: 8260	
Lab Code: IEA	Case No.: 978-065	SDG.No.: 08311
Matrix: (soil/water) SOIL		Lab Sample ID: 960831105
Sample wt/vol: 5 (g/mL) g		Lab File ID: 0919713.D
Level: (low/med) LOW		Date Received: 08/16/96
% Moisture: not dec. 15		Date Analyzed: 08/19/96
GC Column: DB-624	ID: 0.53 (mm)	Dilution Factor: 1.0
Soil Extract Volume: (uL)		Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg Q

CAS NO.	COMPOUND	(ug/L or ug/Kg)	ug/kg	Q
75-69-4	Trichlorofluoromethane		6	U
96-18-4	1,2,3-Trichloropropane		6	U
95-63-6	1,2,4-Trimethylbenzene		6	U
108-67-8	1,3,5-Trimethylbenzene		6	U
108-05-4	Vinyl Acetate		12	U
75-01-4	Vinyl Chloride		12	U
1330-20-7	Xylene (Total)		6	U

1E
 SW-846 VOLATILE ORGANICS ANALYSIS DATA SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

S-1-8'

Lab Name: IEA-NC Method: 8260

Lab Code: IEA Case No.: 978-065 SDG No.: 08311

Matrix: (soil/water) SOIL Lab Sample ID: 960831105

Sample wt/vol: 5 (g/mL) g Lab File ID: 0819713.D

Level: (low/med) LOW Date Received: 08/16/96

% Moisture: not dec. 15 Date Analyzed: 08/19/96

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs Found: 0

CONCENTRATION UNITS:
 (ug/L or ug/Kg) ug/kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
SW-846 VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S-4-1'A

Lab Name: IEA-NC

Method: 8260

Lab Code: IEA

Case No.: 978-065

SDG No.: 08311

Matrix: (soil/water) SOIL

Lab Sample ID: 960831106

Sample wt/vol: 5 (g/mL) g

Lab File ID: 0819714.D

Level: (low/med) LOW

Date Received: 08/16/96

% Moisture: not dec. 15

Date Analyzed: 08/19/96

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

(ug/L or ug/Kg) ug/kg Q

CAS NO.	COMPOUND	ug/kg	Q
67-64-1	Acetone	13	JB
107-13-1	Acrylonitrile	6	U
107-05-1	Allyl Chloride	6	U
71-43-2	Benzene	6	U
108-86-1	Bromobenzene	6	U
74-97-5	Bromochloromethane	6	U
75-27-4	Bromodichloromethane	6	U
75-25-2	Bromoform	6	U
74-83-9	Bromomethane	12	U
78-93-3	2-Butanone	12	U
104-51-8	N-Butylbenzene	6	U
135-98-8	Sec-Butylbenzene	6	U
98-06-6	Tert-Butylbenzene	6	U
75-15-0	Carbon Disulfide	6	U
56-23-5	Carbon Tetrachloride	6	U
108-90-7	Chlorobenzene	6	U
124-48-1	Chlorodibromomethane	6	U
75-00-3	Chloroethane	12	U
110-75-8	2-Chloroethyl Vinyl Ether	12	U
67-66-3	Chloroform	6	U
74-87-3	Chloromethane	12	U
95-49-8	2-Chlorotoluene	6	U
106-43-4	4-Chlorotoluene	6	U
96-12-8	1,2-Dibromo-3-Chloropropane	6	U
106-93-4	1,2-Dibromoethane	6	U
74-95-3	Dibromomethane	6	U
95-50-1	1,2-Dichlorobenzene	6	U
541-73-1	1,3-Dichlorobenzene	6	U
106-46-7	1,4-Dichlorobenzene	6	U
75-71-8	Dichlorodifluoromethane	12	U
75-34-3	1,1-Dichloroethane	6	U
107-06-2	1,2-Dichloroethane	6	U
75-35-4	1,1-Dichloroethene	6	U
156-59-2	Cis-1,2-Dichloroethene	6	U

1A
SW-846 VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S-4-1'A

Lab Name: IEA-NC

Method: 8260

Lab Code: IEA

Case No.: 978-065

SDG No.: 08311

Matrix: (soil/water) SOIL

Lab Sample ID: 960831106

Sample wt/vol: 5 (g/mL) g

Lab File ID: 0819714.D

Level: (low/med) LOW

Date Received: 08/16/96

% Moisture: not dec. 15

Date Analyzed: 08/19/96

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) ug/kg Q

CAS NO.	COMPOUND	(ug/L or ug/Kg)	ug/kg	Q
156-60-5	Trans-1,2-Dichloroethene	6	U	
78-87-5	1,2-Dichloropropane	6	U	
142-28-9	1,3-Dichloropropane	6	U	
594-20-7	2,2-Dichloropropane	6	U	
563-58-6	1,1-Dichloropropene	6	U	
10061-01-5	Cis-1,3-Dichloropropene	6	U	
10061-02-6	Trans-1,3-Dichloropropene	6	U	
110-57-6	Cis-1,4-Dichloro-2-Butene	6	U	
110-57-6	Trans-1,4-Dichloro-2-Butene	6	U	
100-41-4	Ethylbenzene	6	U	
97-63-2	Ethyl Methacrylate	6	U	
87-68-3	Hexachlorobutadiene	6	U	
591-78-6	2-Hexanone	12	U	
74-88-4	Iodomethane	6	U	
98-82-8	Isopropylbenzene	6	U	
99-87-6	P-Isopropyltoluene	6	U	
126-98-7	Methacrylonitrile	6	U	
75-09-2	Methylene Chloride	12	U	
80-62-6	Methyl Methacrylate	6	U	
108-10-1	4-Methyl-2-Pentanone	12	U	
1634-04-4	Methyl-tert-Butyl ether	6	U	
91-20-3	Naphthalene	6	U	
76-01-7	Pentachloroethane	6	U	
103-65-1	N-Propylbenzene	6	U	
100-42-5	Styrene	6	U	
630-20-6	1,1,1,2-Tetrachloroethane	6	U	
79-34-5	1,1,2,2-Tetrachloroethane	6	U	
127-18-4	Tetrachloroethene	6	U	
108-88-3	Toluene	6	U	
87-61-6	1,2,3-Trichlorobenzene	6	U	
120-82-1	1,2,4-Trichlorobenzene	6	U	
71-55-6	1,1,1-Trichloroethane	6	U	
79-00-5	1,1,2-Trichloroethane	6	U	
79-01-6	Trichloroethene	6	U	

1A
SW-846 VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S-4-1'A

Lab Name: IEA-NC

Method: 8260

Lab Code: IEA

Case No.: 978-065

SDG No.: 08311

Matrix: (soil/water) SOIL

Lab Sample ID: 960831106

Sample wt/vol: 5 (g/mL) g

Lab File ID: 0819714.D

Level: (low/med) LOW

Date Received: 08/16/96

% Moisture: not dec. 15

Date Analyzed: 08/19/96

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CAS NO.

COMPOUND

CONCENTRATION UNITS:

(ug/L or ug/Kg)

ug/kg

Q

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg)	ug/kg	Q
75-69-4	Trichlorofluoromethane		6	U
96-18-4	1,2,3-Trichloropropane		6	U
95-63-6	1,2,4-Trimethylbenzene		6	U
108-67-8	1,3,5-Trimethylbenzene		6	U
108-05-4	Vinyl Acetate		12	U
75-01-4	Vinyl Chloride		12	U
1330-20-7	Xylene (Total)		6	U

1E
 SW-846 VOLATILE ORGANICS ANALYSIS DATA SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

S-4-1'A

Lab Name: IEA-NC

Method: 8260

Lab Code: IEA

Case No.: 978-065

SDG No.: 08311

Matrix: (soil/water) SOIL

Lab Sample ID: 960831106

Sample wt/vol: 5 (g/mL) g

Lab File ID: 0819714.D

Level: (low/med) LOW

Date Received: 08/16/96

% Moisture: not dec. 15

Date Analyzed: 08/19/96

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs Found: 0

CONCENTRATION UNITS:
 (ug/L or ug/Kg) ug/kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
SW-846 VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S-2-1'B

Lab Name: IEA-NC

Method: 8260

Lab Code: IEA

Case No.: 978-065

SDG No.: 08311

Matrix: (soil/water) SOIL

Lab Sample ID: 960831107

Sample wt/vol: 5 (g/mL) g

Lab File ID: 0819715.D

Level: (low/med) LOW

Date Received: 08/16/96

% Moisture: not dec. 15

Date Analyzed: 08/19/96

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

(ug/L or ug/Kg) ug/kg Q

CAS NO.	COMPOUND	(ug/L or ug/Kg)	ug/kg	Q
67-64-1	Acetone	8		JB
107-13-1	Acrylonitrile	6		U
107-05-1	Allyl Chloride	6		U
71-43-2	Benzene	6		U
108-86-1	Bromobenzene	6		U
74-97-5	Bromochloromethane	6		U
75-27-4	Bromodichloromethane	6		U
75-25-2	Bromoform	6		U
74-83-9	Bromomethane	12		U
78-93-3	2-Butanone	12		U
104-51-8	N-Butylbenzene	6		U
135-98-8	Sec-Butylbenzene	6		U
98-06-6	Tert-Butylbenzene	6		U
75-15-0	Carbon Disulfide	6		U
56-23-5	Carbon Tetrachloride	6		U
108-90-7	Chlorobenzene	6		U
124-48-1	Chlorodibromomethane	6		U
75-00-3	Chloroethane	12		U
110-75-8	2-Chloroethyl Vinyl Ether	12		U
67-66-3	Chloroform	6		U
74-87-3	Chloromethane	12		U
95-49-8	2-Chlorotoluene	6		U
106-43-4	4-Chlorotoluene	6		U
96-12-8	1,2-Dibromo-3-Chloropropane	6		U
106-93-4	1,2-Dibromoethane	6		U
74-95-3	Dibromomethane	6		U
95-50-1	1,2-Dichlorobenzene	6		U
541-73-1	1,3-Dichlorobenzene	6		U
106-46-7	1,4-Dichlorobenzene	6		U
75-71-8	Dichlorodifluoromethane	12		U
75-34-3	1,1-Dichloroethane	6		U
107-06-2	1,2-Dichloroethane	6		U
75-35-4	1,1-Dichloroethene	6		U
156-59-2	Cis-1,2-Dichloroethene	6		U

IA
SW-846 VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S-2-1'B

Lab Name: IEA-NC	Method: 8260	
Lab Code: IEA	Case No.: 978-065	SDG No.: 08311
Matrix: (soil/water) SOIL		Lab Sample ID: 960831107
Sample wt/vol: 5 (g/mL) g		Lab File ID: 0819715.D
Level: (low/med) LOW		Date Received: 08/16/96
% Moisture: not dec. 15		Date Analyzed: 08/19/96
GC Column: DB-624 ID: 0.53 (mm)		Dilution Factor: 1.0
Soil Extract Volume: (uL)		Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg Q

CAS NO.	COMPOUND	ug/kg	Q
156-60-5	Trans-1,2-Dichloroethene	6	U
78-87-5	1,2-Dichloropropane	6	U
142-28-9	1,3-Dichloropropane	6	U
594-20-7	2,2-Dichloropropane	6	U
563-58-6	1,1-Dichloropropane	6	U
10061-01-5	Cis-1,3-Dichloropropene	6	U
10061-02-6	Trans-1,3-Dichloropropene	6	U
110-57-6	Cis-1,4-Dichloro-2-Butene	6	U
110-57-6	Trans-1,4-Dichloro-2-Butene	6	U
100-41-4	Ethylbenzene	6	U
97-63-2	Ethyl Methacrylate	6	U
87-68-3	Hexachlorobutadiene	6	U
591-78-6	2-Hexanone	12	U
74-88-4	Iodomethane	6	U
98-82-8	Isopropylbenzene	6	U
99-87-6	P-Isopropyltoluene	6	U
126-98-7	Methacrylonitrile	6	U
75-09-2	Methylene Chloride	12	U
80-62-6	Methyl Methacrylate	6	U
108-10-1	4-Methyl-2-Pentanone	12	U
1634-04-4	Methyl-tert-Butyl ether	6	U
91-20-3	Naphthalene	6	U
76-01-7	Pentachloroethane	6	U
103-65-1	N-Propylbenzene	6	U
100-42-5	Styrene	6	U
630-20-6	1,1,1,2-Tetrachloroethane	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
127-18-4	Tetrachloroethane	2	J
108-88-3	Toluene	6	U
87-61-6	1,2,3-Trichlorobenzene	6	U
120-82-1	1,2,4-Trichlorobenzene	6	U
71-55-6	1,1,1-Trichloroethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
79-01-6	Trichloroethene	6	U

1A
SW-846 VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S-2-1'B

Lab Name: IEA-NC

Method: 8260

Lab Code: IEA

Case No.: 978-065

SDG No.: 08311

Matrix: (soil/water) SOIL

Lab Sample ID: 960831107

Sample wt/vol: 5 (g/mL) g

Lab File ID: 0819715.D

Level: (low/med) LOW

Date Received: 08/16/96

% Moisture: not dec. 15

Date Analyzed: 08/19/96

GC Column: DB-624 ID: 9.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg Q

CAS NO.	COMPOUND	(ug/L or ug/Kg)	ug/kg	Q
75-69-4	Trichlorofluoromethane	6		U
96-18-4	1,2,3-Trichloropropane	6		U
95-63-6	1,2,4-Trimethylbenzene	6		U
108-67-8	1,3,5-Trimethylbenzene	6		U
108-05-4	Vinyl Acetate	12		U
75-01-4	Vinyl Chloride	12		U
1330-20-7	Xylene (Total)	6		U

1E
 SW-846 VOLATILE ORGANICS ANALYSIS DATA SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

S-2-1'B

Lab Name: IEA-NC Method: 8260
 Lab Code: IEA Case No.: 978-065 SDG No.: 08311
 Matrix: (soil/water) SOIL Lab Sample ID: 960831107
 Sample wt/vol: 5 (g/mL) g Lab File ID: 0819715.D
 Level: (low/med) LOW Date Received: 08/16/96
 % Moisture: not dec. 15 Date Analyzed: 08/19/96
 GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0
 Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs Found: 0

CONCENTRATION UNITS:
 (ug/L or ug/Kg) ug/kg

CAS NUMBER	COMPOUND NAME	RT.	EST. CONC.	Q

1A
SW-846 VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S-3-1'

Lab Name: IEA-NC

Method: 8260

Lab Code: IEA

Case No.: 978-065

SDG No.: 08311

Matrix: (soil/water) SOIL

Lab Sample ID: 960831108

Sample wt/vol: 5 (g/mL) g

Lab File ID: 0820703.D

Level: (low/med) LOW

Date Received: 08/16/96

% Moisture: not dec. 14

Date Analyzed: 08/20/96

GC Column: DB-624 ID: .53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

(ug/L or ug/Kg) ug/kg Q

CAS NO.	COMPOUND	ug/kg	Q
67-64-1	Acetone	12	JB
107-13-1	Acrylonitrile	6	U
107-05-1	Allyl Chloride	6	U
71-43-2	Benzene	6	U
108-86-1	Bromobenzene	6	U
74-97-5	Bromochloromethane	6	U
75-27-4	Bromodichloromethane	6	U
75-25-2	Bromoform	6	U
74-83-9	Bromomethane	12	U
78-93-3	2-Butanone	12	U
104-51-8	N-Butylbenzene	6	U
135-98-8	Sec-Butylbenzene	6	U
98-06-6	Tert-Butylbenzene	6	U
75-15-0	Carbon Disulfide	6	U
56-23-5	Carbon Tetrachloride	6	U
108-90-7	Chlorobenzene	6	U
124-48-1	Chlorodibromomethane	6	U
75-00-3	Chloroethane	12	U
110-75-8	2-Chloroethyl Vinyl Ether	12	U
67-66-3	Chloroform	6	U
74-87-3	Chloromethane	12	U
95-49-8	2-Chlorotoluene	6	U
106-43-4	4-Chlorotoluene	6	U
96-12-8	1,2-Dibromo-3-Chloropropane	6	U
106-93-4	1,2-Dibromoethane	6	U
74-95-3	Dibromomethane	6	U
95-50-1	1,2-Dichlorobenzene	6	U
541-73-1	1,3-Dichlorobenzene	6	U
106-46-7	1,4-Dichlorobenzene	6	U
75-71-8	Dichlorodifluoromethane	12	U
75-34-3	1,1-Dichloroethane	6	U
107-06-2	1,2-Dichloroethane	6	U
75-35-4	1,1-Dichloroethene	6	U
156-59-2	Cis-1,2-Dichloroethene	6	U

1A
SW-846 VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S-3-1'

Lab Name: IEA-NC	Method: 8260	
Lab Code: IEA	Case No.: 978-065	SDG No.: 08311
Matrix: (soil/water) SOIL		Lab Sample ID: 960831108
Sample wt/vol: 5 (g/mL) g		Lab File ID: 0820703.D
Level: (low/med) LOW		Date Received: 08/16/96
% Moisture: not dec. 14		Date Analyzed: 08/20/96
GC Column: DB-624 ID: .53 (mm)		Dilution Factor: 1.0
Soil Extract Volume: (uL)		Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg Q

CAS NO.	COMPOUND	ug/kg	Q
156-60-5	Trans-1,2-Dichloroethene	6	U
78-87-5	1,2-Dichloropropane	6	U
142-28-9	1,3-Dichloropropane	6	U
594-20-7	2,2-Dichloropropane	6	U
563-58-6	1,1-Dichloropropene	6	U
10061-01-5	Cis-1,3-Dichloropropene	6	U
10061-02-6	Trans-1,3-Dichloropropene	6	U
110-57-6	Cis-1,4-Dichloro-2-Butene	6	U
110-57-6	Trans-1,4-Dichloro-2-Butene	6	U
100-41-4	Ethylbenzene	6	U
97-63-2	Ethyl Methacrylate	6	U
87-68-3	Hexachlorobutadiene	6	U
591-78-6	2-Hexanone	12	U
74-88-4	Iodomethane	6	U
98-82-8	Isopropylbenzene	6	U
99-87-6	P-Isopropyltoluene	6	U
126-98-7	Methacrylonitrile	6	U
75-09-2	Methylene Chloride	12	U
80-62-6	Methyl Methacrylate	6	U
108-10-1	4-Methyl-2-Pentanone	12	U
1634-04-4	Methyl-tert-Butyl ether	6	U
91-20-3	Naphthalene	6	U
76-01-7	Pentachloroethane	6	U
103-65-1	N-Propylbenzene	6	U
100-42-5	Styrene	6	U
630-20-6	1,1,1,2-Tetrachloroethane	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
127-18-4	Tetrachloroethene	6	U
108-88-3	Toluene	6	U
87-61-6	1,2,3-Trichlorobenzene	6	U
120-82-1	1,2,4-Trichlorobenzene	6	U
71-55-6	1,1,1-Trichloroethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
79-01-6	Trichloroethene	6	U

1A
SW-846 VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S-3-1'

Lab Name: IEA-NC

Method: 8260

Lab Code: IEA

Case No.: 978-065

SDG No.: 08311

Matrix: (soil/water) SOIL

Lab Sample ID: 960831108

Sample wt/vol: 5 (g/mL) g

Lab File ID: 0820703.D

Level: (low/med) LOW

Date Received: 08/16/96

% Moisture: not dec. 14

Date Analyzed: 08/20/96

GC Column: DB-624 ID: .53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg Q

CAS NO.	COMPOUND	(ug/L or ug/Kg)	ug/kg	Q
75-69-4	Trichlorofluoromethane	6		U
96-18-4	1,2,3-Trichloropropane	6		U
95-63-6	1,2,4-Trimethylbenzene	6		U
108-67-8	1,3,5-Trimethylbenzene	6		U
108-05-4	Vinyl Acetate	12		U
75-01-4	Vinyl Chloride	12		U
1330-20-7	Xylene (Total)	6		U

1E
SW-846 VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

S-3-1'

Lab Name: IEA-NC

Method: 8260

Lab Code: IEA

Case No.: 978-065

SDG No.: 08311

Matrix: (soil/water) SOIL

Lab Sample ID: 960831108

Sample wt/vol: 5 (g/mL) g

Lab File ID: 0820703.D

Level: (low/med) LOW

Date Received: 08/16/96

% Moisture: not dec. 14

Date Analyzed: 08/20/96

GC Column: DB-624 ID: .53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs Found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

CAS NUMBER	COMPOUND NAME	RT'	EST. CONC.	Q

1A
SW-846 VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S-4-1B'

Lab Name: IEA-NC

Method: 8260

Lab Code: IEA

Case No.: 978-065

SDG No.: 08311

Matrix: (soil/water) SOIL

Lab Sample ID: 960831110

Sample wt/vol: 5 (g/mL) g

Lab File ID: 0820708.D

Level: (low/med) LOW

Date Received: 08/16/96

% Moisture: not dec. 12

Date Analyzed: 08/20/96

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

(ug/L or ug/Kg) ug/kg Q

CAS NO.	COMPOUND	(ug/L or ug/Kg)	ug/kg	Q
67-64-1	Acetone	57		U
107-13-1	Acrylonitrile	6		U
107-05-1	Allyl Chloride	6		U
71-43-2	Benzene	6		U
108-86-1	Bromobenzene	6		U
74-97-5	Bromochloromethane	6		U
75-27-4	Bromodichloromethane	6		U
75-25-2	Bromoform	6		U
74-83-9	Bromomethane	11		U
78-93-3	2-Butanone	11		U
104-51-8	N-Butylbenzene	6		U
135-98-8	Sec-Butylbenzene	6		U
98-06-6	Tert-Butylbenzene	6		U
75-15-0	Carbon Disulfide	6		U
56-23-5	Carbon Tetrachloride	6		U
108-90-7	Chlorobenzene	6		U
124-48-1	Chlorodibromomethane	6		U
75-00-3	Chloroethane	11		U
110-75-8	2-Chloroethyl Vinyl Ether	11		U
67-66-3	Chloroform	6		U
74-87-3	Chloromethane	11		U
95-49-8	2-Chlorotoluene	6		U
106-43-4	4-Chlorotoluene	6		U
96-12-8	1,2-Dibromo-3-Chloropropane	6		U
106-93-4	1,2-Dibromoethane	6		U
74-95-3	Dibromomethane	6		U
95-50-1	1,2-Dichlorobenzene	6		U
541-73-1	1,3-Dichlorobenzene	6		U
106-46-7	1,4-Dichlorobenzene	6		U
75-71-8	Dichlorodifluoromethane	11		U
75-34-3	1,1-Dichloroethane	6		U
107-06-2	1,2-Dichloroethane	6		U
75-35-4	1,1-Dichloroethene	6		U
156-59-2	Cis-1,2-Dichloroethene	6		U

1A
SW-846 VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S-4-1B'

Lab Name: IEA-NC

Method: 8260

Lab Code: IEA

Case No.: 978-065

SDG No.: 08311

Matrix: (soil/water) SOIL

Lab Sample ID: 960831110

Sample wt/vol: 5 (g/mL) g

Lab File ID: 0820708.D

Level: (low/med) LOW

Date Received: 08/16/96

% Moisture: not dec. 12

Date Analyzed: 08/20/96

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/kg

CAS NO.

COMPOUND

Q

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg)	ug/kg	Q
156-60-5	Trans-1,2-Dichloroethene	6		U
78-87-5	1,2-Dichloropropane	6		U
142-28-9	1,3-Dichloropropane	6		U
594-20-7	2,2-Dichloropropane	6		U
563-58-6	1,1-Dichloropropene	6		U
10061-01-5	Cis-1,3-Dichloropropene	6		U
10061-02-6	Trans-1,3-Dichloropropene	6		U
110-57-6	Cis-1,4-Dichloro-2-Butene	6		U
110-57-6	Trans-1,4-Dichloro-2-Butene	6		U
100-41-4	Ethylbenzene	6		U
97-63-2	Ethyl Methacrylate	6		U
87-68-3	Hexachlorobutadiene	6		U
591-78-6	2-Hexanone	11		U
74-88-4	Iodomethane	6		U
98-82-8	Isopropylbenzene	6		U
99-87-6	P-Isopropyltoluene	6		U
126-98-7	Methacrylonitrile	6		U
75-09-2	Methylene Chloride	11		U
80-62-6	Methyl Methacrylate	6		U
108-10-1	4-Methyl-2-Pentanone	11		U
1634-04-4	Methyl-tert-Butyl ether	6		U
91-20-3	Naphthalene	6		U
76-01-7	Pentachloroethane	6		U
103-65-1	N-Propylbenzene	6		U
100-42-5	Styrene	6		U
630-20-6	1,1,1,2-Tetrachloroethane	6		U
79-34-5	1,1,2,2-Tetrachloroethane	6		U
127-18-4	Tetrachloroethene	6		U
108-88-3	Toluene	6		U
87-61-6	1,2,3-Trichlorobenzene	6		U
120-82-1	1,2,4-Trichlorobenzene	6		U
71-55-6	1,1,1-Trichloroethane	6		U
79-00-5	1,1,2-Trichloroethane	6		U
79-01-6	Trichloroethene	6		U

1A
 SW-846 VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S-4-1B

Lab Name: IEA-NC

Method: 8260

Lab Code: IEA

Case No.: 978-065

SDG No.: 08311

Matrix: (soil/water) SOIL

Lab Sample ID: 960831110

Sample wt/vol: 5 (g/mL) g

Lab File ID: 0820708.D

Level: (low/med) LOW

Date Received: 08/16/96

% Moisture: not dec. 12

Date Analyzed: 08/20/96

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

(ug/L or ug/Kg) ug/kg

Q

CAS NO. COMPOUND

CAS NO.	COMPOUND	(ug/L or ug/Kg)	ug/kg	Q
75-69-4	Trichlorofluoromethane	6		U
96-18-4	1,2,3-Trichloropropane	6		U
95-63-6	1,2,4-Trimethylbenzene	6		U
108-67-8	1,3,5-Trimethylbenzene	6		U
108-05-4	Vinyl Acetate	11		U
75-01-4	Vinyl Chloride	11		U
1330-20-7	Xylene (Total)	6		U

1E
 SW-846 VOLATILE ORGANICS ANALYSIS DATA SHEET
 TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

S-4-1B!

Lab Name: IEA-NC

Method: 8260

Lab Code: IEA

Case No.: 978-065

SDG No.: 08311

Matrix: (soil/water) SOIL

Lab Sample ID: 960831110

Sample wt/vol: 5 (g/mL) g

Lab File ID: 0820708.D

Level: (low/med) LOW

Date Received: 08/16/96

% Moisture: not dec. 12

Date Analyzed: 08/20/96

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Number TICs Found: 0

CONCENTRATION UNITS:
 (ug/L or ug/Kg) ug/kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

SW-846 SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S18

Lab Name: INDUSTRIAL & ENVIRONMENTA

Lab Code: IEA Case No.: 978-065 Method: 8270 SDG No.: 08311

Matrix: (soil/water) SOIL Lab Sample ID: 960831105

Sample wt/vol: 30.1 (g/mL) G Lab File ID: 0820402.D

Level: (low/med) LOW Date Received: 08/16/96

% Moisture: 9 decanted: (Y/N) N Date Extracted: 08/16/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/20/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG Q

CAS NO.	COMPOUND	CONCENTRATION UNITS	Q
91-20-3	Naphthalene	360	U
91-57-6	2-Methylnaphthalene	360	U
91-58-7	2-Chloronaphthalene	360	U
208-96-8	Acenaphthylene	360	U
83-32-9	Acenaphthene	360	U
86-73-7	Fluorene	360	U
85-01-8	Phenanthrene	360	U
120-12-7	Anthracene	360	U
206-44-0	Fluoranthene	360	U
129-00-0	Pyrene	360	U
56-55-3	Benzo(a) anthracene	360	U
218-01-9	Chrysene	360	U
205-99-2	Benzo(b) Fluoranthene	360	U
207-08-9	Benzo(k) fluoranthene	360	U
50-32-8	Benzo(a) pyrene	360	U
193-39-5	Indeno(1,2,3-cd) pyrene	360	U
53-70-3	Dibenz(a,h) anthracene	360	U
191-24-2	Benzo(g,h,i) perylene	360	U

1B
 SW-846 SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S21A

Lab Name: INDUSTRIAL & ENVIRONMENTAL

Lab Code: IEA Case No.: 978-065 Method: 8270 SDG No.: 08311

Matrix: (soil/water) SOIL Lab Sample ID: 960831102

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 0819405.D

Level: (low/med) LOW Date Received: 08/16/96

‡ Moisture: 17 decanted: (Y/N) N Date Extracted: 08/16/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/19/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N CONCENTRATION UNITS: Q
 CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG

91-20-3-----Naphthalene	390	U
91-57-6-----2-Methylnaphthalene	390	U
91-58-7-----2-Chloronaphthalene	390	U
208-96-8-----Acenaphthylene	390	U
83-32-9-----Acenaphthene	390	U
86-73-7-----Fluorene	390	U
85-01-8-----Phenanthrene	390	U
120-12-7-----Anthracene	390	U
206-44-0-----Fluoranthene	390	U
129-00-0-----Pyrene	390	U
56-55-3-----Benzo(a)anthracene	390	U
218-01-9-----Chrysene	390	U
205-99-2-----Benzo(b)fluoranthene	390	U
207-08-9-----Benzo(k)fluoranthene	390	U
50-32-8-----Benzo(a)pyrene	390	U
193-39-5-----Indeno(1,2,3-cd)pyrene	390	U
53-70-3-----Dibenz(a,h)anthracene	390	U
191-24-2-----Benzo(g,h,i)perylene	390	U

1B
SW-846 SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S21B

Lab Name: INDUSTRIAL & ENVIRONMENTA

Lab Code: IEA Case No.: 978-065 Method: 8270 SDG No.: 08311

Matrix: (soil/water) SOIL Lab Sample ID: 960831107

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 0819410.D

Level: (low/med) LOW Date Received: 08/16/96

‡ Moisture: 16 decanted: (Y/N) N Date Extracted: 08/16/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/19/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N CONCENTRATION UNITS:
CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

91-20-3-----Naphthalene	390	U
91-57-6-----2-Methylnaphthalene	390	U
91-58-7-----2-Chloronaphthalene	390	U
208-96-8-----Acenaphthylene	390	U
83-32-9-----Acenaphthene	390	U
86-73-7-----Fluorene	390	U
85-01-8-----Phenanthrene	390	U
120-12-7-----Anthracene	390	U
206-44-0-----Fluoranthene	390	U
129-00-0-----Pyrene	390	U
56-55-3-----Benzo(a)anthracene	390	U
218-01-9-----Chrysene	390	U
205-99-2-----Benzo(b)fluoranthene	390	U
207-08-9-----Benzo(k)fluoranthene	390	U
50-32-8-----Benzo(a)pyrene	390	U
193-39-5-----Indeno(1,2,3-cd)pyrene	390	U
53-70-3-----Dibenz(a,h)anthracene	390	U
191-24-2-----Benzo(g,h,i)perylene	390	U

1B
SW-846 SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S21C

Lab Name: INDUSTRIAL & ENVIRONMENTA

Lab Code: IEA Case No.: 978-065 Method: 8270 SDG No.: 08311

Matrix: (soil/water) SOIL Lab Sample ID: 960831104

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 0819407.D

Level: (low/med) LOW Date Received: 08/16/96

% Moisture: 15 decanted: (Y/N) N Date Extracted: 08/16/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/19/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N CONCENTRATION UNITS:
CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

91-20-3-----Naphthalene	390	U
91-57-6-----2-Methylnaphthalene	390	U
91-58-7-----2-Chloronaphthalene	390	U
208-96-8-----Acenaphthylene	390	U
83-32-9-----Acenaphthene	390	U
86-73-7-----Fluorena	390	U
85-01-8-----Phenanthrene	390	U
120-12-7-----Anthracene	390	U
206-44-0-----Fluoranthene	390	U
129-00-0-----Pyrene	390	U
56-55-3-----Benzo(a)anthracene	390	U
218-01-9-----Chrysene	390	U
205-99-2-----Benzo(b)Fluoranthene	390	U
207-08-9-----Benzo(k)fluoranthene	390	U
50-32-8-----Benzo(a)pyrene	390	U
193-39-5-----Indeno(1,2,3-cd)pyrene	390	U
53-70-3-----Dibenz(a,h)anthracene	390	U
191-24-2-----Benzo(g,h,i)perylene	390	U

1B
SW-846 SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S21D

Lab Name: INDUSTRIAL & ENVIRONMENTA

Lab Code: IEA Case No.: 978-065 Method: 8270 SDG No.: 08311

Matrix: (soil/water) SOIL Lab Sample ID: 960831103

Sample wt/vol: 30.1 (g/mL) G Lab File ID: 0819406.D

Level: (low/med) LOW Date Received: 08/16/96

* Moisture: 16 decanted: (Y/N) N Date Extracted: 08/16/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/19/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N CONCENTRATION UNITS:
CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

91-20-3-----Naphthalene	390	U
91-57-6-----2-Methylnaphthalene	390	U
91-58-7-----2-Chloronaphthalene	390	U
208-96-8-----Acenaphthylene	390	U
83-32-9-----Acenaphthene	390	U
86-73-7-----Fluorene	390	U
85-01-8-----Phenanthrene	390	U
120-12-7-----Anthracene	390	U
206-44-0-----Fluoranthene	390	U
129-00-0-----Pyrene	390	U
56-55-3-----Benzo (a) anthracene	390	U
218-01-9-----Chrysene	390	U
205-99-2-----Benzo (b) Fluoranthene	390	U
207-08-9-----Benzo (k) fluoranthene	390	U
50-32-8-----Benzo (a) pyrene	390	U
193-39-5-----Indeno (1, 2, 3-cd) pyrene	390	U
53-70-3-----Dibenz (a, h) anthracene	390	U
191-24-2-----Benzo (g, h, i) perylene	390	U

1B
SW-846 SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S31

Lab Name: INDUSTRIAL & ENVIRONMENTAL

Lab Code: IEA Case No.: 978-065 Method: 8270 SDG No.: 08311

Matrix: (soil/water) SOIL Lab Sample ID: 960831108

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 0819411.D

Level: (low/med) LOW Date Received: 08/16/96

Moisture: 14 decanted: (Y/N) N Date Extracted: 08/16/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/19/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N
CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG Q

91-20-3-----Naphthalene	380	U
91-57-6-----2-Methylnaphthalene	380	U
91-58-7-----2-Chloronaphthalene	380	U
208-96-8-----Acenaphthylene	380	U
83-32-9-----Acenaphthene	380	U
86-73-7-----Fluorene	380	U
85-01-8-----Phenanthrene	380	U
120-12-7-----Anthracene	380	U
206-44-0-----Fluoranthene	380	U
129-00-0-----Pyrene	380	U
56-55-3-----Benzo (a) anthracene	380	U
218-01-9-----Chrysene	380	U
205-99-2-----Benzo (b) Fluoranthene	380	U
207-08-9-----Benzo (k) fluoranthene	380	U
50-32-8-----Benzo (a) pyrene	380	U
193-39-5-----Indeno (1,2,3-cd) pyrene	380	U
53-70-3-----Dibenz (a,h) anthracene	380	U
191-24-2-----Benzo (g,h,i) perylene	380	U

1B
SW-846 SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S41A

Lab Name: INDUSTRIAL & ENVIRONMENTA

Lab Code: IEA Case No.: 978-065 Method: 8270 SDG No.: 08311

Matrix: (soil/water) SOIL Lab Sample ID: 960831106

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 0819409.D

Level: (low/med) LOW Date Received: 08/16/96

% Moisture: 11 decanted: (Y/N) N Date Extracted: 08/16/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/19/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N CONCENTRATION UNITS:
CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

91-20-3-----Naphthalene	370	U
91-57-6-----2-Methylnaphthalene	370	U
91-58-7-----2-Chloronaphthalene	370	U
208-96-8-----Acenaphthylene	370	U
83-32-9-----Acenaphthene	370	U
86-73-7-----Fluorene	370	U
85-01-8-----Phenanthrene	370	U
120-12-7-----Anthracene	370	U
206-44-0-----Fluoranthene	370	U
129-00-0-----Pyrene	370	U
56-55-3-----Benzo(a)anthracene	370	U
218-01-9-----Chrysene	370	U
205-99-2-----Benzo(b)fluoranthene	370	U
207-08-9-----Benzo(k)fluoranthene	370	U
50-32-8-----Benzo(a)pyrene	370	U
193-39-5-----Indeno(1,2,3-cd)pyrene	370	U
53-70-3-----Dibenz(a,h)anthracene	370	U
191-24-2-----Benzo(g,h,i)perylene	370	U

1B
SW-846 SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

S41B

Lab Name: INDUSTRIAL & ENVIRONMENTA

Lab Code: IEA Case No.: 978-065 Method: 8270 SDG No.: 08311

Matrix: (soil/water) SOIL Lab Sample ID: 960831110

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 0819413.D

Level: (low/med) LOW Date Received: 08/16/96

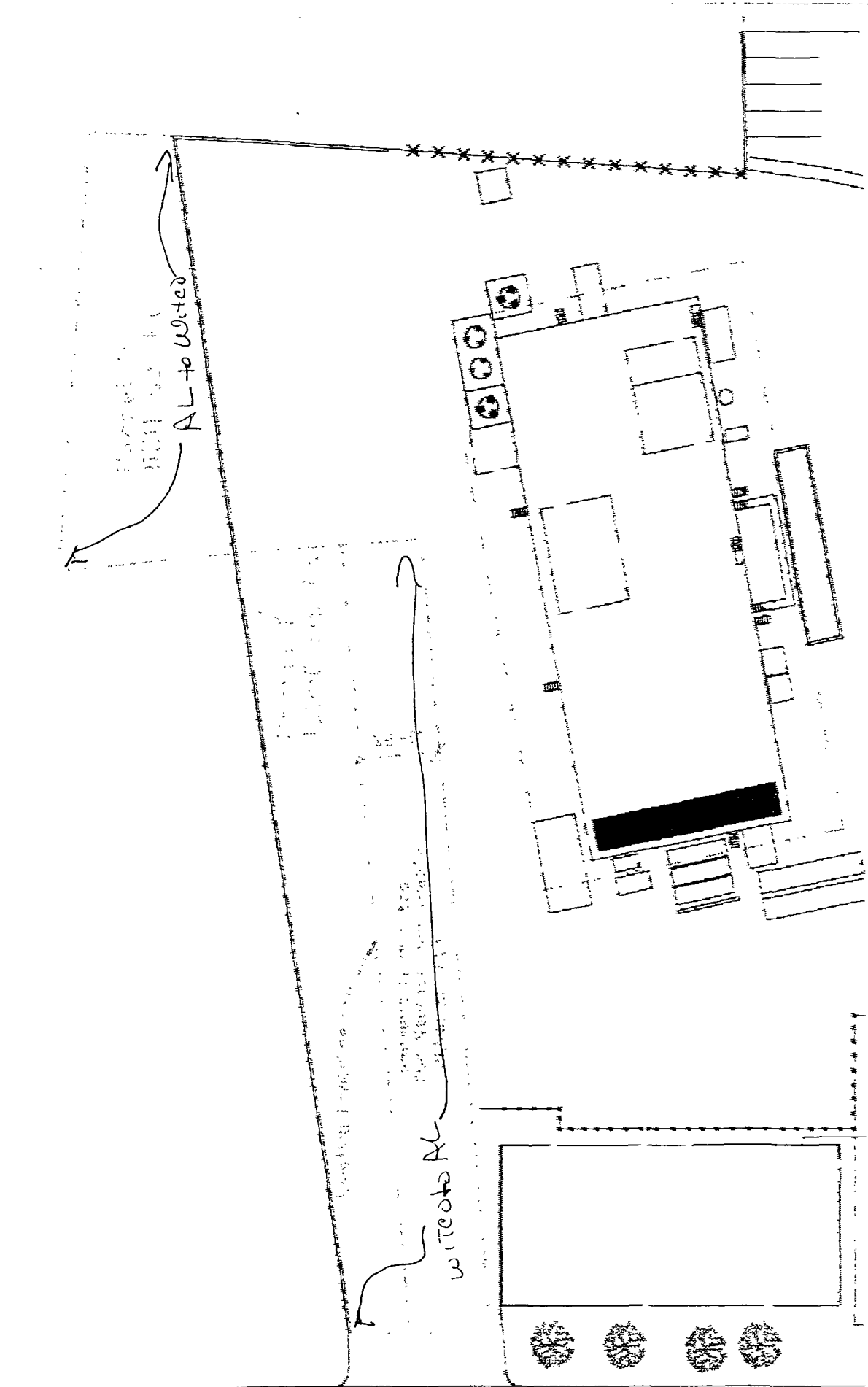
‡ Moisture: 12 decanted: (Y/N) N Date Extracted: 08/16/96

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/19/96

Injection Volume: 2.0(uL) Dilution Factor: 1.0

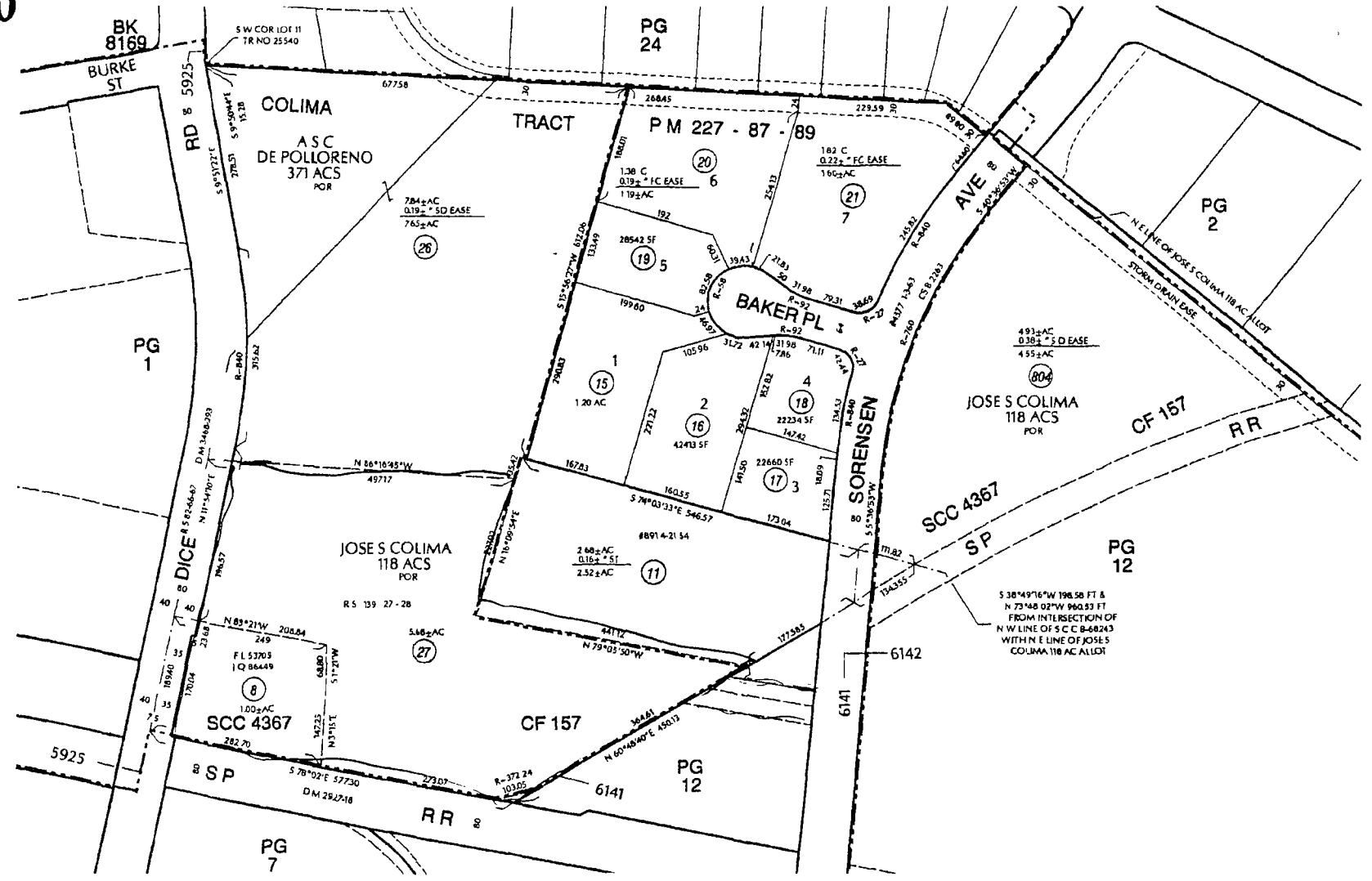
GPC Cleanup: (Y/N) N CONCENTRATION UNITS:
CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

91-20-3-----Naphthalene	380	U
91-57-6-----2-Methylnaphthalene	380	U
91-58-7-----2-Chloronaphthalene	380	U
208-96-8-----Acenaphthylene	380	U
83-32-9-----Acenaphthene	380	U
86-73-7-----Fluorene	380	U
85-01-8-----Phenanthrene	380	U
120-12-7-----Anthracene	380	U
206-44-0-----Fluoranthene	380	U
129-00-0-----Pyrene	380	U
56-55-3-----Benzo(a)anthracene	380	U
218-01-9-----Chrysene	380	U
205-99-2-----Benzo(b)fluoranthene	380	U
207-08-9-----Benzo(k)fluoranthene	380	U
50-32-8-----Benzo(a)pyrene	380	U
193-39-5-----Indeno(1,2,3-cd)pyrene	380	U
53-70-3-----Dibenz(a,h)anthracene	380	U
191-24-2-----Benzo(g,h,i)perylene	380	U



8168	13	PA 8168-13	TRA 8926 041 042	REVISED 89022204008001 90040409003001-11	920121 99063008013002-11 99063008013004-11	SEARCH NO	MAP EXTENTS 428782-428997 4097372-4098781	OFFICE OF THE ASSESSOR COUNTY OF LOS ANGELES COPYRIGHT © 1998
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2000



DICE 00310



South Coast
AIR QUALITY MANAGEMENT DISTRICT

orig to Steve Reblin
SF Springs
8/18/88

HEADQUARTERS, 9150 E FLAIR DR., EL MONTE, CA 91731

AUGUST 31, 1988

LIQUID AIR CORP, INDUSTRIAL GASES DIV ID - 055590
2121 N CALIFORNIA BLVD
WALNUT CREEK CA 94596

OFFICIAL DOCUMENT

ANNUAL VALIDATION OF PERMIT TO OPERATE

DEAR PERMIT HOLDER:

THIS LETTER IS THE OFFICIAL NOTICE OF RENEWAL AND ACKNOWLEDGEMENT OF PAYMENT FOR THE ATTACHED LIST OF PERMIT(S) TO OPERATE. OPERATION UNDER THIS LETTER AND THE PERMIT(S) WHICH IT RENEWS MUST BE CONDUCTED IN COMPLIANCE WITH ALL INFORMATION INCLUDED WITH THE INITIAL APPLICATION AS WELL AS THE INITIAL PERMIT CONDITIONS. THE EQUIPMENT MUST BE MAINTAINED AND KEPT IN GOOD CONDITION AT ALL TIMES. UNLESS OTHERWISE SPECIFICALLY STATED, THE ORIGINAL PERMIT TO OPERATE REMAINS IN FULL FORCE AND EFFECT, AND MUST BE RETAINED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT.

FOR FURTHER INFORMATION, OR IF YOU HAVE ANY QUESTIONS REGARDING THIS LETTER, PLEASE CALL CUSTOMER SERVICE AT (816) 572-6326.

SINCERELY,

JAMES M. LENTS, PH.D.
EXECUTIVE OFFICER

NEW CONDITIONS (NONE)
RENEWAL(S) ATTACHED

F I L E
FLAIR RES
SF Springs (8832)



RECEIVED AUG 8 1988

South Coast
AIR QUALITY MANAGEMENT DISTRICT

HEADQUARTERS, 9150 E FLAIR DR., EL MONTE, CA 91731

AUGUST 01, 1988

LIQUID AIR CORP, INDUSTRIAL GASES DIV ID - 955690
8832 DICE RD
SANTA FE SPRINGS CA 906700000

PERMIT RENEWALS

PERMIT NUMBER	DESCRIPTION		APPLIC NUMBER	EXPIRATION DATE
M55385	ACETONE,	STORAGE-OTHEP	152309	07/16/89

98 2327780

RECORDING REQUESTED BY)
AND WHEN RECORDED MAIL TO)
DICE ROAD LLC)
4675 MacArthur Court, Suite 430)
Newport Beach, CA 92660)

RECORDED/FILED IN OFFICIAL RECORDS
RECORDER'S OFFICE
LOS ANGELES COUNTY
CALIFORNIA
2:41 PM DEC 23 1998

SURVEY MONUMENT FEE \$10 CODE 99 FEE \$42 N

SPACE ABOVE THIS LINE FOR RECORDER'S USE

A. F. N. F. CODE 94

GRANT DEED

The undersigned grantor declares: Documentary transfer tax is \$71.50 computed on the full value of the property conveyed less the value of liens and encumbrances remaining at the time of sale.

FOR VALUABLE CONSIDERATION, receipt of which is hereby acknowledged, AIR LIQUIDE AMERICA CORPATION, a Delaware corporation, hereby grants to DICE ROAD LLC, a Delaware limited liability company, the real property located in the City of Santa Fe Springs, County of Los Angeles of California, , consisting of that portion of the real property described on Exhibit 1 attached hereto (Existing Air Liquide Property) which is included within the real property described on Exhibit 2 attached hereto (Proposed Dice Road Parcel).

SUBJECT TO.

1. Current taxes and assessments.
2. All other matters of record or apparent.

IN WITNESS WHEREOF, grantor has executed this instrument as of the 10th day of December, 1998.

AIR LIQUIDE AMERICA CORPATION

By: *[Signature]*

Name: John B. [Signature]

Title: Vice President

[Handwritten initials]

6
16

© 1998 AIR LIQUIDE AMERICA CORPATION

DICE 00313

8168-013-013
DOC#98-2327780-02



PLEASE READ YELLOW SHEET FIRST

AIR LIQUIDE AMERICA CORP

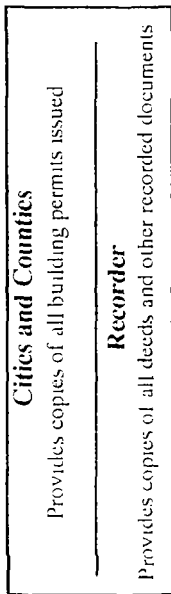
P O BOX 8038
WALNUT CREEK CA 94596

(fold line)

Kenneth P. Hahn
Los Angeles County Assessor
500 West Temple Street, Los Angeles, CA 90012-2770

For Public Service call (213) 974-3211

How the Property Tax System Works



County Assessor
Assesses all real estate and personal property (businesses, boats, and airplanes) located throughout the entire county



Auditor-Controller
Receives the assessments from the Assessor and applies the appropriate tax rate to determine the actual amount of property taxes owed



Treasurer-Tax Collector
Mails out the property tax bills, collects the money, and deposits it in the County Treasury



Auditor-Controller
Allocates the money to over 900 local taxing agencies, including the County, cities, schools, and special districts

98 2327780

EXHIBIT I
[EXISTING AIR LIQUIDE PROPERTY]

PARCEL "B"

THAT PORTION OF THE COLIMA TRACT, IN THE RANCHO SANTA GETRUDES, IN THE CITY OF SANTA FE SPRINGS, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS.

COMMENCING AT A POINT IN THE CENTER LINE OF DICE ROAD, 40 00 FEET NORTHERLY THEREON FROM THE CENTER LINE OF THE RIGHT OF WAY OF THE PACIFIC ELECTRIC RAILWAY (AS SAID RIGHT OF WAY AND DICE ROAD ARE SHOWN ON MAP RECORDED IN BOOK 3465 PAGE 135 OF DEEDS, RECORDS OF SAID COUNTY), THENCE ALONG SAID CENTER LINE OF DICE ROAD, NORTH 11°54'10" EAST 120.90 FEET, THENCE SOUTH 83°26" EAST 261 70 FEET TO THE TRUE POINT OF BEGINNING; THENCE NORTH 01°21' EAST 68 8 FEET, THENCE NORTH 83°21" WEST 249.00 FEET TO THE CENTER LINE OF SAID DICE ROAD, THENCE NORTH 11°54'10" EAST ALONG SAID CENTER LINE 196 65 FEET, THENCE SOUTH 83°07'50" EAST 340 15 FEET, THENCE NORTH 08°26'10" EAST 145 34 FEET TO THE NORTHERLY LINE OF THE LAND DESCRIBED IN CERTIFICATE OF TITLE NO X-10800 ON FILE IN THE OFFICE OF THE REGISTRAR OF SAID COUNTY, THENCE ALONG THE NORTHERLY LINE SOUTH 73°50'40" EAST 823 79 FEET TO THE NORTHWESTERLY LINE OF THE SOUTHERN PACIFIC RAILROAD RIGHT OF WAY AS SAID RIGHT OF WAY WAS KNOWN ON AUGUST 24, 1920; THENCE SOUTH 60°48'40" WEST 762 07 FEET TO THE NORTHERLY LINE OF SAID PACIFIC RAILWAY RIGHT OF WAY, THENCE ALONG SAID LAST MENTIONED NORTHERLY LINE NORTH 78°02' WEST 294 60 FEET TO A POINT DISTANT SOUTH 78°02' EAST 282 70 FEET THEREON FROM SAID CENTER LINE OF DICE ROAD, THENCE NORTH 03°15' EAST 147.25 FEET TO THE TRUE POINT OF BEGINNING

EXCEPT THEREFROM THE LAND DESCRIBED IN THE DEED FROM BURDETT OXYGEN COMPANY OF CLEVELAND, INC., A CORPORATION, TO C.W. ROBERTS, A MARRIED MAN, RECORDED APRIL 21, 1954 IN BOOK 44382 PAGE 402, OFFICIAL RECORDS

ALSO EXCEPT THEREFROM THAT PORTION WITHIN SAID DICE ROAD CONVEYED TO COUNTY OF LOS ANGELES IN FEE SIMPLE FOR ROAD PURPOSES BY DEED RECORDED OCTOBER 10, 1908 IN BOOK 3465 PAGE 133 OF DEEDS.

DICE 00315

98 2327780

STATE OF ~~CALIFORNIA~~ ^{TEXAS})
)
COUNTY OF Harris)

ss.

On December 10th, 1998 before me, DONNA C. DAILEY, a Notary Public in and for said State, personally appeared Tomu Baird, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument

WITNESS my hand and official seal.

Donna C. Dailey
Notary Public in and for said State



98 2327780

4

ALSO EXCEPT THEREFROM THE LAND CONVEYED TO JOHN G. LOCKE AND JANYCE E. LOCKE, HUSBAND AND WIFE AS COMMUNITY PROPERTY, AS TO AN UNDIVIDED ONE-THIRD (1/3) INTEREST, ROBERT O. BERG AND DONNA M. BERG, HUSBAND AND WIFE AS COMMUNITY PROPERTY, AS TO AN UNDIVIDED ONE-THIRD (1/3) INTEREST, AND ARNOLD ROSENTHAL AND PEARL ROSENTHAL, HUSBAND AND WIFE AS JOINT TENANTS BY DEED RECORDED DECEMBER 12, 1975 AS INSTRUMENT NO. 4550, OFFICIAL RECORDS, DESCRIBED AS FOLLOWS:

BEGINNING AT THE MOST SOUTHERLY CORNER OF THE LAND SHOWN ON SAID MAP NO. CF-157; THENCE NORTH 60°48'40" EAST ALONG THE SOUTHEASTERLY BOUNDARY OF SAID LAND 85.52 FEET TO A POINT OF CUSP WITH A TANGENT CURVE CONCAVE NORTHWESTERLY AND HAVING A RADIUS OF 372.24 FEET, THENCE SOUTHWESTERLY ALONG SAID CURVE, THROUGH A CENTRAL ANGLE OF 15°15'39", AN ARC DISTANCE OF 103.05 FEET TO ITS INTERSECTION WITH THE SOUTHERLY BOUNDARY OF SAID LAND, THENCE SOUTH 78°02'00" EAST, ALONG SAID SOUTHERLY BOUNDARY, 21.53 FEET TO THE POINT OF BEGINNING, CONTAINING AN AREA OF 362 SQUARE FEET MORE OR LESS

98 2327780

EXHIBIT 2
[PROPOSED DICE ROAD PARCEL]

PARCEL "A"

THAT PORTION OF THE RANCHO SANTA GERTRUDES, BEING ALSO PART OF THE TRACT FINALLY CONFIRMED TO TOMAS SANCHEZ COLIMA AND KNOWN AS THE COLIMA TRACT, IN THE CITY OF SANTA FE SPRINGS, DESCRIBED AS FOLLOWS:

BEGINNING AT THE FIRST ANGLE POINT IN THE CENTER LINE OF DICE ROAD, 40 FEET WIDE, SOUTHERLY OF SORENSON LANE, (NOW BURKE STREET) SAID ANGLE POINT BEING MARKED BY A COUNTY SURVEYOR'S CONCRETE MONUMENT AS SHOWN IN FIELD BOOK FT33-366, ON FILE IN THE OFFICE OF THE COUNTY SURVEYOR OF SAID LOS ANGELES COUNTY, THENCE ALONG SAID CENTER LINE OF DICE ROAD, NORTH $09^{\circ}37'40''$ WEST 7 10 FEET, THENCE SOUTH $73^{\circ}50'40''$ EAST 22 21 FEET TO A POINT IN THE EAST LINE OF SAID DICE ROAD, SAID POINT BEING MARKED BY A 2 INCH IRON PIPE AND BEING DISTANT NORTH $09^{\circ}37'40''$ WEST 1 23 FEET FROM AN ANGLE POINT IN SAID EAST LINE OF DICE ROAD; THENCE ALONG A LINE WHICH PASSES THROUGH A 2 INCH IRON PIPE SET IN THE NORTHWESTERLY LINE OF THE RIGHT OF WAY, 50 FEET WIDE, OF THE PACIFIC ELECTRIC RAILROAD, AS DESCRIBED IN DEED TO THE LONG BEACH, WHITTIER AND LOS ANGELES COUNTY RAILROAD COMPANY, RECORDED IN BOOK 378 PAGE 284 OF DEEDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, SOUTH $73^{\circ}50'40''$ EAST 480 68 FEET TO THE TRUE POINT OF BEGINNING

THENCE AT RIGHT ANGLES NORTH $16^{\circ}09'20''$ EAST 612 06 FEET TO A POINT IN THAT CERTAIN COURSE HAVING A LENGTH OF 1175.91 FEET IN THE SOUTHERLY BOUNDARY OF PARCEL 1, AS SHOWN ON THE MAP FILED IN BOOK 65 PAGE 38 OF RECORD OF SURVEYS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY; THENCE NORTH $86^{\circ}14'22''$ WEST ALONG SAID CERTAIN COURSE 677 58 FEET TO A 2 INCH IRON PIPE IN THE EASTERLY LINE OF DICE ROAD, 40 FEET WIDE, AS SAID PIPE AND ROAD ARE SHOWN ON SAID LAST MENTIONED MAP; THENCE ALONG SAID DICE ROAD, SOUTH $09^{\circ}37'51''$ EAST 15.28 FEET TO AN ANGLE POINT THEREIN AND SOUTH $80^{\circ}05'09''$ WEST 40 00 FEET TO AN ANGLE POINT THEREIN, THENCE ALONG SAID DICE ROAD, SOUTH $09^{\circ}38'29''$ EAST 483 46 FEET TO SAID 2 INCH IRON PIPE IN THE EAST LINE OF DICE ROAD, THAT IS DISTANT NORTH $09^{\circ}37'40''$ WEST 1 23 FEET FROM AN ANGLE POINT IN SAID EAST LINE OF DICE ROAD, THENCE ALONG SAID LINE WHICH PASSES THROUGH A 2 INCH IRON PIPE SET IN THE NORTHWESTERLY LINE OF SAID RIGHT OF WAY, 50 FEET WIDE, NORTH $73^{\circ}50'40''$ WEST 22.21 FEET TO THE CENTERLINE OF SAID DICE ROAD; THENCE SOUTH $9^{\circ}51'22''$ EAST ALONG THE CENTERLINE OF SAID DICE ROAD 7 10 FEET TO SAID ANGLE POINT IN SAID DICE ROAD, THENCE SOUTH $11^{\circ}54'10''$ WEST ALONG THE CENTERLINE OF SAID DICE ROAD 136.46 FEET, THENCE SOUTH $86^{\circ}16'45''$ EAST 497 17 FEET TO THE WESTERLY LINE OF THE LAND DESCRIBED

DICE 00318

EXHIBIT 2
[PROPOSED DICE ROAD PARCEL]

PARCEL "A"

THAT PORTION OF THE RANCHO SANTA GERTRUDES, BEING ALSO PART OF THE TRACT FINALLY CONFIRMED TO TOMAS SANCHEZ COLIMA AND KNOWN AS THE COLIMA TRACT, IN THE CITY OF SANTA FE SPRINGS, DESCRIBED AS FOLLOWS:

BEGINNING AT THE FIRST ANGLE POINT IN THE CENTER LINE OF DICE ROAD, 40 FEET WIDE, SOUTHERLY OF SORENSON LANE, (NOW BURKE STREET) SAID ANGLE POINT BEING MARKED BY A COUNTY SURVEYOR'S CONCRETE MONUMENT AS SHOWN IN FIELD BOOK FT33-366, ON FILE IN THE OFFICE OF THE COUNTY SURVEYOR OF SAID LOS ANGELES COUNTY; THENCE ALONG SAID CENTER LINE OF DICE ROAD, NORTH $09^{\circ}37'40''$ WEST 7.10 FEET; THENCE SOUTH $73^{\circ}50'40''$ EAST 22.21 FEET TO A POINT IN THE EAST LINE OF SAID DICE ROAD, SAID POINT BEING MARKED BY A 2 INCH IRON PIPE AND BEING DISTANT NORTH $09^{\circ}37'40''$ WEST 1.23 FEET FROM AN ANGLE POINT IN SAID EAST LINE OF DICE ROAD; THENCE ALONG A LINE WHICH PASSES THROUGH A 2 INCH IRON PIPE SET IN THE NORTHWESTERLY LINE OF THE RIGHT OF WAY, 50 FEET WIDE, OF THE PACIFIC ELECTRIC RAILROAD, AS DESCRIBED IN DEED TO THE LONG BEACH, WHITTIER AND LOS ANGELES COUNTY RAILROAD COMPANY, RECORDED IN BOOK 378 PAGE 284 OF DEEDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, SOUTH $73^{\circ}50'40''$ EAST 480.68 FEET TO THE TRUE POINT OF BEGINNING

THENCE AT RIGHT ANGLES NORTH $16^{\circ}09'20''$ EAST 612.06 FEET TO A POINT IN THAT CERTAIN COURSE HAVING A LENGTH OF 1175.91 FEET IN THE SOUTHERLY BOUNDARY OF PARCEL 1, AS SHOWN ON THE MAP FILED IN BOOK 65 PAGE 38 OF RECORD OF SURVEYS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY; THENCE NORTH $86^{\circ}14'22''$ WEST ALONG SAID CERTAIN COURSE 677.58 FEET TO A 2 INCH IRON PIPE IN THE EASTERLY LINE OF DICE ROAD, 40 FEET WIDE, AS SAID PIPE AND ROAD ARE SHOWN ON SAID LAST MENTIONED MAP; THENCE ALONG SAID DICE ROAD, SOUTH $09^{\circ}37'51''$ EAST 15.28 FEET TO AN ANGLE POINT THEREIN AND SOUTH $80^{\circ}05'09''$ WEST 40.00 FEET TO AN ANGLE POINT THEREIN, THENCE ALONG SAID DICE ROAD, SOUTH $09^{\circ}38'29''$ EAST 483.46 FEET TO SAID 2 INCH IRON PIPE IN THE EAST LINE OF DICE ROAD, THAT IS DISTANT NORTH $09^{\circ}37'40''$ WEST 1.23 FEET FROM AN ANGLE POINT IN SAID EAST LINE OF DICE ROAD; THENCE ALONG SAID LINE WHICH PASSES THROUGH A 2 INCH IRON PIPE SET IN THE NORTHWESTERLY LINE OF SAID RIGHT OF WAY, 50 FEET WIDE, NORTH $73^{\circ}50'40''$ WEST 22.21 FEET TO THE CENTERLINE OF SAID DICE ROAD; THENCE SOUTH $9^{\circ}51'22''$ EAST ALONG THE CENTERLINE OF SAID DICE ROAD 7.10 FEET TO SAID ANGLE POINT IN SAID DICE ROAD; THENCE SOUTH $11^{\circ}54'10''$ WEST ALONG THE CENTERLINE OF SAID DICE ROAD 136.46 FEET; THENCE SOUTH $86^{\circ}16'45''$ EAST 497.17 FEET TO THE WESTERLY LINE OF THE LAND DESCRIBED

98 2327780

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IN INSTRUMENT NUMBER 891, RECORDED APRIL 21, 1954 IN BOOK 44382 PAGE 402,
OF OFFICIAL RECORDS, RECORDS OF SAID COUNTY, THENCE ALONG THE
WESTERLY LINE OF LAST SAID INSTRUMENT NORTH 16D 06' 40" EAST 35.42 FEET
TO THE SAID LINE WHICH PASSES THRU A 2 INCH IRON PIPE, SAID LINE ALSO
BEING THE NORTHERLY LINE OF THE LAND DESCRIBED IN CERTIFICATE OF
TITLE NO. X-10800 ON FILE IN THE OFFICE OF THE REGISTRAR OF SAID COUNTY;
THENCE ALONG LAST SAID LINE SOUTH 73D50'40" EAST 4 21 TO THE TRUE POINT
OF BEGINNING

DOCUMENT 05/0+

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2002.18 |

JB 2327779

RECORDING REQUESTED BY)
AND WHEN RECORDED MAIL TO)
AIR LIQUIDE AMERICA CORP.,)
8832 Dice Road)
Santa Fe Springs, CA 90970)

RECORDED/FILED IN OFFICIAL RECORDS
RECORDER'S OFFICE
LOS ANGELES COUNTY
CALIFORNIA
2:41 PM DEC 23 1998

~~SURVEY MONUMENT FEE \$10. CODE 9~~

SPACE ABOVE THIS LINE FOR RECORDER'S USE

FEE \$42.75 N

A. F. N. F. CODE 94

GRANT DEED

The undersigned grantor declares: Documentary transfer tax is \$71.50 computed on the full value of the property conveyed less the value of liens and encumbrances remaining at the time of sale

FOR VALUABLE CONSIDERATION, receipt of which is hereby acknowledged, DICE ROAD LLC, a Delaware limited liability company, hereby grants to AIR LIQUIDE AMERICA CORPORATION, a Delaware corporation, the real property located in the City of Santa Fe Springs, County of Los Angeles of California, consisting of that portion of the real property described on Exhibit 1 attached hereto (Existing Dice Road Property) which is included within the real property described on Exhibit 2 attached hereto (Proposed Air Liquide Parcel).

SUBJECT TO:

- 1 Current taxes and assessments.
- 2 All other matters of record or apparent.

8th IN WITNESS WHEREOF, grantor has executed this instrument as of the day of December, 1998

DICE ROAD LLC

By RCW Properties, LLC
a Delaware limited liability company
Managing Member

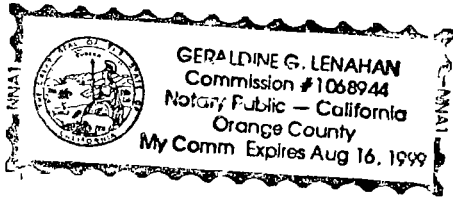
By: Ralph C. Wintrode
Ralph C. Wintrode, Managing Member

NOTIFICATION SENT-\$40

STATE OF CALIFORNIA)
)
COUNTY OF Orange) SS 98 2327779

On December 8, 1998 before me, Geraldine G. Lenahan a Notary Public in and for said State, personally appeared Ralph C. Wintrede, personally known to me (~~or proved to me on the basis of satisfactory evidence~~) to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument

WITNESS my hand and official seal.



Geraldine G. Lenahan
Notary Public in and for said State

(Seal)

EXHIBIT 1
[EXISTING DICE ROAD PROPERTY]

PARCEL "A" (TWO PARCELS)
PARCEL 1

THAT PORTION OF THE COLIMA TRACT, IN THE RANCHO SANTA GERTRUDES, IN THE CITY OF SANTA FE SPRINGS, AS SHOWN ON MAP FILED IN SUPERIOR COURT CASE NO 4367, COUNTY SURVEYOR'S MAP NO. CF-157, IN THE OFFICE OF THE SURVEYOR OF SAID COUNTY, WITHIN THE FOLLOWING DESCRIBED BOUNDARIES.

COMMENCING AT A POINT IN THE CENTER LINE OF DICE ROAD, 40.00 FEET NORTHERLY THEREON FROM THE CENTER LINE OF THE RIGHT OF WAY OF THE PACIFIC ELECTRIC RAILWAY, AS SAID RIGHT OF WAY AND DICE ROAD ARE SHOWN ON MAP RECORDED IN BOOK 3465 PAGE 135 OF DEEDS; THENCE NORTH 11°54'10" EAST ALONG THE CENTER LINE OF SAID DICE ROAD 120.90 FEET; THENCE SOUTH 83°26" EAST 261.70 FEET; THENCE NORTH 01°21" EAST 68.8 FEET; THENCE NORTH 83°21' WEST 249.00 FEET, THENCE NORTH 11°54'10" EAST ALONG THE CENTER LINE OF SAID DICE ROAD, 196.65 FEET TO THE TRUE POINT OF BEGINNING, THENCE SOUTH 83°07'50" EAST 340.15 FEET, THENCE NORTH 08°26'10" EAST 145.34 FEET TO THE NORTHERLY LINE OF THE LAND DESCRIBED IN CERTIFICATE OF TITLES NO. X-10800 ON FILE IN THE OFFICE OF THE REGISTRAR OF TITLES OF SAID COUNTY, THENCE ALONG THE NORTHERLY BOUNDARY OF SAID LAND, NORTH 73°50'40" WEST 333.57 FEET TO THE CENTER LINE OF SAID DICE ROAD, THENCE ALONG LAST MENTIONED CENTER LINE, SOUTH 09°37'40" EAST 7.10 FEET TO AN ANGLE POINT IN SAID CENTER LINE; THENCE SOUTH 11°54'10" WEST 193.05 FEET TO THE TRUE POINT OF BEGINNING

PARCEL 2

THAT PORTION OF THE RANCHO SANTA GERTRUDES, BEING ALSO PART OF THE TRACT FINALLY CONFIRMED TO TOMAS SANCHEZ COLIMA AND KNOWN AS THE COLIMA TRACT, IN THE CITY OF SANTA FE SPRINGS, DESCRIBED AS FOLLOWS:

BEGINNING AT THE FIRST ANGLE POINT IN THE CENTER LINE OF DICE ROAD, 40 FEET WIDE, SOUTHERLY OF SORENSON LANE, (NOW BURKE STREET) SAID ANGLE POINT BEING MARKED BY A COUNTY SURVEYOR'S CONCRETE MONUMENT AS SHOWN IN FIELD BOOK FT33-366, ON FILE IN THE OFFICE OF THE COUNTY SURVEYOR OF SAID LOS ANGELES COUNTY;

98 2327779

THENCE ALONG SAID CENTER LINE OF DICE ROAD, NORTH 09°51'22" WEST 7 10 FEET; THENCE SOUTH 74°03'33" EAST 22.21 FEET TO A POINT IN THE EAST LINE OF SAID DICE ROAD, SAID POINT BEING MARKED BY A 2 INCH IRON PIPE AND BEING DISTANT NORTH 09°51'22" WEST 1 23 FEET FROM AN ANGLE POINT IN SAID EAST LINE OF DICE ROAD, THENCE ALONG A LINE WHICH PASSES THROUGH A 2 INCH IRON PIPE SET IN THE NORTHWESTERLY LINE OF THE RIGHT OF WAY 50 FEET WIDE, OF THE PACIFIC ELECTRIC RAILROAD, AS DESCRIBED IN DEED TO THE LONG BEACH, WHITTIER AND LOS ANGELES COUNTY RAILROAD COMPANY, RECORDED IN BOOK 378 PAGE 284 OF DEEDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, SOUTH 74°03'33" EAST 480 68 FEET TO THE TRUE POINT OF BEGINNING.

THENCE AT RIGHT ANGLES NORTH 15°56'27" EAST 612.06 FEET TO A POINT IN THAT CERTAIN COURSE HAVING A LENGTH OF 1175.91 FEET IN THE SOUTHERLY BOUNDARY OF PARCEL 1, AS SHOWN ON THE MAP FILED IN BOOK 65 PAGE 38 OF RECORD OF SURVEYS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, THENCE NORTH 86°27'15" WEST ALONG SAID CERTAIN COURSE 677 58 FEET TO A 2 INCH IRON PIPE IN THE EASTERLY LINE OF DICE ROAD, 40 FEET WIDE, AS SAID PIPE AND ROAD ARE SHOWN ON SAID LAST MENTIONED MAP, THENCE ALONG SAID DICE ROAD, SOUTH 09°50'44" EAST 15.28 FEET TO AN ANGLE POINT THEREIN AND SOUTH 79°52'16" WEST 40.00 FEET TO AN ANGLE POINT THEREIN; THENCE ALONG SAID DICE ROAD, SOUTH 09°51'22" EAST 483.46 FEET TO SAID 2 INCH IRON PIPE IN THE EAST LINE OF DICE ROAD, THAT IS DISTANT NORTH 09°51'22" WEST 1 23 FEET FROM AN ANGLE POINT IN SAID EAST LINE OF DICE ROAD; THENCE ALONG SAID LINE WHICH PASSES THROUGH A 2 INCH IRON PIPE SET IN THE NORTHWESTERLY LINE OF SAID RIGHT OF WAY, 50 FEET WIDE, SOUTH 74°03'33" EAST 480 68 FEET TO THE TRUE POINT OF BEGINNING

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EXHIBIT 2

[Proposed Air Liquide Parcel]

PARCEL "B"

THAT PORTION OF THE COLIMA TRACT, IN THE RANCHO SANTA GERTRUDES, IN THE CITY OF SANTA FE SPRINGS, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS.

COMMENCING AT A POINT IN THE CENTER LINE OF DICE ROAD, 40 00 FEET NORTHERLY THEREON FROM THE CENTER LINE OF THE RIGHT OF WAY OF THE PACIFIC ELECTRIC RAILWAY (AS SAID RIGHT OF WAY AND DICE ROAD ARE SHOWN ON MAP RECORDED IN BOOK 3465 PAGE 135 OF DEEDS, RECORDS OF SAID COUNTY); THENCE ALONG SAID CENTER LINE OF DICE ROAD, NORTH 11°54'10" EAST 120 90 FEET, THENCE SOUTH 83°26' EAST 261.70 FEET TO THE TRUE POINT OF BEGINNING; THENCE NORTH 01°21' EAST 68 8 FEET; THENCE NORTH 83°21' WEST 249 00 FEET TO THE CENTER LINE OF SAID DICE ROAD, THENCE NORTH 11°54'10" EAST ALONG SAID CENTER LINE TO A POINT BEING 136 46 FEET SOUTHERLY, MEASURED ALONG SAID CENTERLINE FROM THE FIRST ANGLE POINT IN THE CENTERLINE OF SAID DICE ROAD, SAID POINT BEING SHOWN AS MARKED BY A COUNTY SURVEYOR'S CONCRETE MONUMENT AS SHOWN IN FIELD BOOK FT 33-0366 ON FILE IN THE OFFICE OF THE COUNTY SURVEYOR OF SAID COUNTY; THENCE SOUTH 86°16' 45" EAST 497.17 FEET TO THE WESTERLY LINE OF THE LAND DESCRIBED IN INSTRUMENT NUMBER 891, RECORDED APRIL 21, 1954 IN BOOK 44382 PAGE 402, OF OFFICIAL RECORDS, RECORDS OF SAID COUNTY, THENCE ALONG THE WESTERLY LINE OF LAST SAID INSTRUMENT NORTH 16°06' 40" EAST 35 42 FEET TO THE NORTHERLY LINE OF THE LAND DESCRIBED IN CERTIFICATE OF TITLE NO X-10800 ON FILE IN THE OFFICE OF THE REGISTRAR OF SAID COUNTY, THENCE ALONG THE NORTHERLY LINE SOUTH 73°50' 40" EAST 823 79 FEET TO THE NORTHWESTERLY LINE OF THE SOUTHERN PACIFIC RAILROAD RIGHT OF WAY AS SAID RIGHT OF WAY WAS KNOWN ON AUGUST 24, 1920; THENCE SOUTH 60°48'40" WEST 762 07 FEET TO THE NORTHERLY LINE OF SAID PACIFIC RAILWAY RIGHT OF WAY; THENCE ALONG SAID LAST MENTIONED NORTHERLY LINE NORTH 78°02' WEST 294 60 FEET TO A POINT DISTANT SOUTH 78°02' EAST 282 70 FEET THEREON FROM SAID CENTER LINE OF DICE ROAD; THENCE NORTH 03°15' EAST 147 25 FEET TO THE TRUE POINT OF BEGINNING.

EXCEPT THEREFROM THE LAND DESCRIBED IN THE DEED FROM BURDETT OXYGEN COMPANY OF CLEVELAND, INC , A CORPORATION, TO C W ROBERTS, A MARRIED MAN, RECORDED APRIL 21, 1954 IN BOOK 44382 PAGE 402, OFFICIAL RECORDS

ALSO EXCEPT THEREFROM THAT PORTION WITHIN SAID DICE ROAD CONVEYED TO COUNTY OF LOS ANGELES IN FEE SIMPLE FOR ROAD PURPOSES BY DEED RECORDED OCTOBER 10, 1908 IN BOOK 3465 PAGE 133 OF DEEDS

ALSO EXCEPT THEREFROM THE LAND CONVEYED TO JOHN G LOCKE AND JANYCE E LOCKE, HUSBAND AND WIFE AS COMMUNITY PROPERTY, AS TO AN UNDIVIDED ONE-THIRD (1/3) INTEREST, ROBERT O. BERG AND DONNA M BERG, HUSBAND AND WIFE AS COMMUNITY PROPERTY, AS TO AN UNDIVIDED ONE-THIRD (1/3) INTEREST, AND ARNOLD ROSENTHAL AND PEARL ROSENTHAL, HUSBAND AND WIFE AS JOINT TENANTS BY DEED RECORDED DECEMBER 12, 1975 AS INSTRUMENT NO 4550, OFFICIAL RECORDS, DESCRIBED AS FOLLOWS:

BEGINNING AT THE MOST SOUTHERLY CORNER OF THE LAND SHOWN ON SAID MAP NO. CF-157, THENCE NORTH 60°48'40" EAST ALONG THE SOUTHEASTERLY BOUNDARY OF SAID LAND, 85 52 FEET TO A POINT OF CUSP WITH A TANGENT CURVE CONCAVE NORTHWESTERLY AND HAVING A RADIUS OF 372 24 FEET, THENCE SOUTHWESTERLY ALONG SAID CURVE, THROUGH A CENTRAL ANGLE OF 15°15'39", AN ARC DISTANCE OF 103 05 FEET TO ITS INTERSECTION WITH THE SOUTHERLY BOUNDARY OF SAID LAND, THENCE SOUTH 78° 02' 00" EAST, ALONG SAID SOUTHERLY BOUNDARY, 21.53 FEET TO THE POINT OF BEGINNING, CONTAINING AN AREA OF 362 SQUARE FEET MORE OR LESS.

OA983370 158/1+

RECORDED IN OFFICE RECORDS
OF LOS ANGELES COUNTY, CALIF.
FOR TITLE INSURANCE & TRUST CO.
FEB 4 1969 AT 3 A.M.
RAY E. LEE, Registrar-Recorder

BKD4268PC954

Handwritten initials/signature

Recording Requested By
AMERICAN CRYOGENICS, INC., a
Delaware corporation
And When Recorded Mail To
American Cryogenics, Inc.
1819 Peachtree Road, N. E.
Atlanta, Georgia 30308

DOCUMENTARY TRANSFER TAX \$ NO TAX DUE
L. Brette Title Insurance and Trust Company
SIGNED - PARTY OR AGENT FIRM NAME
As instructed by *P. Williams Jr.*

Space Above This Line For Recorder's Use

Mail Tax Statements To
American Cryogenics, Inc.
1819 Peachtree Road, N. E.
Atlanta, Georgia 30308

D.T.T. \$ No Tax Due

CORPORATION GRANT DEED

FOR VALUABLE CONSIDERATION, receipt of which is hereby acknowledged, CALIFORNIA OXYGEN COMPANY, a dissolved corporation of the State of California, acting by and through the undersigned who are a majority of the Board of Directors as constituted on the date of dissolution, hereby grants to AMERICAN CRYOGENICS, INC., a corporation organized and existing under the laws of the State of Delaware, the following described real property in the County of Los Angeles, State of California:

PARCEL NO. 1:

That portion of the Colima Tract, in the Rancho Santa Gertrudes, in the city of Santa Fe Springs, county of Los Angeles, state of California, described as follows:

Commencing at a point in the center line of Dice Road, 40.00 feet northerly thereon from the center line of the right of way of the Pacific Electric Railway (as said right of way and Dice Road are shown on a map recorded in Book 3465 Page 135 of Deeds, Records of said county); thence along said center line of Dice Road, North 11° 54' 10" East 120.90 feet; thence South 83° 26' East 261.70 feet to the true point of beginning; thence North 1° 21' East 68.8 feet; thence North 83° 21' West 249.00 feet to the center line of said Dice Road; thence North 11° 54' 10" East along said center line 196.65 feet; thence South 83° 07' 50" East 340.15 feet; thence North 08° 26' 10" East 145.34 feet to the northerly line of the land described in Certificate of Title No. X-10800 on file in the office of the Registrar of Titles of said county; thence along said northerly line South 73° 50' 40" East 823.79 feet to the northwesterly line of the Southern Pacific Railroad right of way as said right of way was known on August 24, 1920;

SANTA FE SPRINGS
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thence thereon South 60° 48' 40" West 762.07 feet to the northerly line of said Pacific Electric Railway right of way; thence along said last mentioned northerly line North 78° 02' West 294.60 feet to a point distant South 78° 02' East 282.70 feet thereon from said center line of Dice Road; thence North 3° 15' East 147.25 feet to the true point of beginning.

EXCEPT therefrom the land described in the deed from Burdett Oxygen Company of Cleveland, Inc., a corporation, to C. W. Roberts, a married man, recorded April 21, 1954 in Book 44382 Page 402, Official Records.

ALSO EXCEPT therefrom that portion within said Dice Road conveyed to county of Los Angeles in fee simple for road purposes by deed recorded October 10, 1908 in Book 3465 Page 133 of Deeds.

PARCEL NO. 2:

That portion of the Colima Tract, Rancho Santa Gertrudes in the city of Santa Fe Springs, county of Los Angeles, state of California, described as follows:

Beginning at a point in the northerly line of the right of way of the Pacific Electric Railway, said line being the southerly line of the land described in certificate of title Y-11053 in the office of the Registrar of Titles of said county, distant thereon South 78° 02' East, 163.50 feet from the intersection of said line with the center of Dice Road as same is shown on map of right of way of said Pacific Electric Railway, recorded in Book 3465 Page 135 of Deeds, records of said county; thence continuing along said northerly line of said right of way South 78° 02' East 119.20 feet; thence North 03° 15' East 147.25 feet to an angle point in the northerly line of said land described in said certificate Y-11053; thence along said northerly line of said land North 83° 26' West 118.02 feet; thence South 03° 15' West 136.02 feet to the point of beginning.

PARCEL NO. 3:

That portion of the Colima Tract, in the Rancho Santa Gertrudes, in the city of Santa Fe Springs, county of Los Angeles, state of California, described as follows:

Beginning at a point in the center line of Dice Road, distant 40 feet northerly thereon from its intersection with the center line of the right of way of the Pacific Electric Railway, as shown on a map of said right of way recorded in Book 3465 Page 135 of Deeds, records of said county; thence continuing along said center line of said Dice Road, North 11° 54' 10" East, 120.90 feet; thence South 83° 26' East 143.59 feet; thence South 3° 15' West, 136.02 feet to a point in the northerly line of the aforesaid right of way of the Pacific Electric Railway, said line being the southerly line of the land described in Certificate Y-11053 of the Registrar of Titles of said county; thence North 78° 02' West along said northerly line of said right of way and the southerly line of said registered parcel, 163.50 feet to the point of beginning.

EXCEPT therefrom that portion within, said Dice Road, conveyed to county of Los Angeles in fee simple for road pur-

poses, by deed recorded October 10, 1908 in Book 3465 Page 133 of Deeds.

PARCEL NO. 4:

That portion of the 236 acre parcel in the Colima Tract, Rancho Santa Gertrudes, in the city of Santa Fe Springs, county of Los Angeles, state of California, included within the following described boundaries:

Beginning at a point in the center line of Dice Road, 40 feet northerly thereon from the center line of the right of way of the Pacific Electric Railway (as said right of way and Dice Road are shown on map attached to and recorded with a deed recorded in Book 3465, Page 133 of Deeds); thence along the center line of said Dice Road, North 11° 54' 10" East 120.90 feet to the true point of beginning; thence South 83° 26' East 261.70 feet; thence North 1° 21' East 68.8 feet thence North 83° 21' West 249. feet to said center line of Dice Road; thence along said center line, South 11° 54' 10" West 69.18 feet to the true point of beginning.

EXCEPT therefrom that portion within said Dice Road, conveyed to County of Los Angeles, in fee simple for road purposes, by deed recorded October 10, 1908 in Book 3465 Page 133 of Deeds.

IN WITNESS WHEREOF, said corporation has caused its corporate name to be affixed hereto and this instrument to be executed by PIERCE E. MARKS, SR., PIERCE E. MARKS, JR., and JOHN P. COYNE, a majority of the Directors of said corporation on the date of dissolution.

DATED: January 24, 1969

CALIFORNIA OXYGEN COMPANY

By: [Signature]
By: [Signature]
By: [Signature]

STATE OF GEORGIA)
) ss.
COUNTY OF RICHMOND)

On January 16, 1969 before me, the undersigned, a Notary Public in and for said State, personally appeared PIERCE E. MARKS, ^{Jr.}~~Sr.~~, known to me to be a Director of CALIFORNIA OXYGEN COMPANY, the corporation

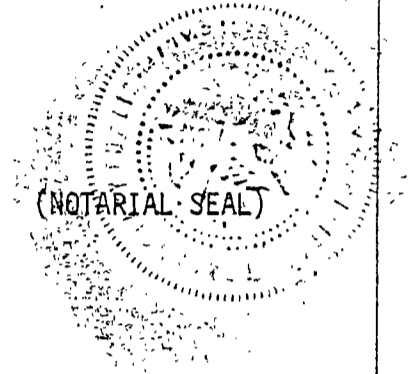
executed the within Instrument, known to me to be the persons who executed the within Instrument on behalf of the Corporation therein named, and acknowledged to me that such Corporation executed the within Instrument pursuant to its Bylaws or a resolution of its Board of Directors.

WITNESS my hand and official seal.

Signature *W. Winifred Ford*

WINIFRED FORD
Name (Typed or Printed)

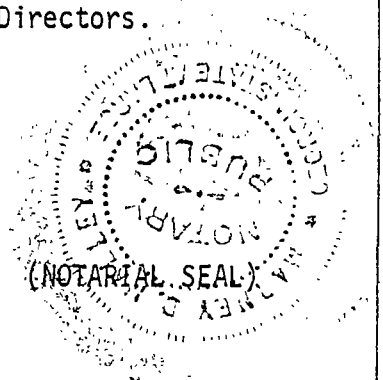
My Commission expires December 27, 1969



that executed the within Instrument, known to me to be the persons who executed the within Instrument on behalf of the Corporation therein named, and acknowledged to me that such Corporation executed the within Instrument pursuant to its Bylaws or a resolution of its Board of Directors.

WITNESS my hand and official seal.

Signature Marney D. Malley
Marney D. Malley
Name (Typed or Printed)

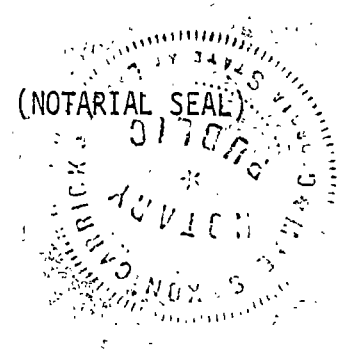


STATE OF GEORGIA)
) ss.
COUNTY OF FULTON)

On January 15, 1969 before me, the undersigned, a Notary Public in and for said State, personally appeared PIERCE E. MARKS, Sr. known to me to be a Director of CALIFORNIA OXYGEN COMPANY, the corporation that executed the within Instrument, known to me to be the persons who executed the within Instrument on behalf of the Corporation therein named, and acknowledged to me that such Corporation executed the within Instrument pursuant to its Bylaws or a resolution of its Board of Directors.

WITNESS my hand and official seal.

Signature Mac Saxon Carrier
Mac Saxon Carrier
Name (Typed or Printed)



STATE OF CALIFORNIA)
) ss.
COUNTY OF San Diego)

On January 24, 1969 before me, the undersigned, a Notary Public in and for said State, personally appeared JOHN P. COYNE known to me to be a Director of CALIFORNIA OXYGEN COMPANY, the corporation that

**LIQUID AIR CORPORATION
FINAL REPORT
PHASE I
ENVIRONMENTAL ASSESSMENT**

**8832 Dice Road
Parcel 0160 007 027
Santa Fe Springs, California
13 February 1992**

K/J 920006.00

Kennedy/Jenks Consultants

Engineers and Scientists

Marathon Plaza, Tenth Floor
303 Second Street
San Francisco, California 94107
415-243-2150
FAX 415-896-0999

13 February 1992

Mr. David N. Simon
Manager, Regulatory Affairs
Liquid Air Corporation
2121 North California Boulevard
Walnut Creek, California 94596

Subject: Final Report
Phase I Environmental Site Assessment
8832 Dice Road-Parcel 0160 007 027
Santa Fe Springs, California
K/J 920006.00

Dear Mr. Simon:

Kennedy/Jenks Consultants (K/J) is pleased to submit this Final Report, a Phase I Environmental Site Assessment of a property located at 8832 Dice Road-Parcel 0160 007 027 in Santa Fe Springs, California.

This report presents a review of potential environmental issues which may represent potential risks. This report was completed in accordance with the activities authorized in our Agreement dated 23 January 1992. This report is furnished for the sole benefit of Liquid Air Corporation and its subsidiaries. Responsibilities of any kind to any third parties are specifically denied.

We would like to express our appreciation for your cooperation and assistance rendered in the preparation of this report. Please do not hesitate to contact us should you have any questions or comments or if we may be of further service.

Very truly yours,

KENNEDY/JENKS CONSULTANTS



Robert G. Kuyennendall
Manager, Regulatory Affairs

ISB-71

cc: Kathleen Brown - Liquid Air
Claude Salma - Liquid Air
Bruno Fraeyman - Liquid Air

DICE 00334

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DICE 00335

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LIST OF EXHIBITS

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PHASE I - ENVIRONMENTAL SITE ASSESSMENT

1.0 EXECUTIVE SUMMARY

1.1 Introduction

A Phase I Environmental Site Assessment was conducted by Kennedy/Jenks Consultants (K/J) for an undeveloped property (Parcel 0160 007 027) located south of Liquid Air Corporation Facility at 8832 Dice Road in Santa Fe Springs, California.

The objectives of the Phase I Environmental Site Assessment were to (1) compile and evaluate available environmental information on the subject property, (2) compile and evaluate available information on properties located within a 2000 foot-radius of the subject property which may potentially impact the property, and (3) identify and assess specific areas or issues that may represent potential environmental risks. This assessment is based on information gathered from Federal, State, and local regulatory agencies; personal interviews with individuals knowledgeable with the subject property; a soil gas survey for methane; and a site visit conducted by K/J personnel.

1.2 Approach

A systematic approach was used to conduct the Phase I Environmental Site Assessment and consisted of the following elements:

- Review of reasonably available property information such as title history and aerial photographs to identify past and present uses of the property and those of adjacent properties of interest.
- Conducting an on-site review of the subject property and off-site reconnaissance to observe and assess visible evidence of the generation, use, storage or disposal of hazardous materials.
- Interviews with individuals knowledgeable of potential environmental issues at the properties.
- Review of environmental lists and/or files maintained by local, State or Federal regulatory agencies having jurisdiction over the property by K/J or a subconsultant.
- Kennedy/Jenks utilized Tracer Research Corporation, a subconsultant to K/J, to conduct a soil gas survey to verify the presence or absence of natural gas (methane) at the subject property as requested by the City of Santa Fe Springs.
- Review of Santa Fe Springs City Planning and Development and California State Fire Marshall Pipeline Safety Division records regarding

the potential presence of abandoned oil wells or pipelines on the property.

1.3 Site Description

The site is located immediately south of the existing Liquid Air Corporation Facility located at 8832 Dice Road in Santa Fe Springs, California. Presently the land is uncultivated except a small patch of mint located in the south west corner. The site is roughly rectangular in shape with the dimensions being approximately 400 by 500 feet. The total area of the site is approximately 5 acres.

Industrial facilities surround the subject property. Dice Road is located to the west of the property. A vacant Industrial facility is located to the east. Improvements to the site include the Southern Pacific Railroad lines and railroad spurs are located along the northern and eastern boundaries, respectively. Other improvements include a roadside produce stand adjacent to Dice Road. Also, numerous plows and discs are located in the southwest corner of the property.

1.5 Site History

Based on the aerial photographs and interviews with Mr. Frank Marquez, Jr., current leasee of the subject property, the land has been undeveloped. According to Mr. Marquez, produce has been grown on the property for the approximately six years. Prior to agriculture production, the property was used as grazing land for dairy cattle. The site was used also for horse grazing. Approximately 15 to 20 years ago, the south section of the site was mechanically graded. Apparently the grading was for right-of-way development for the Southern Pacific Railroad. On the 1953 aerial photograph, the subject property was undeveloped land with no structures on the site.

1.6 Aerial Photographs

Information regarding past land use and configuration was obtained by reviewing available aerial photographs from the collection maintained by Continental Aerial Photo, Inc. located in Los Alamitos, California. The aerials were reviewed by NATEC Environmental Information, Inc., a subconsultant to K/J. The photographs often provide useful information regarding the site at the time of the photograph; however, they do not provide information about the intervening period between photographs. The most recent and oldest aerial photographs of the area are attached as Exhibit 1. The location of the property is indicated by the red arrow.

Aerial photographs of the site and vicinity were reviewed for the following years: 1953, 1970, 1988, 1990, and 1992

1953 Photograph -The property is located at the southeast corner of the intersection of Dice Road and the Southern Pacific Railroad line. The subject property is an undeveloped field. North of the subject property is a commercial property; however, west of the site is agriculture land. Bordering

properties appear to be single-family homes and agriculture crops. Approximately three-tenths of a mile to the north of the property the area is manufacturing and industrial facilities. The immediate land use adjacent to the subject property is undeveloped land.

1970 Photograph -The site continues to be undeveloped open field. The land use adjacent to the property has become more industrialized and the agricultural fields are fewer in number. The properties located north and east of the property have buildings located onsite with parking lots.

1988 Photograph -The site continues to be an undeveloped open field. Development continues in the area with increased commercial development. The property continues to be undeveloped land.

1990 Photograph -The 1990 photograph is similar to the 1988 photograph. The site continues to be an undeveloped open field. Commercial and residential development in the surrounding areas continues.

1992 Photograph -The site continues to be undeveloped land. The surrounding land use is industrial; however, single-family residential properties are located three-tenths of a mile northwest of the property.

2.0 SITE INVESTIGATION and AREA RECONNAISSANCE

K/J investigated the subject property and the area located within a radius of 2000 feet of the subject property. K/J walked the subject property and conducted a reconnaissance of the area surrounding the subject property by vehicle.

2.1 Site Visit

K/J conducted a site review for this Phase I Environmental Site Assessment on 29 January 1992. During the site investigation, K/J personnel did not find evidence of the following:

- surface impoundments
- aboveground storage tanks
- treatment or disposal operations involving hazardous materials or wastes
- stressed vegetation
- underground storage tanks
- abandon oil wells or pipelines
- chemical storage areas

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2.1.1 Physiography and Topography

The City of Santa Fe Springs is located approximately 12 miles southwest of downtown Los Angeles, along a northeast margin of the seaward dipping Los Angeles basin coastal plain. The site lies about 4 miles south of the Puente Hills on the Santa Fe Springs Plain. The property is relatively flat and drains by sheetflow to the north and northeast. The site elevation is approximately 150 feet above mean sea level (MSL). Surface soils consists of brown silty fine sand (SM) with locally clay rich soils in the south half of the property. Vegetation consists of short grasses, small shrubs, and some small trees.

2.1.2 Regional Geology/Hydrogeology

The site is located on the Santa Fe Springs Plain, within the boundaries of the Coastal Plain of Los Angeles County as defined by the California State Department of Water Resources (DWR). The coastal plain is bounded by the Santa Monica Mountains on the north, the arc-shaped Elysian-Repetto-Merced-Puente Hills (Elysian-Puente Hills) complex on the northeast, the Los Angeles-Orange County line on the southeast, and the Pacific Ocean on the south and west. The coastal plain is underlain by four groundwater basins:

- Santa Monica Basin
- West Coast Basin
- Hollywood Basin
- Central Basin

The Santa Fe Springs Plain is underlain by the Central Basin, which is the largest of the four basins. The Central Basin is bounded on the north by the Hollywood Basin, on the northwest and southeast by the Elysian-Puente Hills complex, on the west and south by the Newport-Inglewood Fault uplift, and on the southeast by the Los-Angeles-Orange County line. Generally, the water-bearing sediments that underlie the vicinity of the site have been vertically divided into the Lakewood and San Padero formations with a combined thickness of approximately 800 feet. these formations are underlain by the Pico formation which is of unknown total thickness and contains groundwater of poor quality.

From top to bottom, the Lakewood Formation consists of Recent Alluvium, the Gage Aquifer, and the Gaspur Aquifer, with a combined thickness of approximately 50 feet. The Recent Alluvium is primarily made up of stream deposited gravel, sand, silt, and clay. Portions of the Recent Alluvium contain the Bellflower Aquitard, which consists of fine-grained sediments that reportedly resist downward migration of percolating surface water to the underlying aquifers. In some areas, the Bellflower Aquitard is laterally replaced by the Gaspur Aquifer, which is comprised of cobble-size and pebble-size gravel, allowing significant vertical migrations of surface waters to underlying aquifers. The Gage Aquifer, which

forms the basal member of the Lakewood Formation, is comprised primarily of fine yellow sand and gravel.

The San Pedro formation is comprised of several aquifers that are hydraulically separated by several unnamed aquitards, with a combined thickness of approximately 750 feet in the vicinity of the site. From top to bottom, the aquifers and their typical thickness are:

- Hollydale Aquifer - 50 feet
- Jefferson Aquifer - 50 feet
- Lynwood Aquifer - 75 feet
- Silverado Aquifer - 200 feet
- Sunnyside Aquifer - 300 feet

With the exception of the Jefferson Aquifer, these aquifers are generally comprised of fine to coarse-grained sands and gravel, with the Silverado and Sunnyside Aquifers containing minor interbedded silt and clay units. The Jefferson Aquifer is comprised of fine-grained sands (with minor beds of silts) and gravel in the vicinity of the Whittier Narrows. In the vicinity of the Santa Fe Springs Plain, the Central Basin is very complex, being hydrogeologically trisected into the following areas based on the presence or absence of the aquifers discussed above and the following aquitards:

- Montebello Forebay Area
- Whittier Area
- Basin Pressure Area.

The Montebello Forebay area, located northwest of the site, extends to the Whittier Narrows, and is distinguished by the absence of the Bellflower Aquitard throughout most of its area, thus allowing artificial recharge of the Central Basin. The Whittier area is located to the northeast of the site and is characterized by the presence of the Bellflower Aquitard and the absence of the Gaspur Aquifer. The Central Basin Pressure is located to the south of the site and is characterized by the presence of the Bellflower Aquitard and, unlike the Whittier area, is characterized by confined groundwater conditions (i.e., conditions under which the groundwater piezometric surface is above the base of the aquitard). The site is situated in the general location where the three areas converge, thus it is unclear over which of these areas the site overlies or if, more likely, gradational conditions are present.

Structurally, the Santa Fe Springs Plain consists of the northern end of the northwest-trending Santa Fe Springs-Coyote Hills structural uplift. The uplift is a

surface expression of the Santa Fe Springs anticline, which is symmetrical, has gently dipping flanks, and contains the Santa Fe Springs oil field, among others.

Regional groundwater movement in the vicinity is generally towards the southwest. The majority of groundwater recharge occurs in the Montebello Forebay area where surface waters from the San Gabriel and Rio Hondo Rivers percolated into the underlying aquifers. Although the water-bearing San Pedro and Lakewood Formations are folded by the Santa Fe Springs anticline and some of the shallow aquifers thin out over the anticlinal crest, groundwater movement is not significantly affected (DWR Bulletin No. 104, June 1961).

The uppermost stratigraphy (i.e., to a depth of approximately 60 feet below ground surface (bgs) of the subject property is comprised of two relatively permeable fine-grained units. The approximate depth intervals and descriptions of the lithologic units, are as follows: from ground surface to 14 feet bgs, fine-grained sediments consisting of silts and clays with minor amounts of sand; from 14 to 29 feet bgs, fine to coarse-grained sands with minor amounts of silt and fine gravel; from 29 to 34 feet bgs, fine-grained sediments consisting of clayey silt or clayey silty fine-grained sand; and from 34 to 59 feet bgs, medium to coarse-grained, moderately graded sand which is underlain by a sandy silt-silty sand unit of unknown thickness. Groundwater reportedly occurs at a depth of approximately 65 to 70 feet bgs.

2.1.3 Climate

The City of Santa Fe Springs has a Mediterranean-like climate with warm, dry summers and mild, wet winters. Temperatures (in degrees Fahrenheit) typically range from the mid 30s to low 80s in the winter and the 50s up to approximately 110 during summer months. Precipitation falls primarily from early November to late March. Average precipitation is 12 to 15 inches per year, but cumulative rainfalls of 40 inches per year have been recorded. The 24-hour maximum rainfall for a 50-year storm in the City of Santa Fe Springs is estimated to be 8 inches. Prevailing winds are primarily from the south/southwest. Periodically, high pressures accumulate over the Southern California deserts east of the site causing a "Santa Ana" condition which is characterized by strong, dry winds from the east/northeast. Typical evaporation rates range from highs of 100-150 millimeters per month in the summer to lows of 15-50 millimeters per month in the winter.

2.1.4. Chemical Handling and Management

A forty-eight inch concrete culvert is located under Dice Road at the northwest corner of the subject property. It drains to the east and had standing water with a petroleum sheen on the surface and was dark in appearance. The stain appears to be isolated at the end of the culvert. There was no odor detected during the site visit.

According to Mr. Frank Marquez, Jr., current lessee, he uses diazion and malathion insecticides for insect control. He stated that the Los Angeles County Agriculture

Commission requires a permit for the application of these insecticides on vegetable crops. He also indicated that pesticide application occurred only during the spring and summer months. He stated that no petroleum products were stored onsite and the agriculture tractors were serviced offsite.

2.2 Area Reconnaissance

A visual reconnaissance of the adjacent area was conducted by vehicle. The subject property Parcel 0160 007 027 is located south of 8832 Dice Road in Santa Fe Springs, California. The Southern Pacific railroad lines and the Liquid Air Corporation facility are located to the north of the property. The closed Mckesson Chemical facility is located to the east of the property. The surrounding land use is industrial. Single-family residential properties are located three-tenths of a mile northwest of the property.

3.0 REVIEW OF REGULATORY AGENCY LISTS AND RECORDS

The discussion presented in this section is based on available information provided by regulatory agencies.

3.1 Review of Published Regulatory Agency Lists

A review of available environmental agency lists from the Regional Water Quality Control Board, the California Environmental Protection Agency, and the Federal Environmental Protection Agency was conducted by NATEC Environmental Reporting Service, Ltd., a sub-consultant to K/J, to identify potential regulatory issues at the subject property and the area within a radius of 2000 feet of the property. The records search included the review of the following regulatory records and lists.

<u>Records Searched</u>	<u>Date</u>	<u>Source Lists</u>
CERCLIS	2/92	EPA - Superfund Sites
NPL	9/90	EPA - National Priority List
LIENS	1/91	Federal Superfund Liens
SWIS	1/91	California Solid Waste Information System List
SWAT	10/91	California Solid Waste Assessment Test Program
LUST	1/91	California Leaking Underground Storage Tanks List

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CORTESE	11/90	California Hazardous Waste Substances Sites
RCRA	8/90	Resource Conservation Recovery Act
BEP	1/90	California Bond Expenditure Plan
ASPIS	2/91	California Abandoned Site Program Information System

The Liquid Air Corporation facility at 8832 Dice Road was listed on several of the lists; however, the subject property Parcel 0160 007 027 located to the south of the Liquid Air address was not listed on the above environmental lists and records.

The records review conducted by NATEC Environmental Reporting Services, Ltd. indicated that no listed sites were found within a 2000 foot radius of the subject property on the NPL, LIEN, SWIS, and TANNER lists.

Sites located within a 2000 feet radius of the subject property are listed on the CERCLIS, LUST, RCRA, ASPIS, BEP, SARA, and CORTESE lists. Listed sites are shown on Figure 1. Summaries of the file review are presented in Appendix A.

3.1.1 CERCLIS

The CERCLIS list represents sites of environmental concern for the discharge of hazardous waste generators, treatment and storage facilities, and hazardous waste disposal sites. The U.S. Environmental Protection Agency has compiled list of sites for potential designation under the Federal Superfund Program pursuant to the Comprehensive Environmental Response Compensation and Liability Act. Two sites are located in the vicinity of the subject property. The Liquid Air site is located at 8832 Dice Road and Mckesson Chemical facility at 9005 Sorensen Avenue. The Liquid Air facility has the current status of "No Further Action", which indicates that no additional action is necessary at the site. The Mckesson site is also listed on the BEP list and will be discussed in the following section. The remaining sites are not located adjacent to the subject property.

3.1.2 LUST

The Los Angeles Regional Water Quality Control Board (RWQCB) provides a list of site names and addresses of reported leaks from underground storage tanks.

Six sites within a 2000 feet radius of the property where leaks from underground storage tanks have occurred were identified in the commercial area surrounding the property. The subject property was not listed on this LUST list. The closest site is, Liquid Air, located at 8832 Dice Road. On 21 September 1988, four underground storage tanks were removed by Liquid Air. The tanks included the following: one 1,000 gallon waste oil tank, one 6,200 gallon acetone tank, and two 7,500 gallon

diesel fuel tanks. Also, eleven cubic yards of soil of soil were excavated from the diesel fuel dispensing island during the removal. The groundwater was not impacted and the site was determined closed by the RWQCB. It does not appear that a release has occurred to impact the subject property. These tanks were not located on the subject property.

The acetone tank was replaced with a 6500 gallon double-walled underground storage tank. The tank is constructed of steel with a fiberglass outer shell. The underground storage tank is equipped with a leak detection system.

The remaining sites on the LUST list are not in the immediate vicinity of the subject property.

3.1.3 RCRA

The RCRA database represents a compilation of hazardous waste generators under the Resource Conservation and Recovery Act. There are forty-eight generators located within 0.5 miles of the subject property. The closest facility is the Mckesson Chemical facility located at 9005 Sorensen Avenue. The chemical manufacturing facility is closed; therefore, the site listed on the RCRA list refers to the hazardous wastes manifested offsite during the cleanup process. The remaining sites on the list are not in the immediate vicinity of the subject property.

3.1.4 ASPIS

The ASPIS or Abandoned Sites Program Information System contains information on potential hazardous waste sites that have been identified by the Historical Site Survey Program conducted by the California Department of Health Services. Names may remain on the list even though a determination has been made that no leaks have occurred. Forty-three sites are listed within 0.5 miles radius of the site. The closest site is the Mckesson Chemical facility located at 9005 Sorensen Avenue. The subject property is not listed on this list. The remaining sites are in the vicinity of the property.

3.1.5 BEP

The BEP or Bond Expenditure Plan lists those hazardous waste sites subject to cleanup using State funds. One site is listed in the vicinity of the property. The site is Mckesson Chemical located at 9005 Sorensen Avenue. The Mckesson facility operated from 1976 to November 1, 1986. It operated principally for the manufacturing, reformulation, repackaging and distribution of inorganic and organic chemicals. There were twenty one underground storage tanks used to store organic solvents. Seventeen above ground storage tanks were used to store other organic chemicals and solvents. Twenty eight above ground tanks were identified for storing corrosive and oxidizer materials.

According to California Department of Health Services Preliminary Assessment completed in March 1984, 10,000 gallons of sulfuric acid spill occurred and was

subsequently cleaned up. The spill was neutralized with soda ash, pumped out and the top soil was replaced. A second spill occurred in 1982 and was also cleaned up.

A RCRA site closure report for the Mckesson Chemical facility was completed by Harding Lawson Associates (HLA) in February 1990. Concrete pads were steam cleaned and the rinsate was manifested for off-site disposal. Five soil samples were collected with trace levels of PCA and TCA being reported. Also during this time, HLA prepared and submitted a revised RI/FS workplan to DHS. Tera Tech, a subconsultant to DHS, reviewed the RI/FS which proposed a two phase investigation: Phase 1 - initial soil and groundwater sampling in areas of known or suspected contamination, and Phase 2 - characterization of the extent of underground contamination. Samples were analyzed by the following EPA Methods: 8240/624; 418.1 (as diesel); 8270/625; and Ph.

The BEP refers to leaks of inorganic and organic chemicals to the ground at the site. 1,2-dichlorethane has been detected in the groundwater. At the solvent tank farm, area soil and standing pond liquid samples were analyzed. Acetone at 100 mg/l was detected in the soil. Acetone (6800 mg/l), butyl cellosolve (32,000 mg/l) and isopropyl alcohol (3,100 mg/l) were detected in the liquid sample.

The initial HLA RI/FS Workplan (2/87) showed that three soil borings and four separate groundwater monitoring wells to a maximum depth of thirty five feet were installed by Mckesson Environmental Services. HLA also proposed three additional deep wells to the lower aquifer of 50-70 feet. DHS gave verbal approval to the Workplan in March 1990. The RI/FS investigation is still underway and should be completed by March 1992.

3.1.6 SARA

SARA TITLE III sites are regulated under Section 313 of the Emergency Planning and Community Right to Know Act (Title III of the Superfund Amendments and Reauthorization Act of 1986). The Act requires certain facilities to file an annual toxic chemical release inventory form with the EPA, on the releases to air, water, and land. The closest site is Diversey Wyandotte Corporation located at 8921 Dice Road. The site is not located adjacent to the subject property and is not expected to impact the subject property.

3.1.7 CORTESE

The CORTESE List is compiled by the California State Office of Planning and Research and provides listing of hazardous waste/substance sites with the State. Seven sites were identified in the vicinity of the property and were included on the CERCLIS and LUST list.

The locations of the sites in the vicinity of the subject property are shown on Figure 1.

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3.2 Other Agencies Contacted

In addition to reviewing published regulatory lists and records, K/J also contacted other agencies regarding their knowledge of potential or known environmental concerns at the subject property or in the immediate vicinity of the subject property. Records of Communication are presented in Appendix B.

4.0 FINDINGS AND CONCLUSIONS

On the basis of information gathered during the Phase I Environmental Site Assessment, the following conclusions can be drawn:

- In the best professional judgement of K/J, the scope of the Phase I Environmental Site Assessment was sufficient to identify potential environmental issues on the subject property given the nature and specific circumstances of the site.
- No indication of past or present hazardous wastes sites or activities were found on the property during interviews or review of available environmental records.
- No NPL, SWIS, TANNER, or SWIS sites are located within a one mile radius of the subject property.
- K/J reviewed records with Santa Fe Springs City Planning and Development and the California State Fire Marshall Pipeline Safety Division (CSFMPSD) regarding the potential presence of abandoned oil wells or pipelines on the property. No wells were identified on the Santa Fe Springs Planning and Development Maps within 1,000 feet of the property. Mr. Robert Gorham, inspector at CSFMPSD, had records of an Unocal pipeline located under Dice Road. He provided a contact at Unocal, Mr. Paul Bower, for the exact location of the pipeline. According to Mr. Paul Bower, Supervisor, Unocal-Pipeline Division, a four inch pipeline is located under the eastern section of Dice Road. The pipeline is an idle pipeline, that was drained, flushed with water and abandon in the late 1950s. His records showed no lateral pipelines on the subject property
- There have been documented releases of hazardous substances to the soil and groundwater at the Mckesson Chemical facility. These have included at least two spills of hazardous materials. Both were reportedly remediated. Chemicals were detected in perched groundwater at a depth of twenty-two feet; however, the perched water may be seasonal. DHS personnel indicated that groundwater flow is likely to the southwest not towards the subject property. An active RI/FS is underway and is scheduled to be completed in March 1992. The RI/FS will include information on the first groundwater aquifer that is currently available. The RI/FS report should provide the first available indication of potential environmental impacts from the Mckesson Chemical facility to offsite locations.
- The current land user at the subject property uses EPA registered insecticides for application on agriculture produce. The farmer has obtained a permit with the Los

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Angeles County Agriculture Commission to apply the insecticides in accordance with agency requirements and label directions.

- Triad Geotechnical Consultants, Inc. completed a Preliminary Soil Investigation Report on 3 January 1992. They collected and analyzed six soil samples for hydrocarbons and volatile organic chemicals at the subject property, during Preliminary Foundation Investigation. According to Mr. Javed S. Chark, Registered Professional Engineer, the results showed very low to non-detectable chemical contents in these samples. He also states in that report that based on the type of test performed and the soil samples obtained at designated locations, soil at the site is not considered to be contaminated with hydrocarbons or other volatile organic compounds.

- Kennedy/Jenks utilized Tracer Research Corporation, a subconsultant to K/J, to conduct a soil gas survey to verify the presence or absence of natural gas (methane) at the subject property as requested by the City of Santa Fe Springs. The results detected concentrations of methane at or below ambient concentrations (0.4 ug/l-3 ug/l) at all sample locations except SG-17-4.5 (20 ug/l) which is below the Lower Explosion Limit. The potential source of the methane concentration at SG-17-4.5 is most likely the natural decomposition of plant materials.

5.0 RECOMMENDATIONS

1. To assure that the environmental integrity of the property is maintained, tenant activities and activities at surrounding properties which may potentially impact the property should be monitored.
2. Liquid Air should review the RI/FS report as soon as it becomes available, from the Regional Water Quality Control Board in March 1992 to assess potential impacts to its property by the Mckesson Chemical facility.

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6.0 LIMITATIONS

This preliminary environmental assessment is based on review of available environmental records and available aerial photographs by a subconsultant, results of interviews, and visual observations of recent site conditions. K/J activities were conducted in accordance with practices and procedures generally accepted in the consulting engineering field. No environmental sampling or analysis was undertaken for the Phase I Environmental Site Assessment report.

This report represents K/J's professional opinion and judgement, which are dependent upon information obtained during performance of consulting services. Environmental conditions may exist at each site that cannot be identified by only visual observations. Any conclusions or recommendations will be necessarily based in part on information supplied by others, the accuracy or sufficiency of which may not be independently reviewed by K/J. No investigation can be thorough enough to exclude the presence of hazardous materials at a given site; therefore, if no hazardous materials are identified during an assessment, such a finding should not be construed as a guarantee of the absence of such materials on the property, but rather the results of services performed within project scope, cost, and other limitations.

Any opinions and recommendations presented apply to site conditions existing at the time of performance of services. K/J is unable to report on, or accurately predict events which may impact the site following performance of the described services, whether occurring naturally or caused by external forces. K/J/ assumes no responsibility for conditions it is not authorized to investigate or conditions not generally recognized as environmentally unacceptable at the time services are performed. K/J is not responsible for change in applicable environmental standards, practices, or regulations following performance of services.

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7.0 REFERENCES

DWR Bulletin No. 104, California Department of Water Resources, June 1961

ENVIRO-SCAN Report, August 1991, NATEC Environmental Reporting Services, Ltd.

Preliminary Foundation Investigation Report, 11 December 1991, TRIAD Geotechnical Consultants Inc.

Preliminary Soil Investigation Report, 3 January 1992, TRIAD Geotechnical Consultants, Inc.

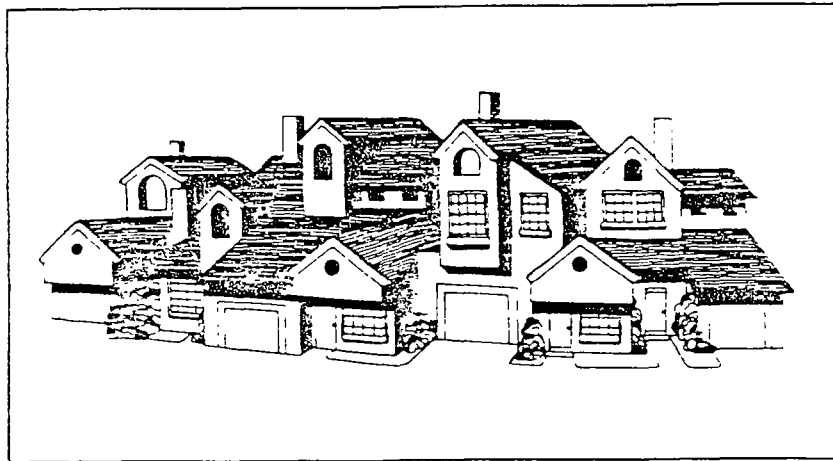
Soil Gas Survey Report-8832 Dice Road, Santa Fe Springs, CA Report, Tracer Research Corporation

EXHIBIT 1 - AERIAL PHOTOGRAPHS

APPENDIX A - ENVIRONMENTAL RECORDS REVIEW



ENVIRONMENTAL DISCLOSURE REPORT



Environmental Reporting Service, Ltd.

11552 Knott Street, Suite 8 Garden Grove, CA 92641

800-969-3228

714-894-7577

The information contained in this report will assist in the requirement that a purchaser of real property make all appropriate inquiry into uses of the property in order to qualify for the "Innocent Landowner" defense.



NATEC ENVIRONMENTAL REPORTING SERVICE, LTD.
11552 KNOTT STREET, SUITE 8
GARDEN GROVE, CA 92641
714-894-7577

SUBSCRIBER INFORMATION:

Contact Person MIKE CAMPBELL Phone (415) 243-2150
Name of Subscriber KENNEDY/JENKS CONSULTANTS Account No. MCKESSON CHEMICAL
Address MARATHON PLAZA, 303-2ND ST -10TH FL
City SAN FRANCISCO State CA Zip 94107

SUBJECT PROPERTY:

Address 9005 SORENSEN
City SANTA FE SPRINGS State California Zip _____
Legal Description NONE Inquiry No. AU9133

SEARCH REQUESTED:

Government Records Search ? Yes No Radius: 2,000 feet .5 mile 1 mile
Title Custody Search? Yes No No. of Years: 30 40 50
Historical Profile? Yes No
Description: _____

Government Records Report:

- This report is limited in scope and accuracy to the available government records searched as listed in the table of contents. This report represents only a search of those records as of the date specified herein. The specific government records searched do not include all sites of environmental contamination or risk. The subscriber acknowledges that NATEC assumes no responsibility for the completeness and accuracy of the recorded lists as compiled by the various governmental agencies. The purpose of this report is for a records search only and is not a substitute for a Phase I Environmental Audit.

Title Custody Report:

The title custody report represents a search of the recorded chain of title documents regarding a specific real property. The title reports will show a summary of those deeds, easements, right-of-ways, and ground leases of record as compiled by the respective County Recorder's Office.

The subscriber acknowledges that other documents that may record pertinent information to the subject property will not be provided in the title report. All services performed shall include only the subject property and shall not include any easements, reversions or other interests in abutting properties. This report is for information only and shall not be deemed to constitute title insurance and will not determine status of ownership or liens on the subject property.

Historical Profile Report:

The historical profile report will include a government records search and a written review of pertinent historical aerial photographs of the site on each available decade including one aerial photograph.

NATEC services do not include an evaluation of the information contained in the recorded documents. Subscriber acknowledges that government records and title records may not include certain information and accepts the limitations of the service provided herein.

Enviro-Scan[®]

NATEC Environmental Reporting Services, Ltd.
Garden Grove, California

ENVIRO-SCAN

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STATISTICAL SUMMARY

<u>List Type</u>	<u>Distance</u>				<u>Total</u>
	<u>0.5 Mile</u>	<u>1 Mile</u>	<u>Over 1 Mile</u>	<u>Unknown</u>	
CERCLIS	11	N/A	N/A	1	12
NPL	0	N/A	N/A	0	0
LIENS	0	N/A	N/A	0	0
SWIS	0	N/A	N/A	0	0
SWAT	2	N/A	N/A	0	2
RCRA	48	N/A	N/A	2	50
LUST	12	N/A	N/A	0	12
CORTESE	14	N/A	N/A	0	14
BEP	2	N/A	N/A	0	2
ASPIS	43	N/A	N/A	3	46
WDS	0	N/A	N/A	0	0
SARA	34	N/A	N/A	0	34
TOTALS	166	N/A	N/A	6	172

CERCLIS

The information contained in this report is the current database provided by the E.P.A. list as of February 1991.

The U.S. Environmental Protection Agency (E.P.A.) has compiled this list of contaminated properties for designation under the Federal Superfund Program pursuant to the *Comprehensive Environmental Response Compensation and Liability Act (CERCLA)*. These sites represent environmental concern for the discharge of hazardous materials by hazardous waste generators, treatment and storage facilities, and hazardous waste disposal sites.

* Distance coordinates are provided as a convenience only. Estimated distance is based on the mapping information provided by the U.S. Government Tiger files and may vary from local street guide maps. Sites that are not provided with distance coordinates are generally the result of inaccurate or incomplete information provided by Federal and State government record lists.

FACILITY DATA

Distance: 0.0 North East
Facility ID: CAD060395753
Facility Name: FOREMOST MCKESSON INC
Address: 9005 SORENSON AVE
City and zip: SANTA FE SPRINGS 90670
OPRBLE UNIT 00 Events:
 Discovery 1
 Preliminary Assessment 1
 Site Inspection 1

Distance: 0.2 North West
Facility ID: CAD046455747
Facility Name: DIVERSEY WYANDOTTE CORP
Address: 8921 DICE RD
City and zip: SANTA FE SPRINGS 90670
OPRBLE UNIT 00 Events:
 Discovery 1
 Preliminary Assessment 1

Distance: 0.3 North West
Facility ID: CAD003312600
Facility Name: LIQUID AIR CORP
Address: 8832 DICE RD
City and zip: SANTA FE SPRINGS 90670
OPRBLE UNIT 00 Events:
 Discovery 1
 Preliminary Assessment 1
 Preliminary Assessment 2
 Site Inspection 1
No Further Action.

CERCLIS FACILITY DATA CONTINUED

Distance: 0.3 North West
Facility ID: CAD982359747
Facility Name: BURDETT OXYGEN CO OF CA #1
Address: 8838 DICE RD
City and zip: SANTA FE SPRINGS 90670
OPRBLE UNIT 00 Events:
Discovery 1
Preliminary Assessment 1
Site Inspection 1
No Further Action.

Distance: 0.3 North West
Facility ID: CAD008488025
Facility Name: SO CA CHEM CO INC
Address: 8851 DICE RD
City and zip: SANTA FE SPRINGS 90670
OPRBLE UNIT 00 Events:
Discovery 1
Preliminary Assessment 1
Site Inspection 1
No Further Action.

Distance: 0.3 South West
Facility ID: CAD980884860
Facility Name: DICE RD & LOS NIETOS RD DUMP
Address: 9165 DICE RD
City and zip: SANTA FE SPRINGS 90670
OPRBLE UNIT 00 Events:
Discovery 1
Preliminary Assessment 1
Preliminary Assessment 2
No Further Action.

Distance: 0.4 North West
Facility ID: CAD004295572
Facility Name: WEST BENT BOLT
Address: 8623 DICE RD
City and zip: SANTA FE SPRINGS 90670
OPRBLE UNIT 00 Events:
Discovery 1
Preliminary Assessment 1
Site Inspection 1

CERCLIS FACILITY DATA CONTINUED

Distance: 0.4 South West
Facility ID: CAD008263048
Facility Name: FINE LINE PAINT CORP
Address: 12200 LOS NIETOS RD
City and zip: SANTA FE SPRINGS 90670
OPRBLE UNIT 00 Events:
Discovery 1
Preliminary Assessment 1
Site Inspection 1
No Further Action.

Distance: 0.4 North West
Facility ID: CAD008287823
Facility Name: PILOT CHEM CO
Address: 11756 BURKE ST
City and zip: SANTA FE SPRINGS 90670
OPRBLE UNIT 00 Events:
Discovery 1
Preliminary Assessment 1
Preliminary Assessment 2
Site Inspection 1
No Further Action.

Distance: 0.5 North West
Facility ID: CAD981401706
Facility Name: WESTERN SCREW PRODUCTS
Address: 11770-11780 SLAUSON BLVD
City and zip: SANTA FE SPRINGS 90670
OPRBLE UNIT 00 Events:
Discovery 1
Preliminary Assessment 1
Preliminary Assessment 2
No Further Action.

Distance: 0.5 North West
Facility ID: CAD008300717
Facility Name: CAL WESTERN PAINT CORP
Address: 11748 SLAUSON AVE
City and zip: SANTA FE SPRINGS 90670
OPRBLE UNIT 00 Events:
Discovery 1
Preliminary Assessment 1
No Further Action.

SUBJECT PROPERTY:

9005 SORENSEN
SANTA FE SPRINGS
AU9133

CERCLIS FACILITY DATA CONTINUED

Facility ID: CAD982400459

Facility Name: LARWIL CONSULTANTS/PLATING OPERATIONS

Address: SANTA FE SPRINGS

City and zip: SANTA FE SPRINGS 90670

OPRBLE UNIT 00 Events:

Discovery I

Preliminary Assessment I

No Further Action.

NPL

NATIONAL PRIORITY LIST

The information contained in this report is the current database provided by the E.P.A. list as of September 1990.

The Environmental Protection Agency has compiled this list from the designated CERCLIS list. The NPL sites are prioritized to their significant risk to human health and the environment. The list targets those sites to receive remedial funding under the *Comprehensive Environmental Response Conservation and Liability Act (CERCLA)*. The NPL lists the nation's highest priority sites for remedial action. Only NPL sites can receive CERCLA funding.

* Distance coordinates are provided as a convenience only. Estimated distance is based on the mapping information provided by the U.S. Government Tiger files and may vary from local street guide maps. Sites that are not provided with distance coordinates are generally the result of inaccurate or incomplete information provided by Federal and State government record lists.

The NATEC database listing as of this date indicates no locations within a one half mile radius of the subject property.

SUPERFUND (LIENS)

FEDERAL SUPERFUND LIENS

The information contained in this report is the current database provided by the E.P.A. list as of January 1991.

Under the authority granted the E.P.A. by the *Comprehensive Environmental Response Conservation and Liability Act (CERCLA)*, E.P.A. is authorized to place a Superfund Lien on property that the agency has spent money on for remedial action or notified the owner of the potential of liability for remedial action.

* Distance coordinates are provided as a convenience only. Estimated distance is based on the mapping information provided by the U.S. Government Tiger files and may vary from local street guide maps. Sites that are not provided with distance coordinates are generally the result of inaccurate or incomplete information provided by Federal and State government record lists.

The NATEC database listing as of this date indicates no locations within a one half mile radius of the subject property.

SUBJECT PROPERTY:

9005 SORENSEN
SANTA FE SPRINGS
AU9133

SWIS

SOLID WASTE INFORMATION SYSTEMS

The information in this report is the current list prepared by the California Waste Management Board as of January 1991.

The California Waste Management Board maintains this list pursuant to the Solid Waste Management and Resource Recovery Act of 1972. The list contains an inventory of active, inactive, and closed solid waste disposal and transfer facilities.

* Distance coordinates are provided as a convenience only. Estimated distance is based on the mapping information provided by the U.S. Government Tiger files and may vary from local street guide maps. Sites that are not provided with distance coordinates are generally the result of inaccurate or incomplete information provided by Federal and State government record lists.

The NATEC database listing as of this date indicates no locations within a one half mile radius of the subject property.

SWAT

SOLID WASTE ASSESSMENT TEST PROGRAM

The information in this report is the current database by the State Water Resource Control Board as of October 1990.

The State Water Resource Control Board under Section 13273 of the Water Code requires the (state board) to rank all solid waste disposal sites throughout the state on the basis of the potential threat they may pose to water quality. Sites are tested to see whether there is hazardous waste leakage from the site.

* Distance coordinates are provided as a convenience only. Estimated distance is based on the mapping information provided by the U.S. Government Tiger files and may vary from local street guide maps. Sites that are not provided with distance coordinates are generally the result of inaccurate or incomplete information provided by Federal and State government record lists.

FACILITY DATA

Distance: 0.3 South West

FACILITY DATA

=====

SWIS ID: ID:

NAME: DICE ROAD

FACILITY:

LOCATION: 9165 DICE ROAD

PLACE: SANTA FE SPRINGS

SITE CLASS: II

ACTIVITY: CLOSED

CHARACTER: Unknown

SIZE: Unknown

OPERATOR DATA

=====

NONE AVAILABLE

LAND OWNER DATA

=====

NONE AVAILABLE

SUBJECT PROPERTY:

9005 SORENSEN
SANTA FE SPRINGS
AU9133

SWAT FACILITY DATA CONTINUED

Distance: 0.5 South East

FACILITY DATA

=====

SWIS ID: ID:

NAME: PEOPLES DISPOSAL COMPANY

FACILITY:

LOCATION: 9525 SANTA FE SPRINGS ROAD

PLACE: SANTA FE SPRINGS

SITE CLASS: UNKNOWN

ACTIVITY: UNKNOWN

CHARACTER: Unknown

SIZE: Unknown

OPERATOR DATA

=====

NONE AVAILABLE

LAND OWNER DATA

=====

NONE AVAILABLE

RCRA

RESOURCE CONSERVATION AND RECOVERY ACT

The information in this report is the current database provided by the E.P.A. as of August 1990.

Under the Resource Conservation and Recovery Act, the Environmental Protection Agency compiles this list classification of generators of hazardous waste materials. Generators in this classification are required to have U.S. E.P.A. I.D. numbers on all waste manifest disposal records.

* Distance coordinates are provided as a convenience only. Estimated distance is based on the mapping information provided by the U.S. Government Tiger files and may vary from local street guide maps. Sites that are not provided with distance coordinates are generally the result of inaccurate or incomplete information provided by Federal and State government record lists.

FACILITY DATA

Distance: 0.0 North East

Facility ID: CAD060395753

Facility Name: FOREMOST MCKESSON INC CHEM DIV

Address: 9005 SORENSON AVE

City and zip: SANTA FE SPRINGS 90670

Distance: 0.1 South East

Facility ID: CAD000629733

Facility Name: PETERSON/PURITAN INC

Address: 9101 SORENSON AVE

City and zip: SANTA FE SPRINGS 90670

Distance: 0.1 North East

Facility ID: CAD063837520

Facility Name: ANGELES CHEM CO INC

Address: 8915 SORENSEN AVE

City and zip: SANTA FE SPRINGS 90670

Distance: 0.2 South West

Facility ID: CAD051499739

Facility Name: DESOTO INC

Address: 12143 ALTAMAR PLACE

City and zip: SANTA FE SPRINGS 90670

Distance: 0.2 North West

Facility ID: CAD046455747

Facility Name: DIVERSEY CORP

Address: 8921 DICE RD

City and zip: SANTA FE SPRINGS 90670

RCRA FACILITY DATA CONTINUED

Distance: 0.3 South East
Facility ID: CAD043079110
Facility Name: ASSOCIATED PLATING CO
Address: 9636 ANN ST
City and zip: SANTA FE SPRINGS 90670

Distance: 0.3 South East
Facility ID: CAD094019734
Facility Name: VALVOLINE OIL CO
Address: 9520 JOHN ST
City and zip: SANTA FE SPRINGS 90670

Distance: 0.3 North West
Facility ID: CAD008371627
Facility Name: EMERY INDUSTRIES INC
Address: 8733 DICE RD
City and zip: SANTA FE SPRINGS 90670

Distance: 0.3 North West
Facility ID: CAD008488025
Facility Name: ENCERA INC
Address: 8851 S DICE RD
City and zip: SANTA FE SPRINGS 90670

Distance: 0.3 North West
Facility ID: CAD981691074
Facility Name: BOB ROBINSON
Address: 8851 DICE RD
City and zip: SANTA FE SPRINGS 90670

Distance: 0.3 South West
Facility ID: CAD008391427
Facility Name: ELECTRONIC CHROME CO INC
Address: 9132 DICE RD
City and zip: SANTA FE SPRINGS 90670

Distance: 0.3
Facility ID: CAD982429391
Facility Name: BARSOTTIS INC
Address: 11936 ALTAMAR PL
City and zip: SANTA FE SPRINGS 90670

Distance: 0.4 South East
Facility ID: CAD008274375
Facility Name: TROJAN BATTERY CO
Address: 9440 S ANN ST
City and zip: SANTA FE SPRINGS 90670

RCRA FACILITY DATA CONTINUED

Distance: 0.4 South East
Facility ID: CAD981367303
Facility Name:BARON BLAKESLEE INC
Address: 9445 ANN ST
City and zip: SANTA FE SPRINGS 90670

Distance: 0.4 South East
Facility ID: CAD042239467
Facility Name:ESB INC IND BATTERY DIV
Address: 9536 ANN ST
City and zip: SANTA FE SPRINGS 90670

Distance: 0.4 North East
Facility ID: CAD054857016
Facility Name:NU CAR PREP INC
Address: 12140 SLAUSON AVENUE
City and zip: SANTA FE SPRINGS 90670

Distance: 0.4 North East
Facility ID: CAD982502528
Facility Name:R P M CENTERLESS GRINDING CO
Address: 12105 E SLAUSON #A
City and zip: SANTA FE SPRINGS 90670

Distance: 0.4 North East
Facility ID: CAD009677808
Facility Name:BASE OIL SERVICE
Address: 12015 SLAUSON AVE SUITE B
City and zip: SANTA FE SPRINGS 90670

Distance: 0.4 North East
Facility ID: CAD099448318
Facility Name:SAFE PLATING INC
Address: 12015 SLAUSON AVENUE UNIT L
City and zip: SANTA FE SPRINGS 90670

Distance: 0.4 North East
Facility ID: CAD981419344
Facility Name:STEVE LABEL CORP
Address: 11926 BURKE ST
City and zip: SANTA FE SPRINGS 90670

Distance: 0.4 North East
Facility ID: CAD981669732
Facility Name:AERO WHEEL AND BRAKE SERVICE
Address: 11927 BURKE ST
City and zip: SANTA FE SPRINGS 90670

RCRA FACILITY DATA CONTINUED

Distance: 0.4 North East
Facility ID: CAD981446339
Facility Name:STOCK CAR PROD
Address: 11904 BURKE ST
City and zip: SANTA FE SPRINGS 90670

Distance: 0.4 North East
Facility ID: CAD093366151
Facility Name:RAPIDSYN COMPANY
Address: 11901 BURKE ST
City and zip: SANTA FE SPRINGS 90670

Distance: 0.4 North West
Facility ID: CAD008246845
Facility Name:EARL MANUFACTURING CO INC
Address: 11862 BURKE ST
City and zip: SANTA FE SPRINGS 90670

Distance: 0.4 North West
Facility ID: CAD981373822
Facility Name:TECHNI BRAZE
Address: 11845 BURKE ST
City and zip: SANTA FE SPRINGS 90670

Distance: 0.4 North West
Facility ID: CAD981973357
Facility Name:PARKER HANNIFIN CORP
Address: 11808 BURKE ST
City and zip: SANTA FE SPRINGS 90670

Distance: 0.4 South West
Facility ID: CAD008350993
Facility Name:ACE METALLIZZING CO
Address: 1223 LOS NIETOS RD
City and zip: SANTA FE SPRINGS 90670

Distance: 0.4 South West
Facility ID: CAD063830988
Facility Name:CONSOLIDATED DSPL SERV
Address: 12235 LOS NIETOS RD
City and zip: SANTA FE SPRINGS 90670

Distance: 0.4 South West
Facility ID: CAD000628024
Facility Name:RIOS CHEMICAL DISPOSAL INC
Address: 12234 LOS NIETOS RD
City and zip: SANTA FE SPRINGS 90670

RCRA FACILITY DATA CONTINUED

Distance: 0.4 North West
Facility ID: CAD004295572
Facility Name: MID WEST FABR CO
Address: 8623 DICE RD
City and zip: SANTA FE SPRINGS 90670

Distance: 0.4 South West
Facility ID: CAD008263048
Facility Name: FINE LINE PAINT CORP
Address: 12200 LOS NIETOS RD
City and zip: SANTA FE SPRINGS 90670

Distance: 0.4 North West
Facility ID: CAD008287823
Facility Name: PILOT CHEM CO OF CA
Address: 11756 BURKE ST
City and zip: SANTA FE SPRINGS 90670

Distance: 0.5 South East
Facility ID: CAT080013030
Facility Name: TROJAN BATTERY CO
Address: 9339 S ANN ST
City and zip: SANTA FE SPRINGS 90670

Distance: 0.5 South East
Facility ID: CAD982011421
Facility Name: GREGS AUTO BODY
Address: 9347 SANTA FE SPRINGS RD
City and zip: SANTA FE SPRINGS 90670

Distance: 0.5 South East
Facility ID: CAD982503138
Facility Name: FEDCO INC
Address: 9400 SANTA FE SPRINGS RD
City and zip: SANTA FE SPRINGS 90670

Distance: 0.5 South East
Facility ID: CAD009688045
Facility Name: MATT ENTERPRISES INC
Address: 9441 SANTA FE SPRINGS
City and zip: SANTA FE SPRINGS 90603

Distance: 0.5 South East
Facility ID: CAD020154076
Facility Name: SPACE AGE CHEMICALS INC
Address: 9441 SANTA FE SPRINGS RD
City and zip: SANTA FE SPRINGS 90670

RCRA FACILITY DATA CONTINUED

Distance: 0.5 South East
Facility ID: CAD981653207
Facility Name: TAURUS CHEM & CLEANING
Address: 9441 SANTA FE SPRINGS RD
City and zip: SANTA FE SPRINGS 90670

Distance: 0.5 North East
Facility ID: CAD981988645
Facility Name: BROWNELL TRUCK BODIES INC
Address: 12201 SLAUSON AVE
City and zip: SANTA FE SPRINGS 90670

Distance: 0.5 North East
Facility ID: CAD982416448
Facility Name: POLES BY LAMPLIGHTER INC
Address: 8400 SECURA WAY
City and zip: SANTA FE SPRINGS 90670

Distance: 0.5 North East
Facility ID: CAD981999329
Facility Name: IMTECH INC OF CALIFORNIA
Address: 8424 SECURA WY
City and zip: SANTA FE SPRINGS 90670

Distance: 0.5 North East
Facility ID: CAD009653171
Facility Name: SANTA FE ENAMELING MET FNSHG#
Address: 8427 SECURA WAY
City and zip: SANTA FE SPRINGS 90670

Distance: 0.5 North West
Facility ID: CAD982505646
Facility Name: HANNIGAN PRINTING
Address: 11823 E SLAUSON #3
City and zip: SANTA FE SPRINGS 90670

Distance: 0.5 North West
Facility ID: CAD982322539
Facility Name: H B FULLER COMPANY
Address: 11815 SLAUSON AVE
City and zip: SANTA FE SPRINGS 90670

Distance: 0.5 North West
Facility ID: CAD982501280
Facility Name: QUALITY POLISHING
Address: 11809 E SLAUSON #3
City and zip: SANTA FE SPRINGS 90670

RCRA FACILITY DATA CONTINUED

Distance: 0.5 North West
Facility ID: CAD982436040
Facility Name:QUICK CHANGE EXCHANGE
Address: 11769 SLAUSON
City and zip: SANTA FE SPRINGS 90670

Distance: 0.5 North West
Facility ID: CAD981401706
Facility Name:WESTERN SCREW PRODUCTS INC
Address: 11770 E SLAUSON AVE
City and zip: SANTA FE SPRINGS 90670

Distance: 0.5 North West
Facility ID: CAD008300717
Facility Name:CAL WESTERN PAINT
Address: 11748 SLAUSON AROVE
City and zip: SANTA FE SPRINGS 90670

Facility ID: CAD981449507
Facility Name:EAGLE TRUCK PAINTING
Address:
City and zip: SANTA FE SPRINGS 90670

Facility ID: CAD981642713
Facility Name:LONG BAR GRINDING
Address: BOX 3128
City and zip: SANTA FE SPRINGS 90670

LUST

LEAKING UNDERGROUND STORAGE TANKS

The information in this report is the current list prepared by the California Waste Resources Control Board as of January 1991.

The State of California Water Resources Control Board (WRCB) in Sacramento provides a list of all leaks of hazardous substances from underground tanks. This database provides information on contamination case types. Additional sources of information are provided by the nine local offices of the WRCB in California.

* Distance coordinates are provided as a convenience only. Estimated distance is based on the mapping information provided by the U.S. Government Tiger files and may vary from local street guide maps. Sites that are not provided with distance coordinates are generally the result of inaccurate or incomplete information provided by Federal and State government record lists.

FACILITY DATA

Distance: 0.1 South East
Site: PETERSON/PURITAN INC
Address: 9101 SORENSEN AVE S
City and zip: SANTA FE SPRINGS
Substance: SOLVENTS
Case Type: Only Soil has been affected
Status: Signed off, remedial action completed or deemed unnecessary.

Distance: 0.3 South East
Site: DAYTON SUPERIOR
Address: 9415 SORENSEN AVENUE S.
City and zip: SANTA FE SPRINGS 90670
Substance: NOT REPORTED
Case Type: Ground water has been affected.
Status: Pollution characterization.

Distance: 0.3 South East
Site: VALVOLINE OIL COMPANY
Address: 9520 JOHN STREET
City and zip: SANTA FE SPRINGS 90670
Substance: DIESEL
Case Type: Ground water has been affected.
Status: Remediation plan developed.
Remedial Action:
Excavate and Dispose -- remove contaminated soil and dispose in approved site.

LUST FACILITY DATA CONTINUED

Distance: 0.3 North West
Site: LIQUID AIR CORP.
Address: 8832 DICE RD., S.
City and zip: SANTA FE SPRINGS 90670
Substance: NOT REPORTED

Distance: 0.3
Site: PFI INC
Address: 9215 SANTA FE SPRINGS RD
City and zip: SANTA FE SPRINGS 90670
Substance:
Case Type: The type of resources affected or extent of the resources affected are not known
Status: Signed off, remedial action completed or deemed unnecessary.

Distance: 0.3
Site: US GYPSUM CO
Address: 9306 SORESEN AVE
City and zip: SANTA FE SPRINGS 90670
Substance:
Case Type: The type of resources affected or extent of the resources affected are not known
Status: Signed off, remedial action completed or deemed unnecessary.

Distance: 0.3
Site: WESTERN GALVANIZATING CORP
Address: 9719 SANTA FE SPRINGS RD
City and zip: SANTA FE SPRINGS 90670
Substance: WASTE WATER
Case Type: The type of resources affected or extent of the resources affected are not known
Status: No action taken by responsible party after initial report of leak.

Distance: 0.4 South West
Site: SOUTHERN STEEL & SUPPLY CO, INC
Address: 12350 LOS NIETOS ROAD
City and zip: SANTA FE SPRINGS 90670
Substance: GASOLINE
Case Type: Only Soil has been affected
Status: Pollution characterization.
Remedial Action:
Excavate and Dispose -- remove contaminated soil and dispose in approved site.

LUST FACILITY DATA CONTINUED

Distance: 0.4 North West
Site: FLIGHT TRUCKING
Address: 11770 BURKE STREET
City and zip: SANTA FE SPRINGS 90670
Substance: NOT REPORTED

Distance: 0.4 North West
Site: PILOT CHEMICAL COMPANY
Address: 11756 BURKE STREET
City and zip: SANTA FE SPRINGS 90607
Substance: XYLENE
Case Type: Ground water has been affected.

Distance: 0.5 South East
Site: UNION OIL OF CALIFORNIA
Address: 9645 SANTA FE SPRINGS ROAD
City and zip: SANTA FE SPRINGS 90670
Substance: GASOLINE
Case Type: Only Soil has been affected
Status: No action taken by responsible party after initial report of leak.

Distance: 0.5
Site: CIRCLE K CORPORATION
Address: 11462 SLAUSON AVENUE E.
City and zip: SANTA FE SPRINGS 90670
Substance: NOT REPORTED
Case Type: The type of resources affected or extent of the resources affected are not known
Status: No action taken by responsible party after initial report of leak.

CORTESE**STATE OF CALIFORNIA OFFICE OF PLANNING AND RESEARCH**

The information contained in this report is compiled by the State of California's Governors Office and is current as of November 1990.

This is a listing of potential and confirmed hazardous waste and substance sites throughout California. The information in this list was consolidated within the State Office of Planning and Research. The data for the list was received from the State Water Resources Control Board (WRCB), The California Waste Management Board (CWMB), and the Department of Health Services (DHS).

DHS: Records that have been compiled by the Toxic Substances Control Division of the Department of Health Services. This code indicates an abandoned hazardous waste site

DHS2: Records that have been compiled by the Environmental Health Division of the Department of Health Services. This code indicates public water drinking wells that serve less than 200 connections ("small wells").

DHS3: Records that have been compiled by the Environmental Health Division of the Department of Health Services and consist of public water drinking wells that serve more than 200 connections ("large wells").

DHS5: Sites pursuant to Section 25356 of the Health and Safety Codes (sites included under the Hazardous Substance Cleanup Bond Act).

WRCB: Records compiled by the Water Resources Control Board. These are sites of reported leaks that have been investigated by the WRCB. Leak sites do not necessarily lie within incorporated boundaries of listed cities.

CWMB: Records compiled by the California Waste Management Board. These are solid waste disposal facilities from which there is a known migration of hazardous waste.

* Distance coordinates are provided as a convenience only. Estimated distance is based on the mapping information provided by the U.S. Government Tiger files and may vary from local street guide maps. Sites that are not provided with distance coordinates are generally the result of inaccurate or incomplete information provided by Federal and State government record lists.

FACILITY DATA

Distance: 0.0 North East

Source: DHS1

Site Name: MCKESSON CHEMICAL COMPANY

Location: 9005 SORENSEN AVENUE

City and zip: SANTA FE SPRINGS 90670

CORTESE FACILITY DATA CONTINUED

Distance: 0.0 North East
Source:DHS5
Site Name: MCKESSON CHEMICAL COMPANY
Location: 9005 SORENSEN AVENUE
City and zip:SANTA FE SPRINGS 90670

Distance: 0.2 North West
Source:DHS1
Site Name: DIVERSEY WYANDOTTE CORPORATION
Location: 8921 SOUTH DICE ROAD
City and zip:SANTA FE SPRINGS 90670

Distance: 0.3 South East
Source:WRCB Problem:TANK LEAK
Site Name: DAYTON SUPERIOR
Location: 9415 SORENSEN AVENUE S.
City and zip:SANTA FE SPRINGS 90670

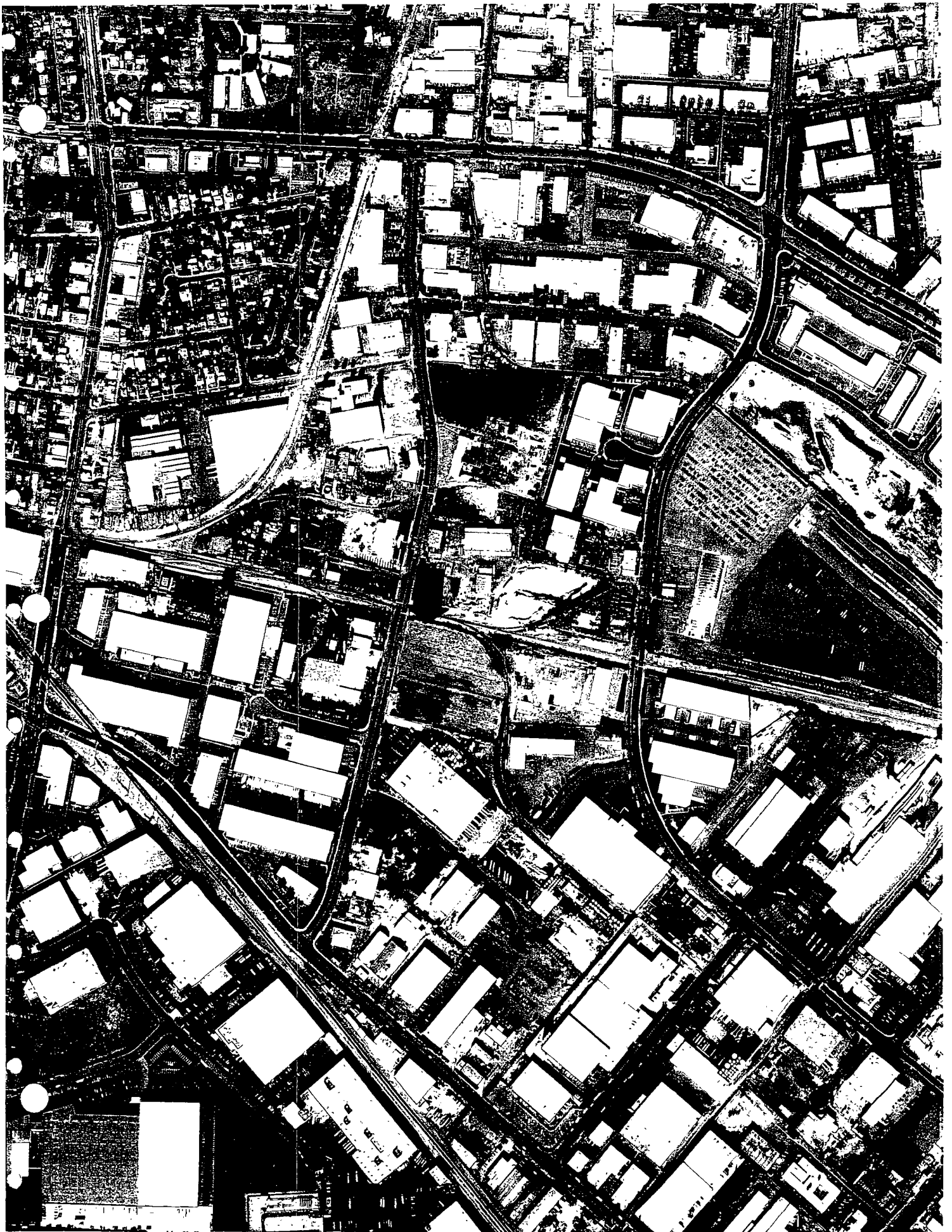
Distance: 0.3 South East
Source:WRCB Problem:TANK LEAK
Site Name: VALVOLINE OIL COMPANY
Location: 9520 JOHN STREET
City and zip:SANTA FE SPRINGS 90670

Distance: 0.3 North West
Source:DHS1
Site Name: LIQUID AIR
Location: 8832 DICE ROAD
City and zip:SANTA FE SPRINGS 90670

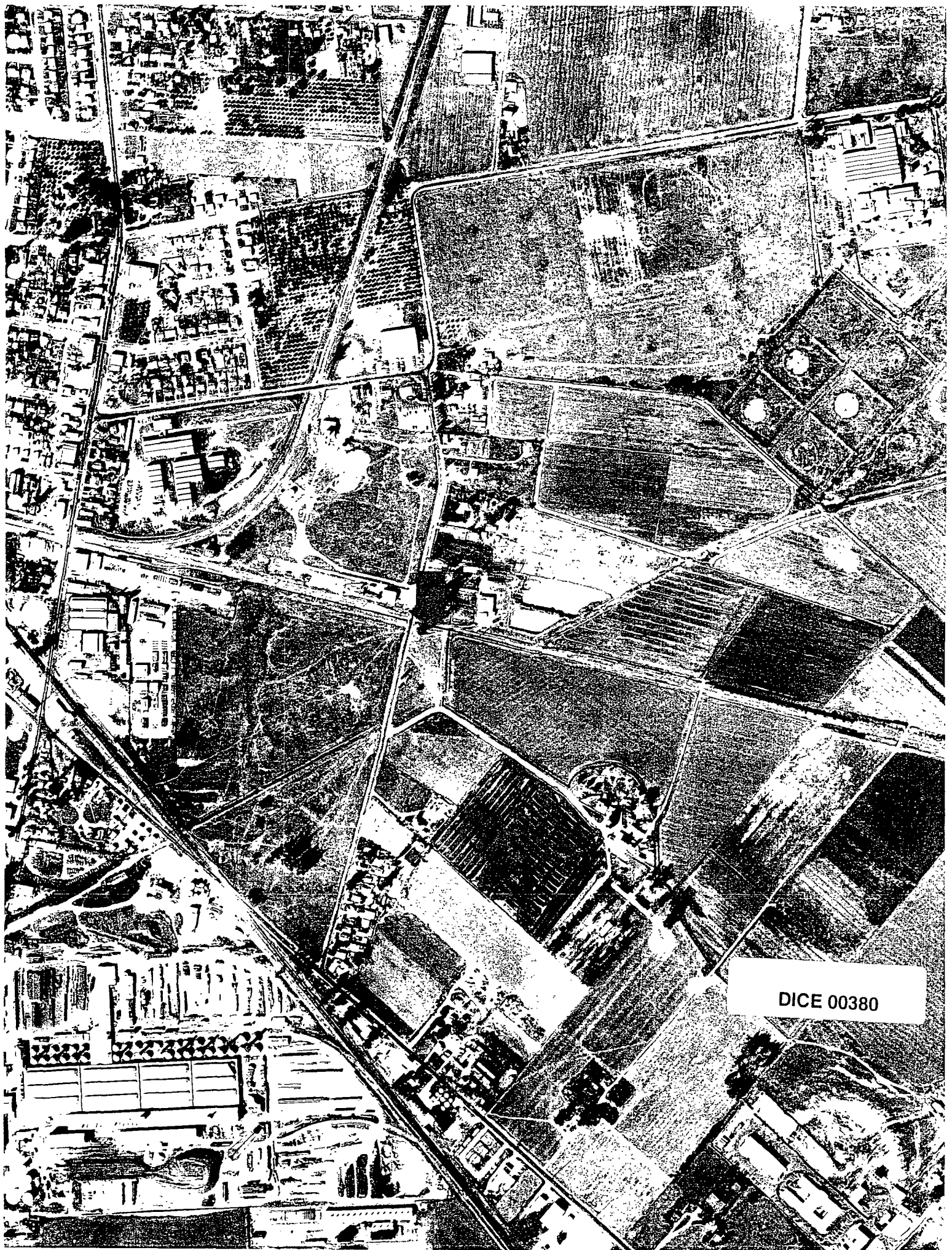
Distance: 0.3 North West
Source:WRCB Problem:TANK LEAK
Site Name: LIQUID AIR CORP.
Location: 8832 DICE RD., S.
City and zip:SANTA FE SPRINGS 90670

Distance: 0.4 South West
Source:WRCB Problem:TANK LEAK
Site Name: SOUTHERN STEEL & SUPPLY CO,INC
Location: 12350 LOS NIETOS ROAD
City and zip:SANTA FE SPRINGS 90670

Distance: 0.4 North West
Source:DHS1
Site Name: WEST BENT BOLT
Location: 8623 SOUTH DICE ROAD
City and zip:SANTA FE SPRINGS 90670



DICE 00379



DICE 00380

CORTESE FACILITY DATA CONTINUED

Distance: 0.4 North West
Source: WRCB Problem: TANK LEAK
Site Name: FLIGHT TRUCKING
Location: 11770 BURKE STREET
City and zip: SANTA FE SPRINGS 90670

Distance: 0.4 North West
Source: WRCB Problem: TANK LEAK
Site Name: PILOT CHEMICAL COMPANY
Location: 11756 BURKE STREET
City and zip: SANTA FE SPRINGS 90607

Distance: 0.5 South East
Source: WRCB Problem: TANK LEAK
Site Name: UNION OIL OF CALIFORNIA
Location: 9645 SANTA FE SPRINGS ROAD
City and zip: SANTA FE SPRINGS 90670

Distance: 0.5 North West
Source: DHSI
Site Name: WESTERN SCREW PRODUCTS #1
Location: 11770 EAST SLAUSON AVENUE
City and zip: SANTA FE SPRINGS 90670

Distance: 0.5
Source: WRCB Problem: TANK LEAK
Site Name: CIRCLE K CORPORATION
Location: 11462 SLAUSON AVENUE E.
City and zip: SANTA FE SPRINGS 90670

BEP

BOND EXPENDITURE PLAN

The information in this report is the current list prepared by the California Department of Health Services as of January 1990.

Under the California Hazardous Substance Bond Act of 1984, the California Department of Health Services has developed a listing of those hazardous waste sites subject to develop a site specific expenditure plan for an appropriation of funds for cleanup under the Bond Expenditure Plan.

* Distance coordinates are provided as a convenience only. Estimated distance is based on the mapping information provided by the U S Government Tiger files and may vary from local street guide maps. Sites that are not provided with distance coordinates are generally the result of inaccurate or incomplete information provided by Federal and State government record lists

FACILITY DATA

Distance: 0.0 North East

RESPONSIBLE PARTY-LEAD SITE CLEANUP WORKPLAN

MCKESSON CHEMICAL COMPANY

*9005 Sorensen Avenue
Santa Fe Springs, CA 90670
Los Angeles*

McKesson Chemical Company operated a chemical bulk repacking facility from 1976 until November 1, 1986 when it ceased operations. The facility is located on a 3-acre site on Sorensen Road in Santa Fe Springs. There are 21 underground tanks which were used to store organic solvents, an above-ground tank farm and a corrosive/oxidizer tank area located at the site.

Description of Hazardous Wastes

Some inorganic and organic chemicals may have leaked or spilled to the ground. 1-2-dichloroethane has been detected in the ground water. The solvent tank farm area was analyzed for soil and standing pond liquid contamination. Acetone at 100 milligrams per liter (mg/l) was found in the soil. Acetone (6,800 mg/l) butyl cellusolve (32,000 mg/l) and isopropyl alcohol (3,100 mg/l) were found in the liquid sample.

Threat to Public Health and Environment

The primary route of public exposure would be through the ground water from leaks and spills or organic compounds from the storage tanks.

BEP FACILITY DATA CONTINUED

Status of Site Activity

The facility ceased operations in November, 1986. The underground storage tanks are currently empty. These are RCRA Units and are currently being remediated under the oversight of the Region's Facility Permitting Unit.

The RP has submitted an RI/FS workplan to characterize the extent of contamination. An enforceable agreement which requires the RP to conduct the RI/FS, RAP and implement the final action has been completed.

Projected Revenue Sources

The RP has entered into an enforceable agreement to pay DHS oversight costs in accordance with Chapter 269, Statutes of 1989. The RP will pay all associated costs of cleanup.

Project Completion Estimates

The estimates shown below reflect completion of major site cleanup phases based on current information regarding this site and responsible party cleanup plans and completed actions.

Site Characterization

*Remedial Action Order Completed
Remedial Investigation/Feasibility Study April 1991*

Remedial Action Plan July 1991

*Remedial Action
Design Oct. 1991
Implementation April 1992
Certification June 1992*

Cost Recovery June 1993

Operation and Maintenance 5-15 years

Distance: 0.0 North East

RESPONSIBLE PARTY-LEAD SITE CLEANUP WORKPLAN

MCKESSON CHEMICAL COMPANY

**9005 Sorensen Avenue
Santa Fe Springs, CA 90670
Los Angeles**

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BEP FACILITY DATA CONTINUED

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Some inorganic and organic chemicals may have leaked or spilled to the ground. 1-2-dichloroethane has been detected in the ground water. The solvent tank farm area was analyzed for soil and standing pond liquid contamination. Acetone at 100 milligrams per liter (mg/l) was found in the soil. Acetone (6,800 mg/l) butyl cellusolve (32,000 mg/l) and isopropyl alcohol (3,100 mg/l) were found in the liquid sample.

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The primary route of public exposure would be through the ground water from leaks and spills or organic compounds from the storage tanks.

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The facility ceased operations in November, 1986. The underground storage tanks are currently empty. These are RCRA Units and are currently being remediated under the oversight of the Region's Facility Permitting Unit. The RP has submitted an RI/FS workplan to characterize the extent of contamination. An enforceable agreement which requires the RP to conduct the RI/FS, RAP and implement the final action has been completed.

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The estimates shown below reflect completion of major site cleanup phases based on current information regarding this site and responsible party cleanup plans and completed actions.

Site Characterization

*Remedial Action Order Completed
Remedial Investigation/Feasibility Study April 1991*

Remedial Action Plan July 1991

Remedial Action

*Design Oct. 1991
Implementation April 1992
Certification June 1992*

Cost Recovery June 1993

Operation and Maintenance 5-15 years

ASPIS**ABANDONED SITES PROGRAM INFORMATION SYSTEM**

The information contained in this report is the current database provided by the California Department of Health Services (CDHS) as of February 1991.

The CDHS compiled this database pursuant to Section 253596 of the California Health and Safety Code. The list contains information on potential hazardous waste sites that have been identified by the Historical Abandoned Site Survey Program. The CDHS researched a major portion of the various state environmental agencies that could possibly help identify potential hazardous waste sites. Once sites are confirmed as hazardous sites they may be merged into the database of the Cortese List and/or the Bond Expenditure Program (BEP) List. Names may remain on this list even though a determination has been made that no leak had occurred and the DHS is requiring no further action to protect the environment or public health.

* Distance coordinates are provided as a convenience only. Estimated distance is based on the mapping information provided by the U.S. Government Tiger files and may vary from local street guide maps. Sites that are not provided with distance coordinates are generally the result of inaccurate or incomplete information provided by Federal and State government record lists.

FACILITY DATA

***Distance: 0.0 North East
Facility No.: 19-28-0440
Facility Name: MCKESSON CHEMICAL CO
Address: 9005 SORENSON AVE
City and zip: SANTA FE SPRINGS 90670
STATUS: Pending Status***

***Distance: 0.2 South East
Facility No.: 19-28-0421
Facility Name: U.S. GYPSUM COMPANY
Address: 9306 SORENSEN AVENUE
City and zip: SANTA FE SPRINGS 90670
STATUS: No Further Action***

***Distance: 0.2 South West
Facility No.: 19-28-0400
Facility Name: DETERGENTS INC
Address: 12143 ALTAMAR PLACE
City and zip: SANTA FE SPRINGS 90670
STATUS: No Further Action***

ASPIS FACILITY DATA CONTINUED

Distance: 0.2 North West
Facility No.: 19-28-0834
Facility Name: DIVERSEY WYANDOTTE CORP
Address: 8921 S DICE RD
City and zip: SANTA FE SPRINGS 90670
STATUS: Site Inspection Req'd - High Priority

Distance: 0.2
Facility No.: 19-28-0473
Facility Name: ANGELES CHEMICAL CO, INC
Address: 8915 S SORENSEN
City and zip: SANTA FE SPRINGS 90670
STATUS: No Further Action

Distance: 0.2
Facility No.: 19-13-0015
Facility Name: E G M CORP
Address: 9211 SORENSON AVE
City and zip: SANTA FE SPRINGS 90670
STATUS: No Further Action

Distance: 0.3 South East
Facility No.: 19-34-0397
Facility Name: ASSOCIATED PLATING CO
Address: 9636 S ANN ST
City and zip: SANTA FE SPRINGS 90670
STATUS: No Further Action

Distance: 0.3 North West
Facility No.: 19-28-0766
Facility Name: LIQUID AIR
Address: 8832 DICE RD
City and zip: SANTA FE SPRINGS 90670
STATUS: Site Inspection Req'd - Medium Priority

Distance: 0.3 North West
Facility No.: 19-28-0224
Facility Name: BURDETT OXYGEN CO OF CALIFORNIA
Address: 8832-8838 S DICE RD
City and zip: SANTA FE SPRINGS 90670
STATUS: Pending Status

Distance: 0.3 North West
Facility No.: 19-28-0426
Facility Name: SCHNER MOREHEAD CHEMICAL
Address: 8835 DICE RD
City and zip: SANTA FE SPRINGS 90670
STATUS: No Further Action

ASPIS FACILITY DATA CONTINUED

Distance: 0.3 North West
Facility No.: 19-28-0516
Facility Name: SOU CAL CHEMICAL CO
Address: 8851 DICE RD
City and zip: SANTA FE SPRINGS 90670
STATUS: Pending Status

Distance: 0.3 South West
Facility No.: 19-28-0415
Facility Name: T-CHEM PRODUCTS
Address: 9028 SOUTH DICE ROAD
City and zip: SANTA FE SPRINGS 90670
STATUS: No Further Action

Distance: 0.3 South West
Facility No.: 19-73-0053
Facility Name: MOBILE INSPECTION SERVICE INC
Address: 9110 S DICE RD
City and zip: SANTA FE SPRINGS 90670
STATUS: No Further Action

Distance: 0.3 South West
Facility No.: 19-34-0333
Facility Name: ELECTRO CHROME CO, INC
Address: 9132 S DICE RD
City and zip: SANTA FE SPRINGS 90670
STATUS: No Further Action

Distance: 0.3 South West
Facility No.: 19-49-0148
Facility Name: DICE ROAD & LOS NIETOS ROAD DUMP
Address: 9165 DICE RD
City and zip: SANTA FE SPRINGS 90670
STATUS: No Further Action

Distance: 0.3
Facility No.: 19-42-0006
Facility Name: ALCAN ALUMINUM CORP
Address: 9315 SANTA FE SPRINGS RD
City and zip: SANTA FE SPRINGS 90670
STATUS: No Further Action

Distance: 0.4 South East
Facility No.: 19-32-0036
Facility Name: ARMOUR WORLD WIDE GLASS CO
Address: 9401 ANN ST
City and zip: SANTA FE SPRINGS 90670
STATUS: No Further Action

ASPIS FACILITY DATA CONTINUED

Distance: 0.4 South East
Facility No.: 19-36-0018
Facility Name: TROJAN BATTERY COMPANY, #2
Address: 9440 ANN STREET
City and zip: SANTA FE SPRINGS 90670
STATUS: No Further Action

Distance: 0.4 South East
Facility No.: 19-28-0397
Facility Name: EXIDE BATTERY
Address: 9536 S ANN ST
City and zip: SANTA FE SPRINGS 90670
STATUS: No Further Action

Distance: 0.4 North East
Facility No.: 19-34-0374
Facility Name: SAFE PLATING INC
Address: 12015 E SLAUSON
City and zip: SANTA FE SPRINGS 90670
STATUS: No Further Action

Distance: 0.4 North East
Facility No.: 19-73-0073
Facility Name: SPRINT PRINT INC
Address: 12015A SLAUSON
City and zip: SANTA FE SPRINGS 90670
STATUS: No Further Action

Distance: 0.4 North East
Facility No.: 19-51-0017
Facility Name: CARBONIC PRODUCTS INC
Address: 11950 BURKE ST
City and zip: SANTA FE SPRINGS 90670
STATUS: No Further Action

Distance: 0.4 North East
Facility No.: 19-45-0003
Facility Name: AERO WHEEL & BRAKE SERVICE
Address: 11927 BURKE ST
City and zip: SANTA FE SPRINGS 90670
STATUS: No Further Action

Distance: 0.4 North East
Facility No.: 19-34-0432
Facility Name: TWIN COUNTIES ELECTROPLATING
Address: 11971 EAST SLAUSON AVENUE
City and zip: SANTA FE SPRINGS 90670
STATUS: No Further Action

ASPIS FACILITY DATA CONTINUED

Distance: 0.4 South West
Facility No.: 19-13-0014
Facility Name: CHEMACON INC
Address: 12405 E LOS NIETOS RD
City and zip: SANTA FE SPRINGS 90670
STATUS: No Further Action

Distance: 0.4 North West
Facility No.: 19-34-0364
Facility Name: PARKER HANNIFIN
Address: 11808 BURKE ST
City and zip: SANTA FE SPRINGS 90670
STATUS: No Further Action

Distance: 0.4 North West
Facility No.: 19-34-0439
Facility Name: WEST BENT BOLT
Address: 8623 SOUTH DICE ROAD
City and zip: SANTA FE SPRINGS 90670
STATUS: Site Inspection Req'd - Low Priority

Distance: 0.4 South West
Facility No.: 19-28-0908
Facility Name: FINE LINE PAINT CORP
Address: 12200 LOS NIETOS RD
City and zip: SANTA FE SPRINGS 90670
STATUS: No Further Action

Distance: 0.4 South West
Facility No.: 19-42-0013
Facility Name: GEORGE P CASEY CO
Address: 12121 LOS VICTORS RD
City and zip: SANTA FE SPRINGS 90670
STATUS: No Further Action

Distance: 0.4 South West
Facility No.: 19-28-0235
Facility Name: BUTLER CHEMICAL INC
Address: 12132 E LOS NIETOS RD
City and zip: SANTA FE SPRINGS 90670
STATUS: No Further Action

Distance: 0.4 North West
Facility No.: 19-28-0768
Facility Name: PILOT CHEMICAL CO
Address: 11756 E BURKE ST
City and zip: SANTA FE SPRINGS 90670
STATUS: Site Inspection Req'd - High Priority

ASPIS FACILITY DATA CONTINUED

Distance: 0.5 South East
Facility No.: 19-28-0240
Facility Name: MATT ENTERPRISES
Address: 9441 S SANTA FE SPRINGS RD
City and zip: SANTA FE SPRINGS 90670
STATUS: No Further Action

Distance: 0.5 North East
Facility No.: 19-72-0024
Facility Name: CHRYSLER CORP
Address: 12206 E SLAUSON AVE
City and zip: SANTA FE SPRINGS 90670
STATUS: No Further Action

Distance: 0.5 South East
Facility No.: 19-49-0112
Facility Name: PEOPLES DISPOSAL CO
Address: 9525 SANTA FE SPRINGS RD
City and zip: SANTA FE SPRINGS 90670
STATUS: No Further Action

Distance: 0.5 South East
Facility No.: 19-33-0075
Facility Name: SANTA FE CASTING CO
Address: 9531 S SANTA FE SPRINGS RD
City and zip: SANTA FE SPRINGS 90670
STATUS: No Further Action

Distance: 0.5 North East
Facility No.: 19-34-0372
Facility Name: SANTA FE ENAMELING & METAL FINISHING
Address: 8427 SECURA WAY
City and zip: SANTA FE SPRINGS 90670
STATUS: No Further Action

Distance: 0.5 South East
Facility No.: 19-29-0115
Facility Name: UNION OIL COMPANY OF CALIFORNIA
Address: 9645 SOUTH SANTA FE SPRINGS ROAD
City and zip: SANTA FE SPRINGS 90670
STATUS: No Further Action

Distance: 0.5 South East
Facility No.: 19-34-0025
Facility Name: KEENE CORP
Address: 12521 E LOS NIETOS RD
City and zip: SANTA FE SPRINGS 90670
STATUS: No Further Action

ASPIS FACILITY DATA CONTINUED

Distance: 0.5 North West
Facility No.: 19-73-0079
Facility Name: STUDIO GRAPHICS
Address: 11823 EAST SLAUSON
City and zip: SANTA FE SPRINGS 90670
STATUS: No Further Action

Distance: 0.5 North West
Facility No.: 19-34-0377
Facility Name: WESTERN SCREW PRODUCTS #1
Address: 11770 EAST SLAUSON AVENUE
City and zip: SANTA FE SPRINGS 90670
STATUS: Pending Status

Distance: 0.5 North West
Facility No.: 19-28-0375
Facility Name: CAL WESTERN PAINTS
Address: 11748 SLAUSON AVE
City and zip: SANTA FE SPRINGS 90670
STATUS: No Further Action

Distance: 0.5
Facility No.: 19-73-0056
Facility Name: PACIFIC LOG EXCHANGE INC
Address: 8544 DICE RD
City and zip: SANTA FE SPRINGS 90670
STATUS: No Further Action

Distance: 0.5
Facility No.: 19-34-0373
Facility Name: SAME DAY PLATING
Address: 8520 S SORENSON
City and zip: SANTA FE SPRINGS 90670
STATUS: No Further Action

Facility No.: 19-29-0085
Facility Name: BARNHART-MORROW CONSTRUCTION
Address: SANTA FE SPRINGS
City and zip: SANTA FE SPRINGS 90670
STATUS: No Further Action

Facility No.: 19-29-0086
Facility Name: BISHOP OIL CO
Address: SANTA FE SPRINGS
City and zip: SANTA FE SPRINGS 90670
STATUS: No Further Action

SUBJECT PROPERTY.

9005 SORENSEN
SANTA FE SPRINGS
AU9133

ASPIS FACILITY DATA CONTINUED

Facility No.: 19-29-0072
Facility Name: OIL LINES INC
Address: SANTA FE SPRINGS
City and zip: SANTA FE SPRINGS 90670
STATUS: No Further Action

DICE 00392

SUBJECT PROPERTY

9005 SORENSEN
SANTA FE SPRINGS
AU9133

WDS

WASTE DISCHARGE SYSTEMS

The information in this report is produced by the state of California Environmental Affairs Agency Office of Hazardous Material Data Management.

This data base contains information on sites which have been issued waste discharge requirements. Under State and Federal regulations, generators are allowed to discharge to publicly owned treatment works (POTW's) specified levels of waste water toxics. (Some of these industries have categorical pretreatment standards for their discharges; other companies may fall under locally developed limits.) The current information was compiled from the agency published list as of February 1990.

* Distance coordinates are provided as a convenience only. Estimated distance is based on the mapping information provided by the U.S. Government Tiger files and may vary from local street guide maps. Sites that are not provided with distance coordinates are generally the result of inaccurate or incomplete information provided by Federal and State government record lists.

The NATEC database listing as of this date indicates no locations within a one half mile radius of the subject property.

DICE 00393

SARA TITLE III

TOXIC CHEMICAL RELEASE INVENTORY

Section 313 of the Emergency Planning and Community Right to Know Act (Title III of the Superfund Amendments and Reauthorization Act of 1986) requires certain facilities to file an annual toxic chemical release inventory form with the United States Environmental Protection Agency and the California Environmental Affairs Agency. Facilities are required to report releases to air, water and land. The current information was compiled from the agency published list as of December 1990.

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FACILITY DATA

SARA FACILITY DATA CONTINUED

Distance: 0.2 North West
Facility ID: 190869
Facility Name: DIVERSEY WYANDOTTE CORPORATION
Address: 8921 DICE ROAD
City and zip: SANTA FE SPRINGS 90670

SIC code: 2842
CAS code: 139-13-9
Inventory Code (Pounds by Range): 1,000 - 9,999

Air Total: 500
Water Total: 0
Underground Total: 0
Land Total: 0
POTW Total: 250
Off Site Total: 0

CAS code: 7664-38-2
Inventory Code (Pounds by Range): 10,000 - 99,999

Air Total: 0
Water Total: 0
Underground Total: 0
Land Total: 0
POTW Total: 750
Off Site Total: 0

CAS code: 7664-93-9
Inventory Code (Pounds by Range): 10,000 - 99,999

Air Total: 0
Water Total: 0
Underground Total: 0
Land Total: 0
POTW Total: 250
Off Site Total: 0

CAS code: 7697-37-2
Inventory Code (Pounds by Range): 10,000 - 99,999

Air Total: 500
Water Total: 0
Underground Total: 0
Land Total: 0
POTW Total: 250
Off Site Total: 0

CAS code: 7782-50-5
Inventory Code (Pounds by Range): 1,000 - 9,999

Air Total: 1000
Water Total: 0
Underground Total: 0
Land Total: 0
POTW Total: 250
Off Site Total: 0

DICE 00395

SUBJECT PROPERTY:

9005 SORENSEN
SANTA FE SPRINGS
AU9133

SARA FACILITY DATA CONTINUED

Distance: 0.3 South East
Facility ID: 191038
Facility Name: ASSOCIATED PLATING CO.
Address: 9636 ANN ST.
City and zip: SANTA FE SPRINGS 90670

SIC code: 3471
CAS code: 7664-93-9
Inventory Code (Pounds by Range): 1,000 - 9,999

Air Total: 0
Water Total: 0
Underground Total: 0
Land Total: 0
POTW Total: 0
Off Site Total: 0

CAS code: 7647-01-0
Inventory Code (Pounds by Range): 10,000 - 99,999

Air Total: 500
Water Total: 0
Underground Total: 0
Land Total: 0
POTW Total: 0
Off Site Total: 0

CAS code: 7697-37-2
Inventory Code (Pounds by Range): 1,000 - 9,999

Air Total: 0
Water Total: 0
Underground Total: 0
Land Total: 0
POTW Total: 0
Off Site Total: 0

CAS code: 7664-38-2
Inventory Code (Pounds by Range): 100 - 999

Air Total: 0
Water Total: 0
Underground Total: 0
Land Total: 0
POTW Total: 0
Off Site Total: 0

CAS code: 127-18-4
Inventory Code (Pounds by Range): 1,000 - 9,999

Air Total: 500
Water Total: 0
Underground Total: 0
Land Total: 0
POTW Total: 0
Off Site Total: 0

DICE 00396

SUBJECT PROPERTY

9005 SORENSEN
SANTA FE SPRINGS
AU9133

SARA FACILITY DATA CONTINUED

Distance: 0.3 South East
Facility ID: 192610
Facility Name: VALUOLINE
Address: 9520 JOHN STREET
City and zip: SANTA FE SPRINGS 90670

SIC code: 2992
CAS code: 20-19-9
Inventory Code (Pounds by Range): 10,000 - 99,999
Air Total: 500
Water Total: 0
Underground Total: 0
Land Total: 0
POTW Total: 0
Off Site Total: 0

DICE 00397

SARA FACILITY DATA CONTINUED

Distance: 0.3 North West
Facility ID: 191253
Facility Name: WITCO CORPORATION ORGANICS DIVISION
Address: 8733 SOUTH DICE ROAD
City and zip: SANTA FE SPRINGS 90670

SIC code: 2869

CAS code: 107-21-1

Inventory Code (Pounds by Range): 100,000 - 999,999

Air Total: 125

Water Total: 0

Underground Total: 0

Land Total: 0

POTW Total: 0

Off Site Total: 0

CAS code: 20-10-0

Inventory Code (Pounds by Range): 100,000 - 999,999

Air Total: 500

Water Total: 0

Underground Total: 0

Land Total: 0

POTW Total: 0

Off Site Total: 0

CAS code: 7664-93-9

Inventory Code (Pounds by Range): 100,000 - 999,999

Air Total: 382

Water Total: 0

Underground Total: 0

Land Total: 0

POTW Total: 0

Off Site Total: 0

CAS code: 7647-01-0

Inventory Code (Pounds by Range): 10,000 - 99,999

Air Total: 1247

Water Total: 0

Underground Total: 0

Land Total: 0

POTW Total: 0

Off Site Total: 0

CAS code: 111-42-2

Inventory Code (Pounds by Range): 10,000 - 99,999

Air Total: 22

Water Total: 0

Underground Total: 0

Land Total: 0

POTW Total: 0

Off Site Total: 0

CAS code: 75-21-8

Inventory Code (Pounds by Range): 100,000 - 999,999

DICE 00398

SARA FACILITY DATA CONTINUED

Air Total: 12
Water Total: 0
Underground Total: 0
Land Total: 0
POTW Total: 0
Off Site Total: 0
CAS code: 67-56-1
Inventory Code (Pounds by Range): 10,000 - 99,999
Air Total: 192
Water Total: 0
Underground Total: 0
Land Total: 0
POTW Total: 0
Off Site Total: 0

SARA FACILITY DATA CONTINUED

Distance: 0.3 North West
Facility ID: 190808
Facility Name: CP CHEMICALS INC./SOUTHERN CALIFORNIA CHEMICAL
Address: 8851 DICE ROAD
City and zip: SANTA FE SPRINGS 90670

SIC code: 2819
CAS code: 7782-50-5
Inventory Code (Pounds by Range): 100,000 - 999,999
Air Total: 698
Water Total: 0
Underground Total: 0
Land Total: 0
POTW Total: 0
Off Site Total: 0

CAS code: 7664-41-7
Inventory Code (Pounds by Range): 10,000 - 99,999
Air Total: 18787
Water Total: 0
Underground Total: 0
Land Total: 0
POTW Total: 497279
Off Site Total: 50

CAS code: 7647-01-0
Inventory Code (Pounds by Range): 100,000 - 999,999
Air Total: 538
Water Total: 0
Underground Total: 0
Land Total: 0
POTW Total: 0
Off Site Total: 0

CAS code: 20-08-6
Inventory Code (Pounds by Range): 100,000 - 999,999
Air Total: 500
Water Total: 0
Underground Total: 0
Land Total: 0
POTW Total: 138
Off Site Total: 491

CAS code: 7664-93-9
Inventory Code (Pounds by Range): 100,000 - 999,999
Air Total: 16
Water Total: 0
Underground Total: 0
Land Total: 0
POTW Total: 0
Off Site Total: 0

DICE 00400

SUBJECT PROPERTY:

9005 SORENSEN
SANTA FE SPRINGS
AU9133

SARA FACILITY DATA CONTINUED

Distance: 0.4 South East
Facility ID: 191081
Facility Name: TROJAN BATTERY CO.
Address: 9440 ANN STREET
City and zip: SANTA FE SPRINGS 90670

SIC code: 3691
CAS code: 20-00-8
Inventory Code (Pounds by Range): 1,000 - 9,999
Air Total: 3
Water Total: 0
Underground Total: 0
Land Total: 0
POTW Total: 0
Off Site Total: 0

CAS code: 7664-93-9
Inventory Code (Pounds by Range): 10,000 - 99,999
Air Total: 0
Water Total: 0
Underground Total: 0
Land Total: 0
POTW Total: 0
Off Site Total: 0

CAS code: 20-11-1
Inventory Code (Pounds by Range): 100,000 - 999,999
Air Total: 173
Water Total: 0
Underground Total: 0
Land Total: 0
POTW Total: 0
Off Site Total: 0

CAS code: 7440-38-2
Inventory Code (Pounds by Range): 100 - 999
Air Total: 0
Water Total: 0
Underground Total: 0
Land Total: 0
POTW Total: 0
Off Site Total: 0

DICE 00401

SUBJECT PROPERTY:

9005 SORENSEN
SANTA FE SPRINGS
AU9133

SARA FACILITY DATA CONTINUED

Distance: 0.4 North West
Facility ID: 191697
Facility Name: PARKER HANNIFIN CORP.
Address: 11808 BURKE ST.
City and zip: SANTA FE SPRINGS 90670

SIC code: 3499
CAS code: 71-55-6
Inventory Code (Pounds by Range): 1,000 - 9,999
Air Total: 7679
Water Total: 0
Underground Total: 0
Land Total: 0
POTW Total: 0
Off Site Total: 0

Distance: 0.4 South West
Facility ID: 190154
Facility Name: FINE LINE PAINT CORP.
Address: 12234 LOS NIETOS ROAD
City and zip: SANTA FE SPRINGS 90670

SIC code: 2851
CAS code: 1330-20-7
Inventory Code (Pounds by Range): 1,000 - 9,999
Air Total: 250
Water Total: 0
Underground Total: 0
Land Total: 0
POTW Total: 0
Off Site Total: 0

DICE 00402

SARA FACILITY DATA CONTINUED

Distance: 0.4 North West
Facility ID: 190128
Facility Name: PILOT CHEMICAL COMPANY OF CALIFORNIA
Address: 11756 BURKE STREET
City and zip: SANTA FE SPRINGS 90670

SIC code: 2843

CAS code: 7664-93-9

Inventory Code (Pounds by Range): 10,000 - 99,999

Air Total: 0

Water Total: 0

Underground Total: 0

Land Total: 0

POTW Total: 0

Off Site Total: 0

CAS code: 20-10-0

Inventory Code (Pounds by Range): 10,000 - 99,999

Air Total: 0

Water Total: 0

Underground Total: 0

Land Total: 0

POTW Total: 3419

Off Site Total: 0

CAS code: 108-31-6

Inventory Code (Pounds by Range): 1,000 - 9,999

Air Total: 0

Water Total: 0

Underground Total: 0

Land Total: 0

POTW Total: 50

Off Site Total: 0

CAS code: 111-42-2

Inventory Code (Pounds by Range): 10,000 - 99,999

Air Total: 0

Water Total: 0

Underground Total: 0

Land Total: 0

POTW Total: 6066

Off Site Total: 0

SUBJECT PROPERTY:

9005 SORENSEN
SANTA FE SPRINGS
AU9133

SARA FACILITY DATA CONTINUED

Distance: 0.5 North East
Facility ID: 190816
Facility Name: SANTA FE ENAMELING & METAL FINISHING CO.
Address: 8427 SECURA WAY
City and zip: SANTA FE SPRINGS 90670

SIC code: 3479
CAS code: 71-55-6
Inventory Code (Pounds by Range): 1,000 - 9,999
Air Total: 82367
Water Total: 0
Underground Total: 0
Land Total: 0
POTW Total: 0
Off Site Total: 0

DICE 00404

APPENDIX B - RECORDS OF COMMUNICATIONS

Date 2-13-92 Time 10 am

Sheet _____ of _____

To/From Robert Govham

Project _____

Company Five Marshals/Pipeline Safety

Phone (818) 337-9999

K/J/C Job No _____

Subject 8832 Dice Rd

- Records show a UNocal, idle 4 inch pipeline is located in Dice Road.

- He gave the name Paul Bower, UNocal - Pipeline Division, for details of the pipeline location.

DICE 00406

Distribution Inspection File (orig)
 Field File

By Mike Campbell

Date 2-13-92 Time 10:30 am

Sheet _____ of _____

To/From Paul Bower

Project _____

Company Unocal - Pipeline Division

Phone (213) 864-5663

K/J/C Job No _____

Subject 8832 Dice Rd.

- A 4" pipeline is located east of the center line under Dice Road. According to his records, the line was flushed with water, drained and abandoned in the late 1950's

- His records showed no lateral pipelines towards the subject property; therefore, he had no records of pipelines on the subject property.

- Two sections of the Dice Road pipeline were overmowed in 1968. A section north and south of the SP Railroad lines.

DICE 00407

Distribution Inspection File (orig)
Field File

By Mike Capell

Date 2-7-92 Time 8:30

Sheet _____ of _____

To/From Doug Suzuki

Project _____

Company Dept. of Toxic Wastes Control

Phone (818) 567-3070

K/J/C Job No. _____

Subject 8832 Dice Road

- The RI has not been completed for the McCreason Chemical site. According to Mr. Suzuki, HHA did collect some samples on the 8832 Dice Road, but the results are not available. He assumed the RI would be available by the end of the month after the agency review.

Distribution Inspection File (orig)
Field File

By _____

DICE 00408

Telephone Conversation Memorandum No. _____

Kennedy/Jenks/Chilton

Date 2-5-92 Time 3 pm
To/From Babara Blaine
Company Santa Fe Springs Dept.
Phone (310) 944-9413
Subject 8832 Dice Rd.

Sheet _____ of _____
Project _____
K/J/C Job No. _____

- No records of the agriculture property associated with UST or flammables

Distribution Inspection File (orig)
Field File

By _____

DICE 00409

Date 2-12-92 Time 9am
 To/From Frank Marquez, Jr.
 Company Marquez Farms
 Phone (213) 946-3060
 Subject 8832 Dice Road

Sheet _____ of _____
 Project _____
 K/J/C Job No. _____

- Diazinon - 24 hours
- Malathion - dust application,
- 7 - Coum - 2
- only spring & summer
- Permit via County Commission
- No storage of flammable

- 6 years
- dairy - pasture Mr. Harrison,
- 10 years abandoned

Rail Road S.P. right-way

- horses pastures
- Quaded 15-20 years
- Irrigate system removed, 20 years or more years ago.

Distribution. Inspection File (orig)
 Field File

DICE 00410
 By _____

Daily Inspection Report No. _____

Kennedy/Jenks/Chilton

Contractor Tracer Research

Supt. on Job _____

Sheet 3 of 3

Weather _____

Date 1-29-92

Temperature 65 °F Max 50 °F Min

Project Liquid Air

Work Hours _____ to _____ Memos Issued _____

Photos _____

K/J/C Job No 920006.00

Special Conditions, Delays, Changes _____

Accidents Damage _____

Sampling, Testing methane

Visitors to Site _____

Work Report (Work done, Personnel/Equipment working) _____

Talked with Frank Marquez about the site. He said that the south half of the lot was not flat and it sloped up to the south. He said that the land was filled in to its present elevation and that is why the lot is terraced. He also said that at one time the whole area was a dairy farm including the lot.

Also received printout of soil-gas information data from Tracer Research before left site.

DICE 00411

Distribution Inspection File (orig)
Field File

By Joseph Montoya

Telephone Conversation Memorandum No. _____

Kennedy/Jenks/Chilton

Date 2-4-92 Time 2:30
To/From Jim Ross
Company WA RWQCB
Phone (213) 266-7500
Subject Santa Fe Springs

Sheet _____ of _____
Project _____
K/J/C Job No. _____

- No records on the subject property.
- He had not received a copy of the RI/FS on McKesson Chemical Facility.

Distribution: Inspection File (orig)
Field File

DICE 00412

By _____

APPENDIX C - TRIAD GEOTECHNICAL REPORTS



TRIAD GEOTECHNICAL CONSULTANTS INC.

Soils Engineering • Engineering Geology • Environmental Engineering

17231 EAST RAILROAD STREET, SUITE 100, CITY OF INDUSTRY, CA 91748
TELEPHONE (818) 964-2313
FAX (818) 810-0915

PRELIMINARY FOUNDATION INVESTIGATION

PROPOSED GAS PROCESSING PLANT

8832 DICE ROAD

SANTA FE SPRINGS, CALIFORNIA

JOB NUMBER 91-374 DECEMBER 11, 1991

REQUESTED BY:

Liquid Air Engineering
2121 N. California Boulevard
Walnut Creek, CA 94596

Attention: Mr. G. Claude Loyonnet

DICE 00414



TRIAD GEOTECHNICAL CONSULTANTS INC.

Soils Engineering • Engineering Geology • Environmental Engineering

17231 EAST RAILROAD STREET, SUITE 100, CITY OF INDUSTRY, CA 91748

TELEPHONE (818) 964-2313

FAX (818) 810-0915

December 11, 1991

Job #91-374

Liquid Air Engineering
2121 N. California Boulevard
Walnut Creek, CA 94596

Attention: Mr. G. Claude Loyonnet

Subject: Preliminary Foundation Investigation
Proposed Gas Processing Plant
8832 Dice Road
Santa Fe Springs, California

Gentlemen:

This report presents the findings and conclusions of a soils investigation performed at the subject site. The purpose of this investigation was to obtain information on subsurface soils for evaluation on which to base recommendations for the development of the property. Our recommendations given in this report are intended for use in grading and preparation of construction plans for the foundation of the proposed project.

The field exploration consisted of a visual reconnaissance of the site and the drilling of 6 borings to a maximum depth of 41.0 feet from the existing surface. A description of the methods used for the exploration and approximate locations of the borings are presented in the Appendix of this report.

DICE 00415

INTRODUCTION

Proposed Development: It is understood a gases treatment plant which converts gases to liquid is planned. At this time the site will be developed for several facilities consisting of a lin tank, compressor building, and liquefier unit. The proposed structures are expected to be constructed on shallow foundations and to have heavy loads. Maximum load for the lin tank is estimated to be 10,000 kips.

Grading plans are not available at this time; however, it is understood that the site will require moderate grading for the development, and no cut or fill slopes are planned.

Site Description: The property investigated is located on the east side of Dice Road in the City of Santa Fe Springs, California (Thomas Guide p.61, B-2). The property is irregularly shaped with a street frontage of 452 feet and depths along its north and south property lines of 329 feet and 539 feet, respectively. In addition, there is an existing railroad running along the north and east property lines.

Geographically, the site is situated on alluvial soils of the Los Angeles Plain southwest of the Puente Hills. Locally, the lot is relatively flat; however, there is a 2:1 or less fill slope of 3 feet to 5 feet traversing the lot near its center from east to west. Drainage appears to be good by sheet flow towards the

street and towards the drainage ditch along the lot's north property line.

At the time of our investigation there was an existing light wood framed, open sided structure near the lot's center along the street and the remainder of the site was in use for agricultural purposes.

Subsurface Conditions: Fill soils were encountered in two borings and were up to 3.5 feet in depth. These soils were classified as light grayish brown silty sands in a slightly moist and medium dense condition.

Natural soils are primarily sands with silts and silty sands. These soils are grayish brown to dark brown sands in a moist and medium dense to dense condition.

A five foot thick layer of silts was encountered in Boring #4 at 13 feet below the ground surface. Natural soils are slightly porous and non-expansive with changes in moisture content. Caving of the soils and ground water were not encountered in any of the borings.

Detailed descriptions of the soils encountered at each boring and the soil tests conducted, with their results, are presented in the Appendix.

CONCLUSIONS AND RECOMMENDATIONS

General: The information obtained during our investigation indicates that the subject site is suited for the proposed development, provided the recommendations contained in this report are incorporated into the design considerations, project plans, and job specifications.

Grading: All grading should conform to the requirements of the City of Santa Fe Springs and the standard grading specifications presented in this report.

Prior to grading, all structures, vegetation, and debris should be removed from the site. Uncertified fills and loose soils should be excavated to firm natural soils. A minimum of 3 feet of natural soil removal and recompaction may be required at the site.

Areas to receive fills should be scarified 6 to 8 inches to adjust the moisture content to near optimum conditions and then compacted to minimum requirements. Fills should be placed in 6 to 8 inch loose lifts at near optimum moisture conditions and compacted to not less than 90 percent of the maximum dry density. Maximum densities for the typical soils should be established in accordance with the standard ASTM D1557-78 method of test.

On-site soils may be used for compacted fills, provided they are free from organic and deleterious material. If imported soils are required, they should be approved by the Soils Engineer prior to acceptance at the site, to insure a similar quality to that required by design.

Grading operations should be conducted under the observation of the Soils Engineer to provide assurance of compliance with job specifications and a Certification of Compacted Fill upon completion of grading.

Shrinkage: Shrinkage as a result of recompaction of existing fill and natural soils is expected to be approximately 5 to 10 percent. The recompaction zone includes materials which are overexcavated and replaced as compacted fill, as well as materials below the overexcavation which are scarified and compacted in place.

Foundation Design: For the building, continuous of spread footings should be placed 18 inches into compacted or firm natural soils. For tanks, a mat footing having a minimum embedment of 24 inches into compacted or firm natural soils may be designed for an allowable bearing pressure of 2000 pounds per square foot. All footings should have a minimum width of 12 inches. Alternatively, the mat footing may be designed for a modulus of subgrade reaction equal to 500 kips per cubic foot.

Total settlements with the assumed loads should not exceed 3/4 inch and differential settlements under similar loads should not exceed 1/4 inch.

A 1/3 increase in bearing pressure may be used in design when considering wind or seismic loads of short duration.

Mat footings should have minimum reinforcement of Number 4 bar at 18 inches on centers.

Lateral Resistance: Resistance to horizontal forces on foundations may be provided by the combined effect of passive soil pressures and frictional resistance between concrete and firm soils. Lateral soil pressures of 300 pounds per square foot per foot of depth may be used up to 2000 pounds per square foot. A coefficient of friction of 0.35 is recommended for the on-site soils.

Retaining Walls: Small unrestrained retaining walls with a level backfill should be designed to resist active soil pressures equivalent to a fluid pressure of 30 pounds per cubic foot, plus any additional surcharge expected from the surface.

Weep holes consisting of open joints in block walls or 1-inch diameter holes at 2 foot intervals should be placed at the base of the wall 6 to 12 inches above finished grade, or an adequate

drainage system at the base of the wall should be provided to prevent hydrostatic pressures.

All walls should have a granular backfill compacted as fill soil. Jetting should not be permitted.

SUMMARY

This report was prepared to aid the project designers, reviewing agencies, grading contractors, owners, and other concerned parties in completing their responsibilities for the successful completion of this project. The findings and recommendations were prepared in accordance with generally accepted professional engineering principles and practices. We make no other warranty, neither expressed nor implied.

The findings and recommendations are based on results of the field and laboratory investigation, combined with interpolation of soil conditions between boring locations. If conditions are encountered during grading or construction that appear to be different than those reported, this office should be notified.

All footing excavations should be inspected and approved by the Soils Engineer prior to placing forms or reinforcement, to insure minimum depths into the recommended supporting material.

We appreciate the opportunity to work with you on this project.
Please contact us at your convenience if you have any questions
regarding this report.

Respectfully submitted,

TRIAD GEOTECHNICAL CONSULTANTS, INC.

Javed S. Chak

Javed S. Chak
G.E. 197



JSC/thf

Distribution: Addressee (4)

APPENDIX

The following Appendix contains a description of methods and laboratory test results which were used in the engineering evaluations and recommendations contained in the report.

Included are the following Map and Plates:

Map

Plot Plan

Plates

Plates A-1 through A-7 ----- Boring Logs

Plates B-1 through B-8 ----- Consolidation Curves

Plate C ----- Direct Shear Summary

Site Exploration

On November 25, 1991, field explorations were made by drilling 6 borings at the approximate locations indicated on the accompanying Plot Plan. A truck-mounted, rotary-type drilling rig equipped with an 8-inch diameter hollow stem auger was used to advance the borings to depths of 15 to 41 feet below the existing grade.

Relatively undisturbed samples of soils were obtained in the field using a barrel drive sampler with a tapered cutting shoe. The soil samples were retained in 2.5-inch diameter by 1.0-inch rings within the sampler and secured in moisture resistant bags as soon as taken to minimize the loss of field moisture while being transferred to our laboratory for testing.

Continuous observations of the materials encountered in the borings were recorded in the field. The soils were classified in the field by visual and textural examination, and these classifications were supplemented by obtaining bulk soil samples for future examination or testing in the laboratory to assure classifications in accordance with the Unified Soil Classification System.

Descriptions of the visual observations of color and soil condition, depth of undisturbed cores or bag samples, field density, and field moisture content are presented on the Boring Logs, Plates A.

Laboratory Tests and Results

Maximum Density: Tests for maximum density and optimum moisture content were conducted in accordance with the ASTM Test Method D1557-78. The tests were made using a 4-inch diameter mold having a 1/30 cubic foot volume, with 25 blows of a 10-pound hammer falling 18 inches on each of 5 layers. The following results were obtained:

<u>Test Hole No.</u>	<u>Depth (feet)</u>	<u>Soil Classification</u>	<u>Maximum Dry Density</u>	<u>Optimum Moisture</u>
2	2.5	Silty Fine SAND with some Clay - Red-brown to brown	126.0 pcf	12.0 %

Consolidation: Compressibility of the soils was determined by consolidation tests, which were conducted on selected undisturbed

samples to represent the typical foundation supporting soils. The specimens were loaded initially at field moisture and later, at a specified load, water was added and allowed to remain until primary consolidation had been completed. The amount of settlement was recorded for each increment before applying additional loads and after completion of the loading, loads were removed and the rebound recorded. Consolidation curves obtained from test results are presented on Plates B.

Direct Shear Tests: Direct shear tests were conducted on undisturbed samples of the investigated soils to determine the angle of internal friction and cohesion. Samples were inundated for a minimum of 24 hours under normal load before testing and shear loads were applied quickly in accordance with the standard procedure for consolidated undrained shear tests. Horizontal forces were applied to pass the peak shear and determine the residual shear strength of the soil specimen. The results and residual shear strengths under increased moisture conditions are shown on Plate C.

BORING LOG

Project 8832 Dice Rd.-Santa Fe Springs

Boring No. 1 Location see plot plan Job No. 91-374 Drill Date 11-25-91

Surface Elev. _____ Logged by JSF Driving Weight 140#

WATER	DEPTH (FEET)	GRAPHIC LOG	UNIT (soil, fill, alluvium, siltstone, etc.) MATERIAL DESCRIPTION (% sand, silt, clay; color, consolidation, etc.) ATTITUDE MEASUREMENTS: B-Bedding F-Fault J-Joint RS-Rupture Surface C-Contact	GROUP SYMBOL U.S.C.S.	PENE. RESIST BLOWS/FOOT	C-CORE B-BAG	DRY DENSITY pcf	MOISTURE CONTENT (%)
	0							
	5		NATURAL: Silty Fine SAND with a trace of Clay - dark gray-brown to brown, moist, moderately dense	SM	5/6" 5/6" 6/6"	B C	112.0	14.8
	10		Fine SAND with some Silt - brown to gray-brown, moist, dense	SP	10/6" 15/6" 20/6"	C	96.2	3.2
	15		Less Silt - light gray-brown		12/6" 23/6" 38/6"	C	98.6	4.5
	20				14/6" 35/6" 42/6"	C	100.5	4.4
	25		END OF BORING 21.0 FEET No Ground Water or Caving					
	30							

DICE 00426

BORING LOG

Project 8832 Dice Rd.-Santa Fe Springs

Boring No 2 Location see plot plan Job No. 91-374 Drill Date 11-25-91

Surface Elev Logged by JSF

Driving Weight 140#

WATER	DEPTH (FEET)	GRAPHIC LOG	UNIT (soil, fill, alluvium, siltstone, etc.) MATERIAL DESCRIPTION (% sand, silt, clay; color, consolidation, etc.) ATTITUDE MEASUREMENTS: B-Bedding F-Fault J-Joint RS-Rupture Surface C-Contact	GROUP SYMBOL U.S.C.S.	PENE. RESIST BLOWS/FOOT	C-CORE B-BAG	DRY DENSITY pcf	MOISTURE CONTENT (%)	
	0		NATURAL: Silty Fine SAND - light gray-brown, slightly moist, moderately dense - upper 18" disturbed	SM					
	5		Silty Fine SAND with some Clay - red-brown to brown, moist, moderately dense to dense, slightly porous		6/6" 13/6" 16/6"	C/B	117.0	11.9	
	10		Silty Fine SAND - light gray-brown, slightly moist, moderately dense		5/6" 5/6" 7/6"	C	108.2	14.2	
	15		Sandy SILT - light gray-brown, moist, dense	ML	11/6" 14/6" 14/6"	C/B	101.9	15.7	
	20		Fine to Coarse SAND with some Silt & Gravel - light gray-brown, moist, dense to very dense	SP	11/6" 20/6" 32/6"	C	101.5	3.1	
	25		END OF BORING 15.5 FEET No Ground Water or Caving						
	30								
						DICE 00427			

BORING LOG

Project 8832 Dice Rd.-Santa Fe Springs

Boring No 3 Location see plot plan Job No. 91-374 Drill Date 11-25-91

Surface Elev Logged by JSF Driving Weight 140#

WATER	DEPTH (FEET)	GRAPHIC LOG	UNIT (soil, fill, alluvium, siltstone, etc.) MATERIAL DESCRIPTION (% sand, silt, clay; color, consolidation, etc.) ATTITUDE MEASUREMENTS: B-Bedding F-Fault J-Joint RS-Rupture Surface C-Contact	GROUP SYMBOL U.S.C.S.	PENE. RESIST BLOWS/FOOT	C-CORE B-BAG	DRY DENSITY pcf	MOISTURE CONTENT (%)
	0		NATURAL: Silty Fine SAND with a trace of Clay - dark gray-brown to brown, moist, moderately dense - trace of porosity - upper 18" disturbed	SM				
			Silty Fine SAND with some Clay - dark gray-brown to dark brown, moist, dense	SM	9/6"	C	120.1	11.4
	5		Less Clay - gray-brown to light gray-brown		13/6" 15/6"			
	10		Less Silt		5/6" 6/6" 7/6"	C	116.1	11.1
	15		Fine SAND with some Silt - gray-brown, moist moderately dense	SP	5/6" 6/6" 9/6"	C	114.2	12.6
			Less Silt - light gray-brown					
	20				11/6" 24/6" 36/6"	C	98.6	4.4
	25		END OF BORING 21.0 FEET No ground Water or Caving					
	30							
					DICE 00428			

BORING LOG

Project 8832 Dice Rd.-Santa Fe Springs

Boring No 4 Location see plot plan Job No. 91-374 Drill Date 11-25-91

Surface Elev Logged by JSF Driving Weight 140#

WATER	DEPTH (FEET)	GRAPHIC LOG	UNIT (soil, fill, alluvium, siltstone, etc.) MATERIAL DESCRIPTION (% sand, silt, clay; color, consolidation, etc.) ATTITUDE MEASUREMENTS: B - Bedding F - Fault J - Joint RS - Rupture Surface C - Contact	GROUP SYMBOL U.S.C.S.	PENE. RESIST BLOWS/FOOT	C-CORE B-BAG	DRY DENSITY pcf	MOISTURE CONTENT (%)
	0		NATURAL: Silty Fine SAND with a trace of Clay - light gray-brown to dark gray-brown, slightly moist, moderately dense - upper 18" disturbed Slightly porous	SM				
	5		Less Clay Trace of porosity		5/6" 9/6" 4/6" 5/6" 6/6"	C	124.2	9.2
	10		Silty Fine SAND - red-brown to brown, moist, moderately dense to dense	SM	5/6" 5/6" 7/6"	C	109.3	13.1
	15		SILT with Fine Sand - brown to gray-brown, moist, very firm More Fine Sand	ML	5/6" 7/6" 11/6"	C	103.1	22.9
	20		Fine to Coarse SAND with Gravel & some Silt - light gray-brown, moist, dense More Silt	SP	16/6" 22/6" 24/6"	C	114.1	4.9
	25		Silty Fine to Coarse SAND with Gravel - gray-brown, very moist, dense	SM	9/6" 20/6"	C	105.1	19.5
	30		SILT with Fine Sand - light gray-brown, very moist, very firm to stiff Trace of Clay	ML	32/6"			
						DICE 00429		
					13/6" 15/6" 20/6"	C	98.7	26.4

BORING LOG

Project 8832 Dice Rd.-Santa Fe Springs

Boring No. 4-cont. Location see plot plan Job No. 91-374 Drill Date 11-25-91

Surface Elev

Logged by JSF

Driving Weight 140#

WATER	DEPTH (FEET)	GRAPHIC LOG	UNIT (soil, fill, alluvium, siltstone, etc.) MATERIAL DESCRIPTION (% sand, silt, clay; color, consolidation, etc.) ATTITUDE MEASUREMENTS: B-Bedding F-Fault J-Joint RS-Rupture Surface C-Contact	GROUP SYMBOL U.S.C.S.	PENE. RESIST BLOWS/FOOT	C-CORE B-BAG	DRY DENSITY pcf	MOISTURE CONTENT (%)
	30		SILT with Fine Sand	ML				
			SILT with some Clay & Fine Sand - gray-brown to brown, very moist, very firm to stiff	ML				
	35				10/6" 20/6" 27/6"	C	115.1	16.4
	40				9/6" 13/6" 23/6"	C	102.8	20.0
	45		END OF BORING 41.0 FEET No Ground Water or Caving					
	50							
	55							
	60							
						DICE 00430		

BORING LOG

Project 8832 Dice Rd.-Santa Fe Springs

Boring No. 5 Location see plot plan Job No. 91-374 Drill Date 11-25-91

Surface Elev Logged by JSF Driving Weight 140#

WATER	DEPTH (FEET)	GRAPHIC LOG	UNIT (soil, fill, alluvium, siltstone, etc.) MATERIAL DESCRIPTION (% sand, silt, clay; color, consolidation, etc.) ATTITUDE MEASUREMENTS: B-Bedding F-Fault J-Joint RS-Rupture Surface C-Contact	GROUP SYMBOL U.S.C.S.	PENE. RESIST BLOWS/FOOT	C-CORE B-BAG	DRY DENSITY pcf	MOISTURE CONTENT (%)
	0		FILL: Silty Fine SAND - light gray-brown to brown, slightly moist, medium firm Upper 2' disturbed	SM				
	5		Silty Fine SAND with some Clay - red-brown, moist, moderately dense, slightly porous	SM	2/6" 3/6" 2/6"	C		
	10		Gray-brown Slightly porous	SP	5/6" 2/6" 23/6"	C		
	15		Fine to Coarse SAND with some Silt & Gravel and a trace of Clay					
	20		Less Clay		12/6" 25/6"	C		
	25							
	30		END OF BORING 16.0 FEET No Ground Water or Caving					
						DICE 00431		

BORING LOG

Project 8832 Dice Rd.-Santa Fe Springs

Boring No. 6 Location see plot plan Job No. 91-374 Drill Date 11-25-91

Surface Elev Logged by JSF Driving Weight 140#

WATER	DEPTH (FEET)	GRAPHIC LOG	UNIT (soil, fill, alluvium, siltstone, etc.) MATERIAL DESCRIPTION (% sand, silt, clay; color, consolidation, etc.) ATTITUDE MEASUREMENTS: B - Bedding F - Fault J - Joint RS - Rupture Surface C - Contact	GROUP SYMBOL U.S.C.S.	PENE. RESIST BLOWS/FOOT	C-CORE B-BAG	DRY DENSITY pcf	MOISTURE CONTENT (%)
	0		<u>FILL:</u> Silty Fine SAND - light gray-brown, slightly moist, moderately dense	SM	12/6" 25/6"	C		
	5		<u>NATURAL:</u> Silty Fine SAND with a trace of Clay - light gray-brown to brown, moist, moderately dense Slightly to moderately porous	SM	4/6" 6/6"			
	10		Silty Fine to Medium SAND with Gravel - dark gray-brown, moist, moderately dense to dense					
	15		Fine to Coarse SAND with Gravel & Silt	SP	11/6" 12/6"			
	20		Coarse SAND with Gravel - gray-brown, moist, dense		14/6" 16/6"			
	25		SILT with Fine Sand & Clay - light gray to light gray-brown, moist, very firm	ML	7/6" 15/6"			
	30		END OF BORING 23.0 FEET No Ground Water or Caving					
						DICE 00432		

TRIAD GEOTECHNICAL CONSULTANTS INC.

DATE December 11, 1991

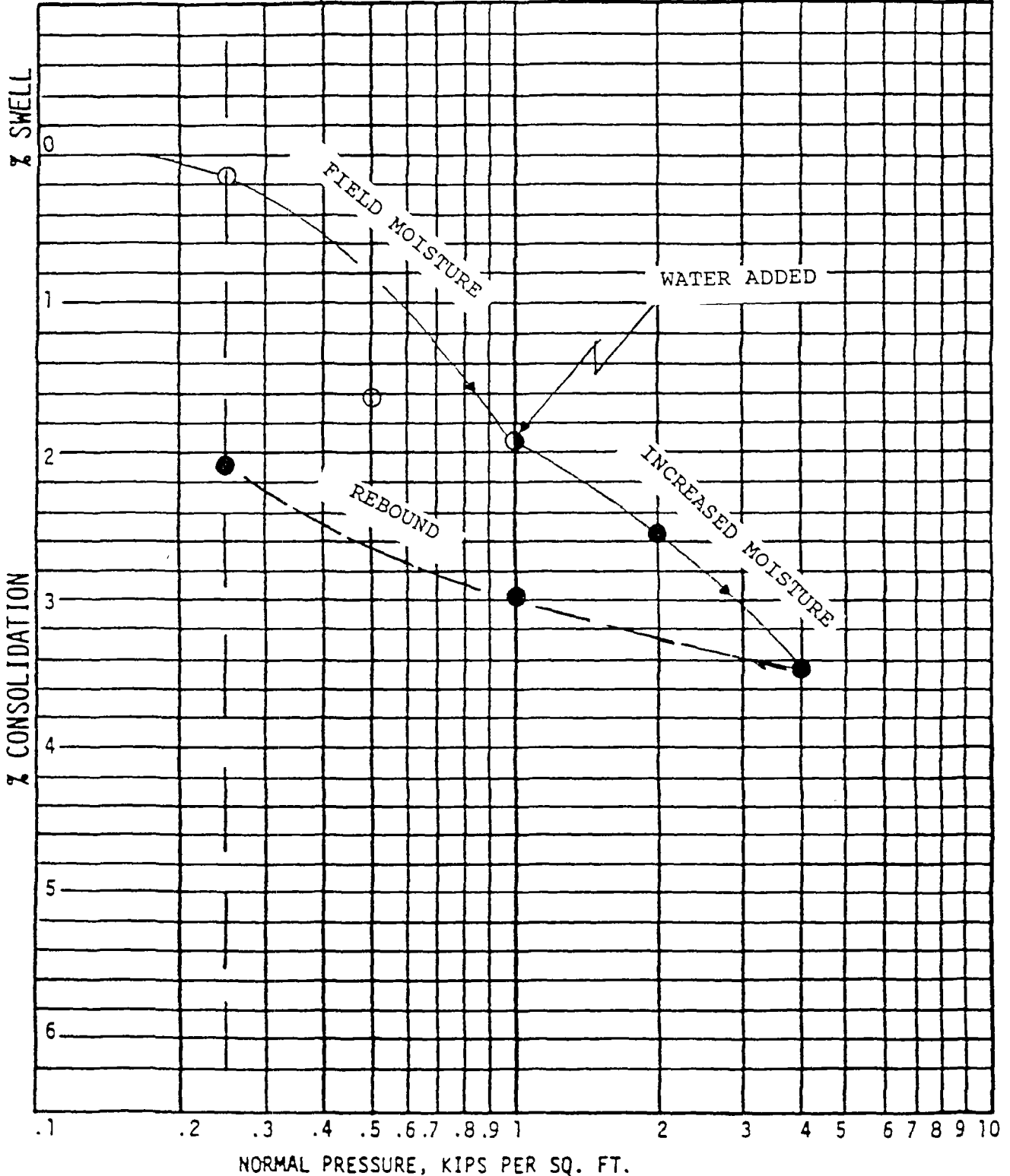
JOB NO. 91-374

JOB 8832 Dice Road - Santa Fe Springs

BORING NO. 1

DEPTH 4.5'

CONSOLIDATION - PRESSURE CURVE



DICE 00433

PLATE B-1

TRIAD GEOTECHNICAL CONSULTANTS INC.

DATE December 11, 1991

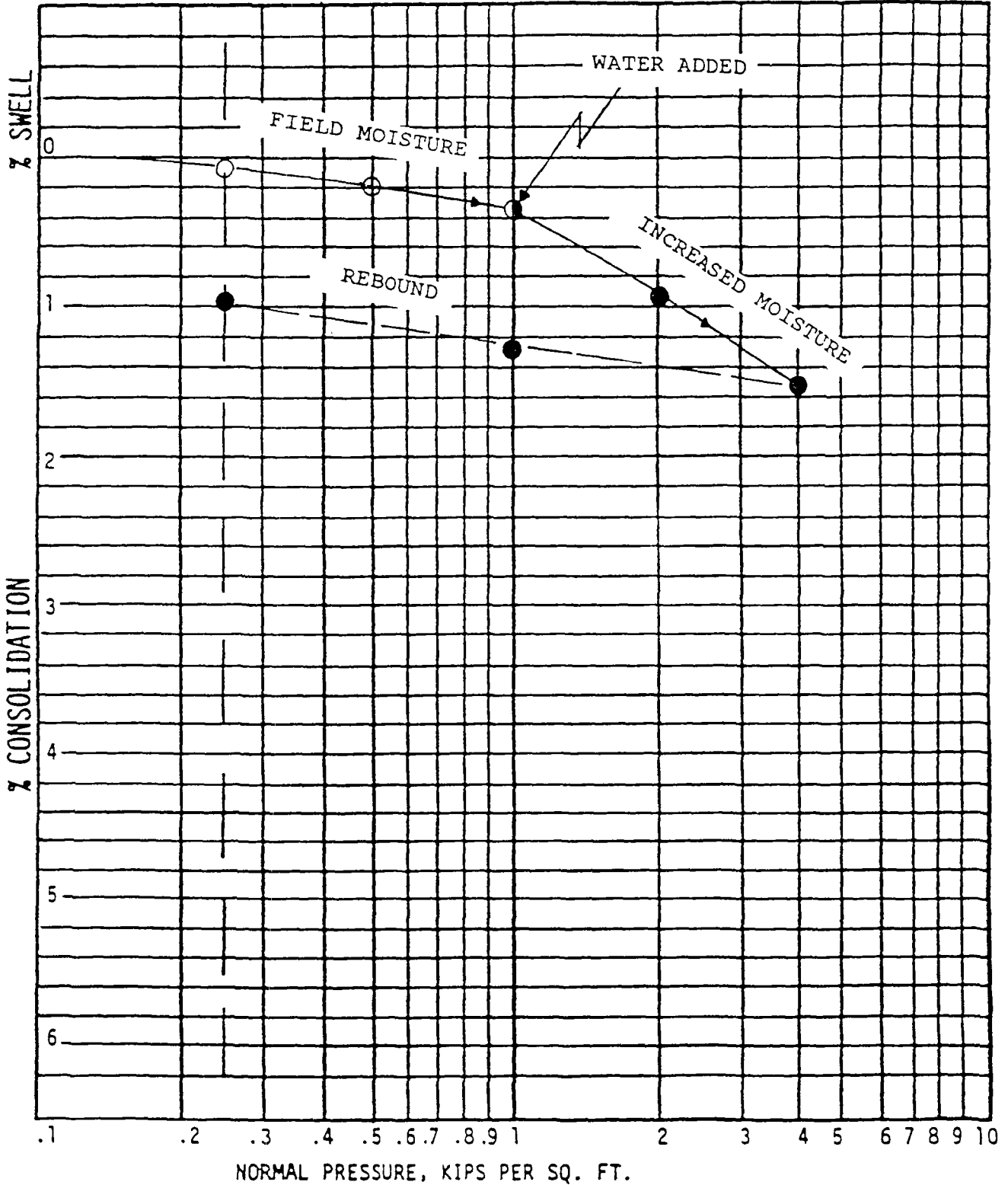
JOB NO. 91-374

JOB 8832 Dice Road - Santa Fe Springs

BORING NO. 1

DEPTH 9.5'

CONSOLIDATION - PRESSURE CURVE



DICE 00434

PLATE B-2

TRIAD GEOTECHNICAL CONSULTANTS INC.

DATE December 11, 1991

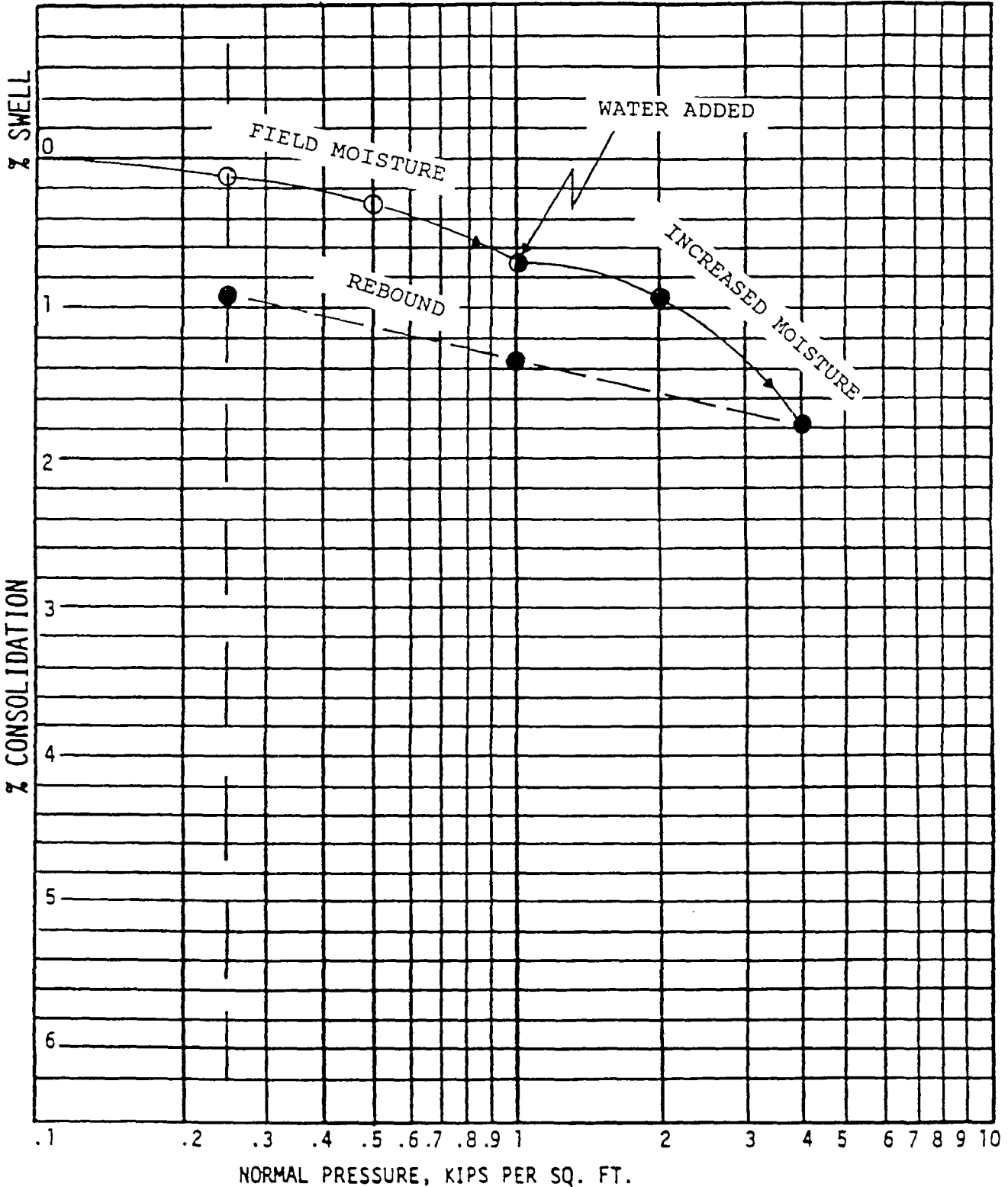
JOB NO. 91-374

JOB 8832 Dice Road - Santa Fe Springs

BORING NO. 2

DEPTH 2.5'

CONSOLIDATION - PRESSURE CURVE



DICE 00435

PLATE B-3

TRIAD GEOTECHNICAL CONSULTANTS INC.

DATE December 11, 1991

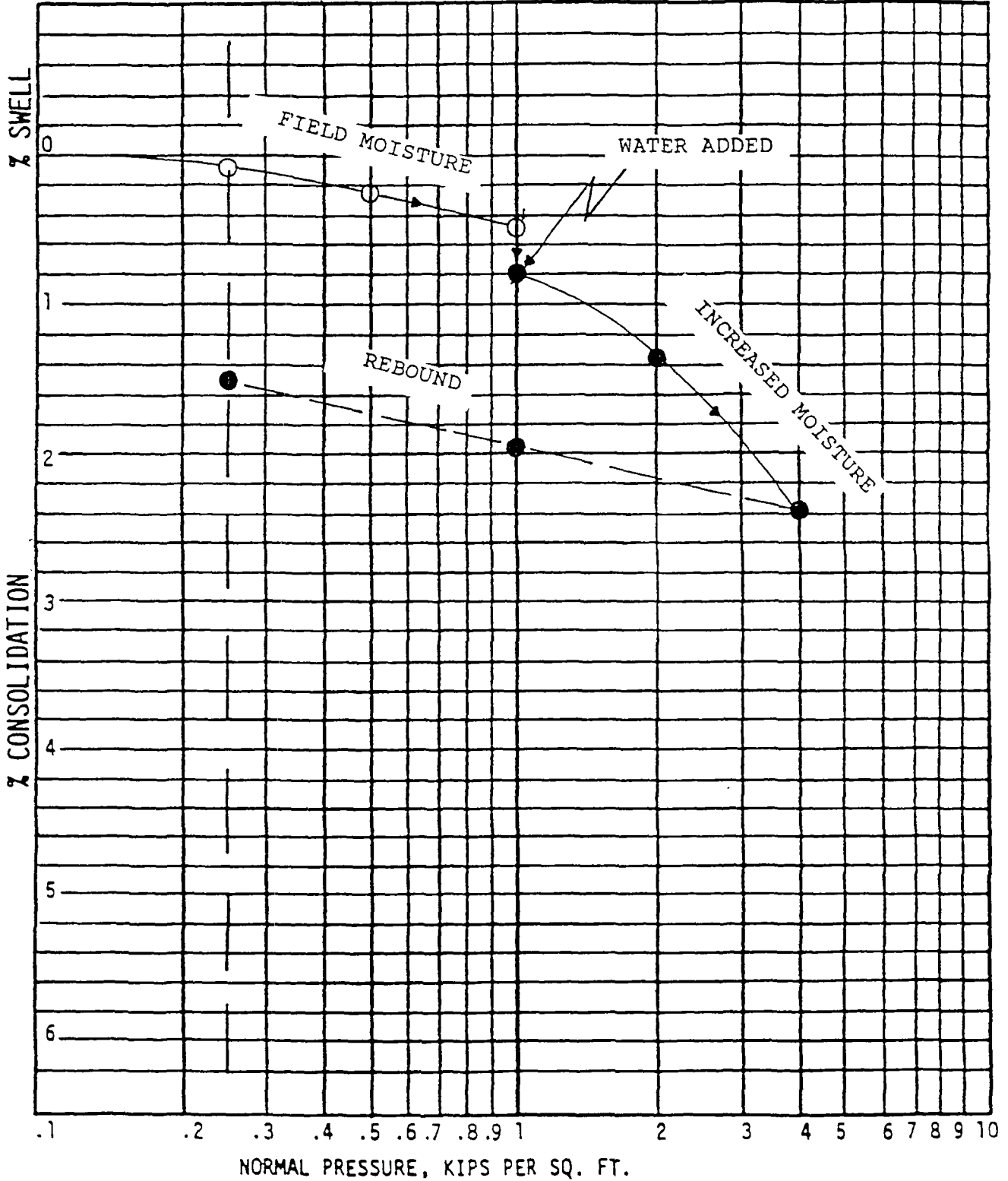
JOB NO. 91-374

JOB 8832 Dice Road - Santa Fe Springs

BORING NO. 4

DEPTH 2.5'

CONSOLIDATION - PRESSURE CURVE



DICE 00436

PLATE B-4

TRIAD GEOTECHNICAL CONSULTANTS INC.

DATE December 11, 1991

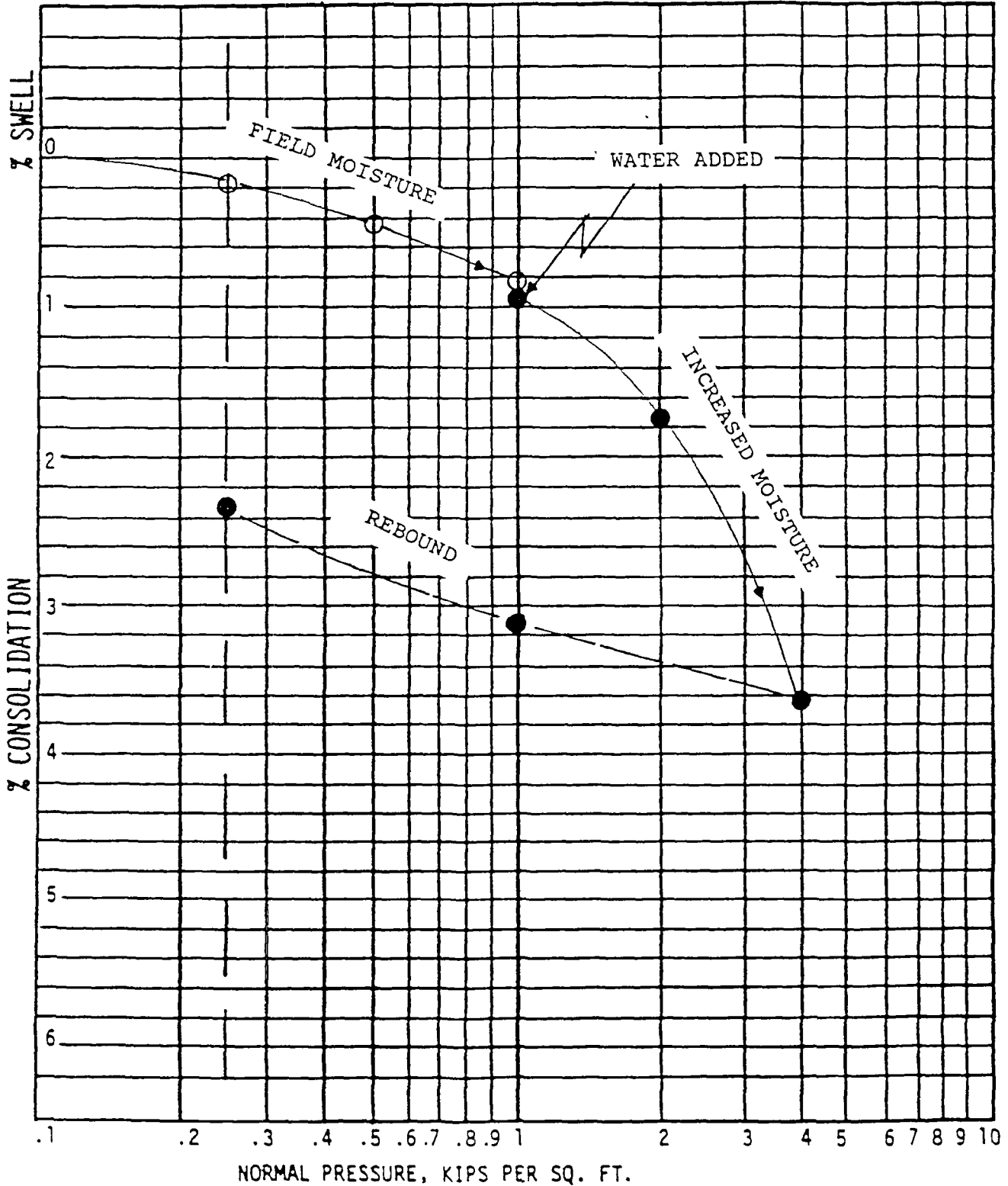
JOB NO. 91-374

JOB 8832 Dice Road - Santa Fe Springs

BORING NO. 4

DEPTH 4.5'

CONSOLIDATION - PRESSURE CURVE



DICE 00437

PLATE B-5

TRIAD GEOTECHNICAL CONSULTANTS INC.

DATE December 11, 1991

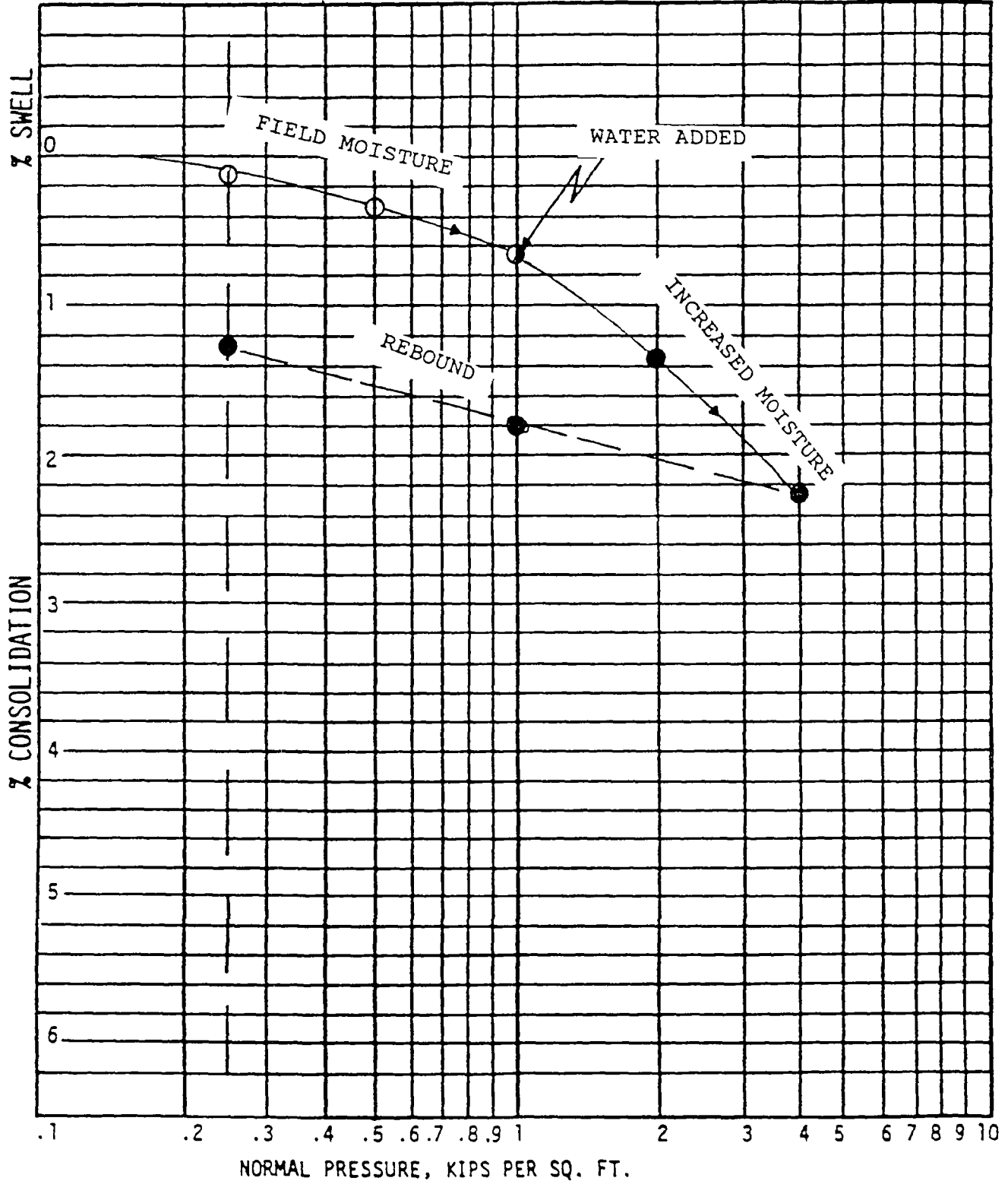
JOB NO. 91-374

JOB 8832 Dice Road - Santa Fe Springs

BORING NO. 2

DEPTH 6.5'

CONSOLIDATION - PRESSURE CURVE



DICE 00438

PLATE B-6

TRIAD GEOTECHNICAL CONSULTANTS INC.

DATE December 11, 1991

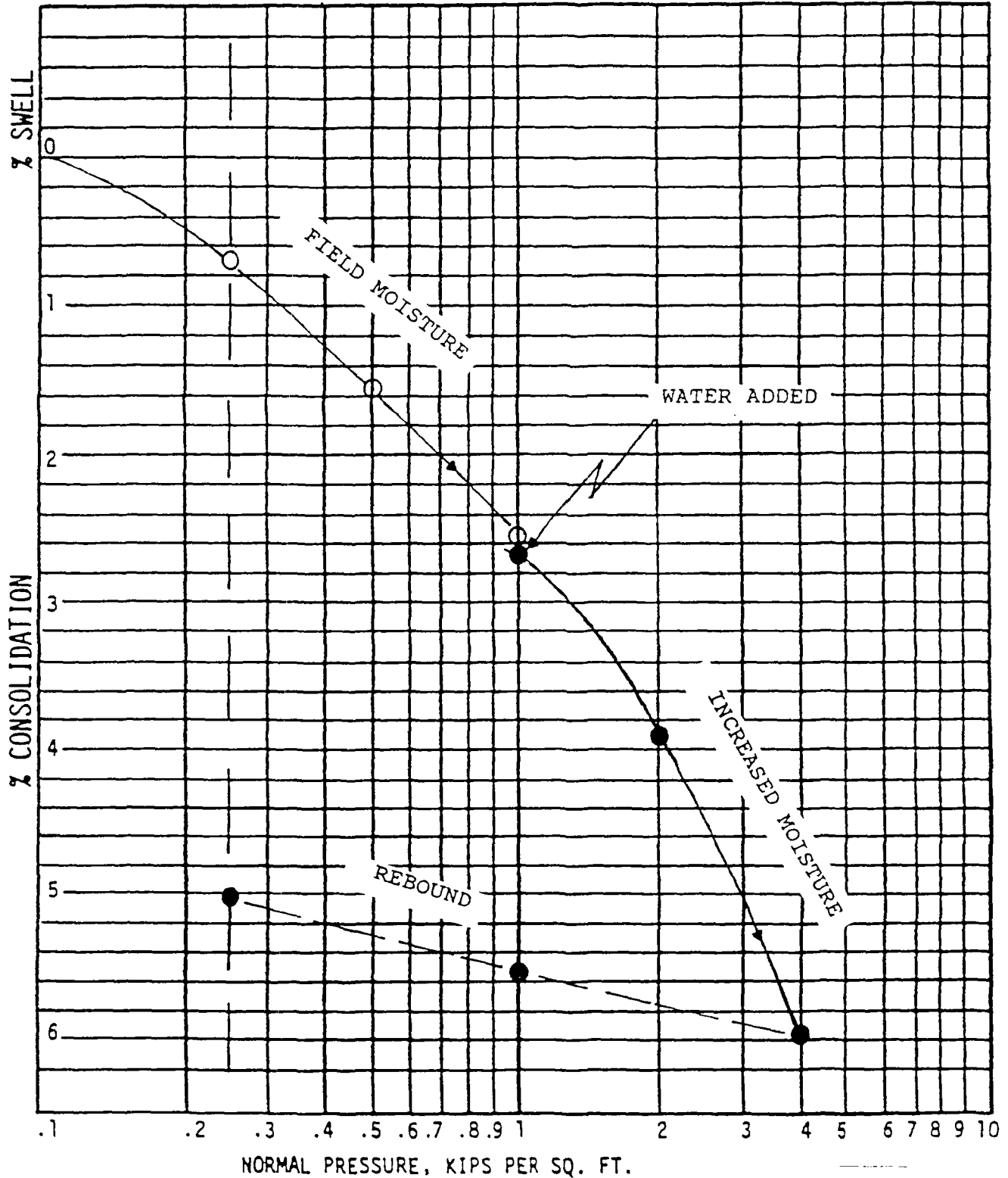
JOB NO. 91-374

JOB 8832 Dice Road - Santa Fe Springs

BORING NO. 4

DEPTH 9.5'

CONSOLIDATION - PRESSURE CURVE



DICE 00439

PLATE B-7

TRIAD GEOTECHNICAL CONSULTANTS INC.

DATE December 11, 1991

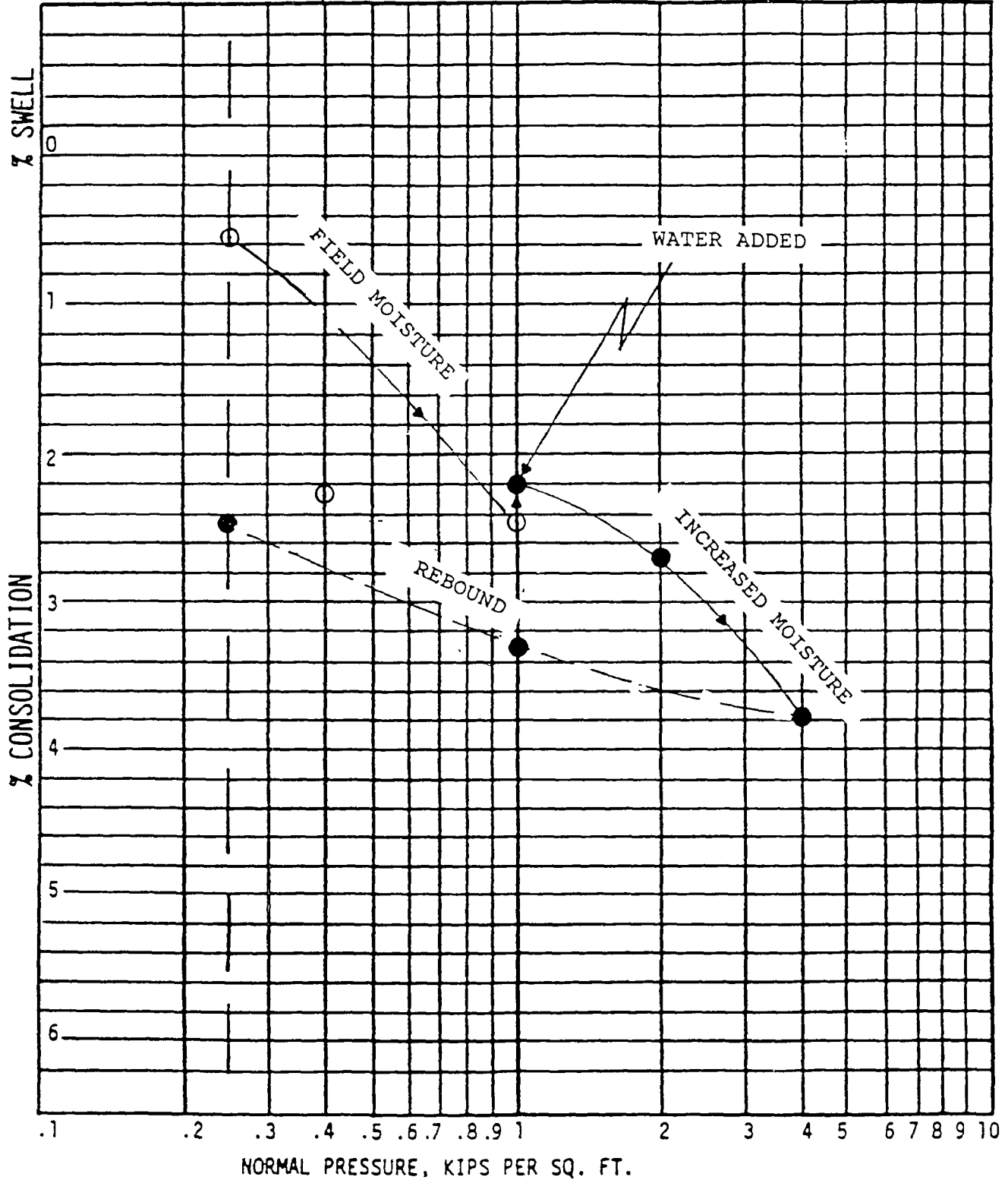
JOB NO. 91-374

JOB 8832 Dice Road - Santa Fe Springs

BORING NO. 4

DEPTH 14.5'

CONSOLIDATION - PRESSURE CURVE

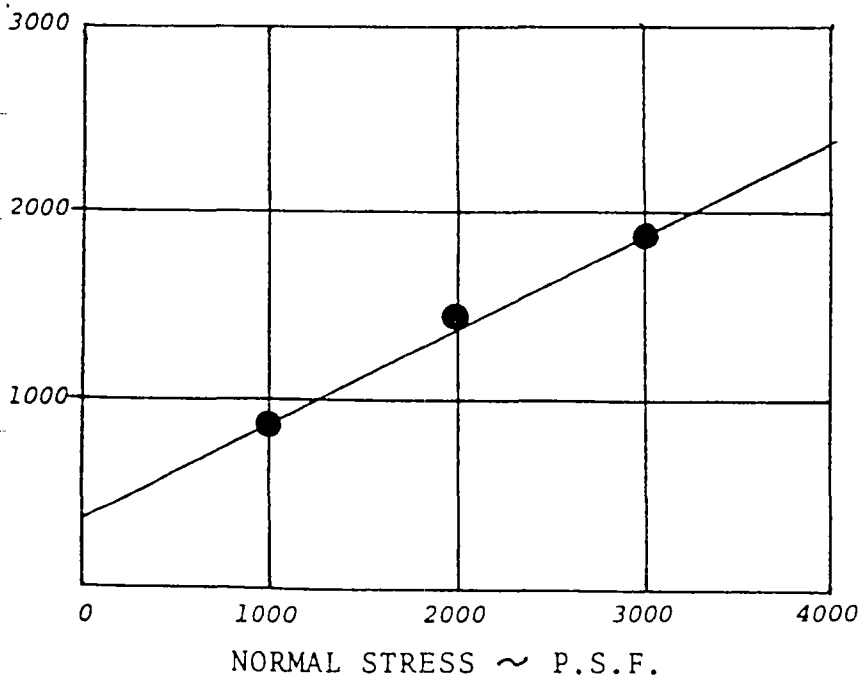
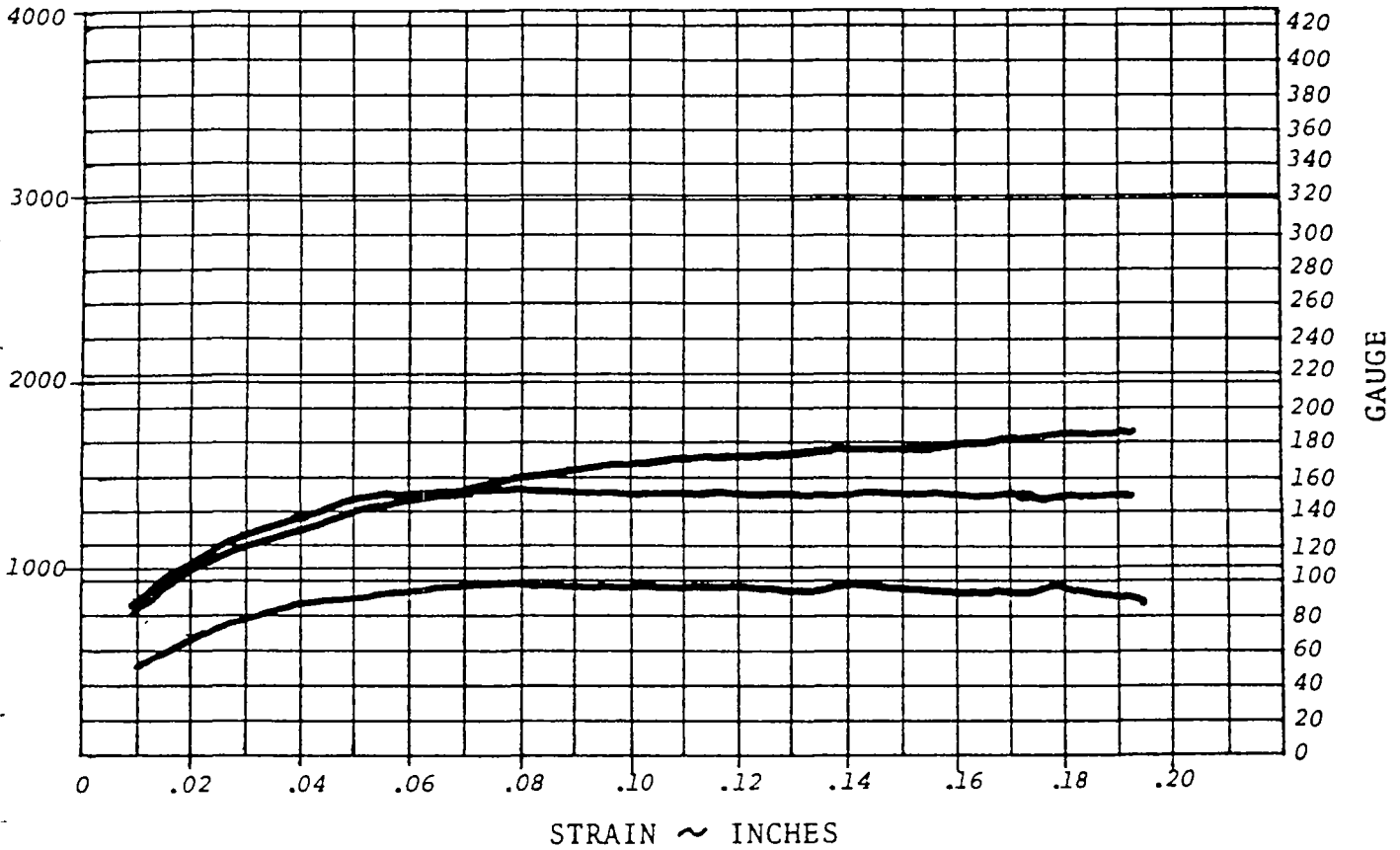


DICE 00440

PLATE B-8

DIRECT SHEAR SUMMARY

2.5" RING



SAMPLE LOCATION:

Boring #4 @ 2.5'

SOIL CLASSIFICATION:

Silty Fine SAND with a trace of Clay

SAMPLE TYPE:

Undisturbed

ϕ : 26°

C: 375 p.s.f.

DICE 00441

PLATE C



TRIAD GEOTECHNICAL CONSULTANTS INC.

Soils Engineering • Engineering Geology • Environmental Engineering

17231 EAST RAILROAD STREET, SUITE 100, CITY OF INDUSTRY, CA 91748
TELEPHONE (818) 964-2313
FAX (818) 810-0915

January 3, 1992
Job #91-374

Liquid Air Engineering
2121 N. California Boulevard
Walnut Creek, CA 94596

Attention: Mr. G. Claude Loyonnet

Subject: Preliminary Soil Contamination Investigation
Proposed Gas Processing Plant
8832 Dice Road
Santa Fe Springs, California

Reference: Preliminary Foundation Investigation
By Triad Geotechnical Consultants, Inc.
Dated December 11, 1991

Gentlemen:

This report presents a limited soil contamination investigation conducted for the site. The number of borings and the locations of the borings for soil sampling were specified by your office.

Two borings specified by you, Borings 5 and 6, are shown on the enclosed map. These borings were drilled to 16 and 23 feet below the ground surface, respectively. This field investigation was carried out along with the preliminary foundation investigation referenced above.

The subsurface materials at the locations of drilling were silty sands and sands. These materials are described in the above

DICE 00442

referenced report and further details of the subsurface material are provided in the Boring Logs on Plates A-6 & A-7.

The scope of soil testing was limited to hydrocarbons and volatile organics chemical tests. Six soil samples from the area were tested. These tests consisted of two hydrocarbon and four volatile organic tests. The test results are presented on Plates B. The results show very low to non-detectable chemical contents in these samples.

Based on the type of test performed and the soil samples obtained at designated locations, soil at the site is not considered to be contaminated with hydrocarbons or other volatile organic compounds.

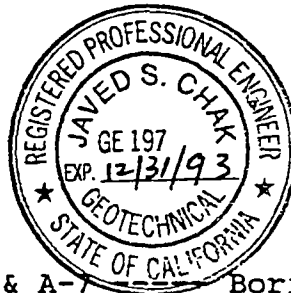
We appreciate the opportunity to be of continued service. Please call, if you have any questions.

Respectfully submitted,

TRIAD GEOTECHNICAL CONSULTANTS, INC.

Javed S. Chak
Javed S. Chak
G.E. 197

JSC/thf



Enclosures: Site Plan
Plates A-6 & A-7 Boring Logs
Plates B-1 through B-3 ----- Chemical Test Results

Distribution: Addressee (4)

BORING LOG

Project 8832 Dice Rd.-Santa Fe Springs

Boring No 5 Location see plot plan Job No. 91-374 Drill Date 11-25-91

Surface Elev

Logged by JSF

Driving Weight 140#

WATER	DEPTH (FEET)	GRAPHIC LOG	UNIT (soil, fill, alluvium, siltstone, etc.) MATERIAL DESCRIPTION (% sand, silt, clay; color, consolidation, etc.) ATTITUDE MEASUREMENTS: B-Bedding F-Fault J-Joint RS-Rupture Surface C-Contact	GROUP SYMBOL U.S.C.S.	PENE. RESIST BLOWS/FOOT	C-CORE B-BAG	DRY DENSITY pcf	MOISTURE CONTENT (%)
	0		<u>FILL:</u> Silty Fine SAND - light gray-brown to brown, slightly moist, medium firm Upper 2' disturbed	SM				
	5		Silty Fine SAND with some Clay - red-brown, moist, moderately dense, slightly porous	SM	2/6" 3/6" 2/6"	C		
			Gray-brown Slightly porous					
	10		Fine to Coarse SAND with some Silt & Gravel and a trace of Clay	SP	5/6" 2/6" 23/6"	C		
			Less Clay					
	15				12/6" 25/6"	C		
	20		END OF BORING 16.0 FEET No Ground Water or Caving					
	25							
	30							
						DICE 00444		

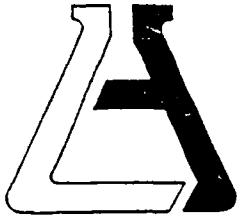
BORING LOG

Project 8832 Dice Rd.-Santa Fe Springs

Boring No 6 Location see plot plan Job No. 91-374 Drill Date 11-25-91

Surface Elev Logged by JSF Driving Weight 140#

WATER	DEPTH (FEET)	GRAPHIC LOG	UNIT (soil, fill, alluvium, siltstone, etc.) MATERIAL DESCRIPTION (% sand, silt, clay; color, consolidation, etc.) ATTITUDE MEASUREMENTS: B-Bedding F-Fault J-Joint RS-Rupture Surface C-Contact	GROUP SYMBOL U.S.C.S.	PENE. RESIST BLOWS/FOOT	C-CORE B-BAG	DRY DENSITY pcf	MOISTURE CONTENT (%)
	0		<u>FILL:</u> Silty Fine SAND ~ light gray-brown, slightly moist, moderately dense	SM	12/6" 25/6"	C		
	5		<u>NATURAL:</u> Silty Fine SAND with a trace of Clay - light gray-brown to brown, moist, moderately dense Slightly to moderately porous	SM	4/6" 6/6"			
	10		Silty Fine to Medium SAND with Gravel - dark gray-brown, moist, moderately dense to dense					
	15		Fine to Coarse SAND with Gravel & Silt	SP	11/6" 12/6"			
	20		Coarse SAND with Gravel - gray-brown, moist, dense		14/6" 16/6"			
	25		SILT with Fine Sand & Clay - light gray to light gray-brown, moist, very firm	ML	7/6" 15/6"			
	30		END OF BORING 23.0 FEET No Ground Water or Caving					
						DICE 00445		



ASSOCIATED LABORATORIES

806 North Batavia - Orange, California 92668 - 714/771-6900

FAX 714/538-1209

CLIENT

Triad Geotechnical Consultants	(1596)	LAB NO	G20403-01
Attn: Javed Chak			
17231 E. Railroad Street		REPORTED	12/02/91
Suite 100			
City of Industry, CA 91748			

SAMPLE	Soil	RECEIVED	11/25/91
IDENTIFICATION	Dice		
	91-374		
BASED ON SAMPLE	As Submitted		

Total Hydrocarbons
(TPH DHS) (mg/kg)

B5 @ 15'	ND< 5
B6 @ 12'	ND< 5

Date Analyzed: 11/27/91

ASSOCIATED LABORATORIES, by:

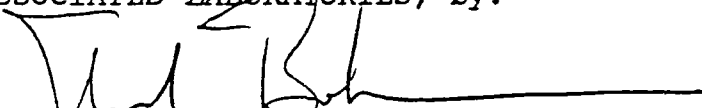

Edward S. Behare, Ph.D.
Vice President

PLATE B-1

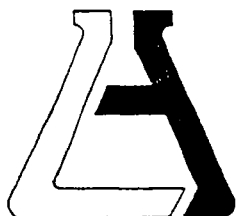
ESB/ql

NOTE: Unless notified in writing, all samples will be discarded by appropriate disposal protocol 30 days from date reported.

TESTING & CONSULTING
Chemical •
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DICE 00446



ASSOCIATED LABORATORIES

806 North Batavia - Orange, California 92668 - 714/771-6900

FAX 714/538-1209

CLIENT

Triad Geotechnical Consultants (1596) LAB NO G20403-02
Attn: Javed Chak
17231 E. Railroad Street REPORTED 12/02/91
Suite 100
City of Industry, CA 91748

SAMPLE Soil RECEIVED 11/25/91
IDENTIFICATION Dice
91-374
BASED ON SAMPLE As Submitted

<u>Purgeable Organics EPA 8240</u>	<u>B5 @ 5'</u>	<u>B5 @ 10'</u>	<u>B6 @ 2.5'</u>	<u>B6 @ 12'</u>
1,1-Dichloroethene	15 µg/kg	* ND	* ND	* ND
1,1,1-Trichloroethane	10 µg/kg	* ND	* ND	* ND
Tetrachloroethene	17 µg/kg	* ND	* ND	5 µg/kg

* None Detected.
All other compounds were None Detected. See attached list.

ASSOCIATED LABORATORIES, by:

Edward S. Behare, Ph.D.
Vice President

PLATE B-2

ESB/ql

NOTE: Unless notified in writing, all samples will be discarded
by appropriate disposal protocol 30 days from date reported.

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Chemical ·
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Environmental ·

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Client: Triad Foundation Consultants
Lab No.: G20403
Date: December 02, 1991

VOLATILE ORGANICS - EPA METHOD 8240
Dilution Factor = 1

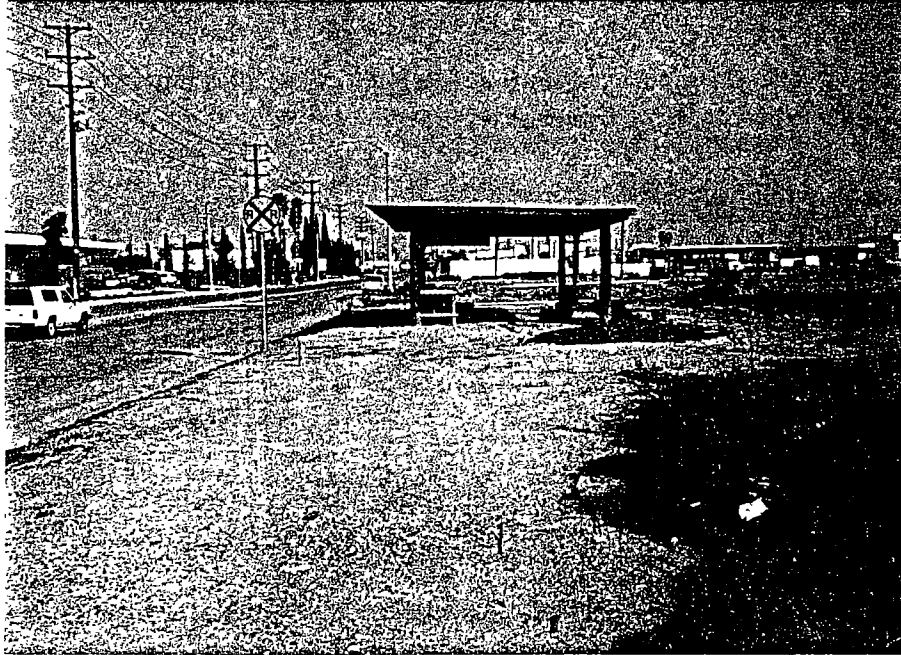
<u>CAS NO.</u>	<u>COMPOUND</u>	<u>LOW SOIL/SEDIMENT DETECTION LIMIT (micrograms/kg) *</u>
74-87-3	Chloromethane	ND< 10
74-83-9	Bromomethane	ND< 10
75-01-4	Vinyl Chloride	ND< 10
75-00-3	Chloroethane	ND< 10
75-09-2	Methylene Chloride	ND< 5
67-64-1	Acetone	ND<100
75-15-0	Carbon Disulfide	ND< 5
75-35-4	1,1-Dichloroethene	ND< 5
75-34-3	1,1-Dichloroethane	ND< 5
540-59-0	trans-1,2-Dichloroethene	ND< 5
67-66-3	Chloroform	ND< 5
107-06-2	1,2-Dichloroethane	ND< 5
78-93-3	2-Butanone	ND<100
71-55-6	1,1,1-Trichloroethane	ND< 5
56-23-5	Carbon Tetrachloride	ND< 5
108-05-4	Vinyl Acetate	ND< 50
75-27-4	Bromodichloromethane	ND< 5
79-34-5	1,1,2,2-Tetrachloroethane	ND< 5
78-87-5	1,2-Dichloropropane	ND< 5
10061-02-6	trans-1,3-Dichloropropene	ND< 5
79-01-6	Trichloroethene	ND< 5
124-48-1	Dibromochloromethane	ND< 5
79-00-5	1,1,2-Trichloroethane	ND< 5
71-43-2	Benzene	ND< 5
10061-01-5	cis-1,3-Dichloropropene	ND< 5
110-75-8	2-Chloroethyl Vinyl Ether	ND< 10
75-25-2	Bromoform	ND< 5
591-78-6	2-Hexanone	ND< 50
108-10-1	4-Methyl-2-Pentanone	ND< 50
127-18-4	Tetrachloroethene	ND< 5
108-88-3	Toluene	ND< 5
108-90-7	Chlorobenzene	ND< 5
100-41-4	Ethylbenzene	ND< 5
100-42-5	Styrene	ND< 5
1330-20-7	Xylene (total)	ND< 5

* The detection limits listed above are based on wet weight and are provided for guidance.

The detection limits actually achieved in a given analysis will vary depending on matrix effects and the dilution factor.



APPENDIX D - PHOTOGRAPHIC RECORD



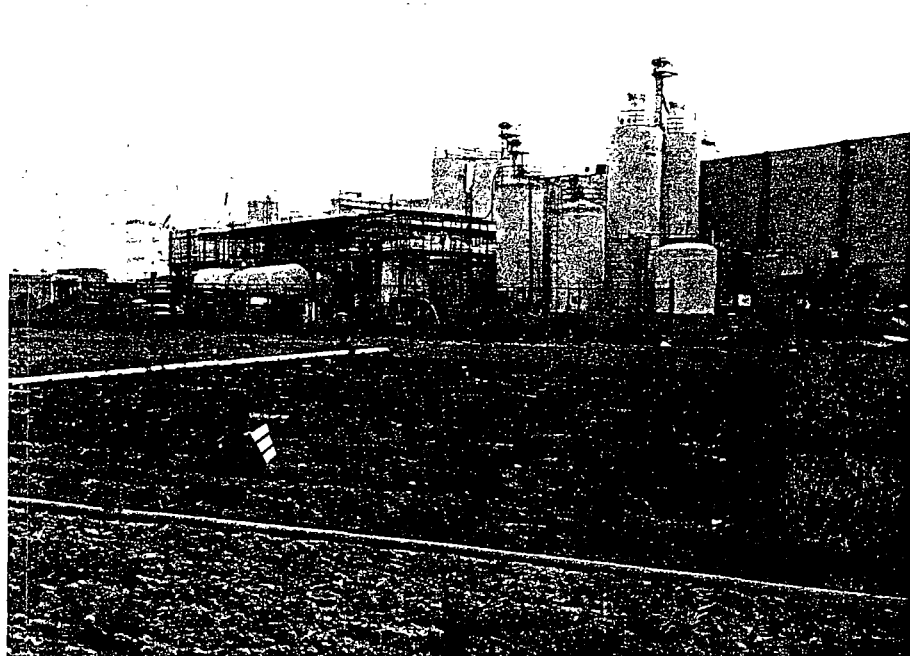
1. South-west corner looking North along Dice Road



2. South-west corner looking North-east.
Farm equipment located on property.



3. View East of agriculture property.



4. View South from subject property.

APPENDIX E - SOIL GAS SURVEY REPORT



Tracer Research Corporation

SHALLOW SOIL GAS INVESTIGATION

**LIQUID AIR
8832 DICE ROAD
SANTA FE SPRINGS, CALIFORNIA**

JANUARY 28, 1992

DICE 00453

Tucson, Arizona

Franklin Park, New Jersey

Emeryville, California

**San Antonio, Texas
Brussels, Belgium**

PREPARED FOR:


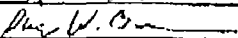
**Kennedy Jenks Consultants
17310 Redhill Road
Suite 220
Irvine, CA 92714
(714)261-1577**

SHALLOW SOIL GAS INVESTIGATION

**LIQUID AIR
8832 DICE ROAD
SANTA FE SPRINGS, CALIFORNIA**

JANUARY 28, 1992

SUBMITTED BY:

Tracer Research Corporation

**055KJC.MSG
1-92-055-S**

DICE 00454

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SHALLOW SOIL GAS INVESTIGATION - METHODOLOGY 2

EQUIPMENT 3

SOIL GAS SAMPLING PROCEDURES 3

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QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES 5

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INTRODUCTION

Tracer Research Corporation (Tracer Research) performed a shallow soil gas investigation at the Liquid Air site in Santa Fe Springs, California. The investigation was conducted on January 28, 1992, under contract to Kennedy Jenks Consultants. The purpose of the investigation was to fulfill city mandated requirements for a methane survey.

During this survey, 28 soil gas samples were collected and analyzed. Samples were analyzed for total volatile light hydrocarbons C₁-C₃. Methane is included in this suite.

Methane was chosen as a target compound because of its suspected presence in the subsurface and amenability to soil gas technology. Soil gas samples were screened on a gas chromatograph (GC) equipped with a flame ionization detector (FID).

SUMMARY OF RESULTS

Twenty-eight soil gas samples were collected and analyzed in the field for methane at the Liquid Air site in Santa Fe Springs, California. Concentrations of methane detected were at or below ambient air concentrations (0.4 ug/l to 3 ug/l) at all sample locations except SG-17-4.5 (20 ug/l).

SHALLOW SOIL GAS INVESTIGATION - METHODOLOGY

Tracer Research has developed a special method for investigating underground contamination from Volatile Organic Compounds (VOCs), such as industrial solvents, cleaning fluids and petroleum products. This method looks for VOC vapors in the shallow soil gas. A hollow probe is driven into the ground and a small amount of soil gas is pulled by vacuum into the probe. This soil gas is injected into a gas chromatograph (GC) and analyzed for the presence of volatile contaminants. If VOCs are detected in the shallow soil gas, the observed compounds may be either in the vadose zone near the probe or in the soil gas below the probe.

Soil gas technology is most effective in mapping low molecular weight, halogenated solvent chemicals and petroleum hydrocarbons that possess high vapor pressures and low aqueous solubilities. These compounds readily partition out of the groundwater and into the soil gas as a result of their high gas/liquid partitioning coefficients.

Once in the soil gas, VOCs diffuse vertically and horizontally through the soil to the ground surface where they dissipate into the atmosphere. With the contamination acting as a source and the above-ground atmosphere acting as a sink, a concentration gradient develops between the two. This concentration gradient is sometimes distorted locally by hydrologic and geologic anomalies such as clays or perched water. Soil gas mapping generally remains effective, however, because the distribution of the contamination is usually broader in areal extent than the local geologic barriers and is defined using a large database. In other words, small geologic obstructions may create anomalies in the soil/gas groundwater correlation, but the broader areal picture of the distribution of the contaminant can still be observed.

A soil gas investigation outlines the general areal extent of contamination. Conventional bore holes or observation wells then verify both the presence and the

extent of the subsurface contamination. The soil gas mapping is used to determine the optimum placement of the monitoring wells and to reduce the likelihood of drilling unnecessary wells. The soil gas survey is not a substitute for conventional methodology; however, it enables conventional methods to be used more effectively and efficiently.

EQUIPMENT

Tracer Research utilized a one-ton Ford analytical van equipped with one GC and two Hewlett Packard computing integrators. Two built-in gasoline powered generators provided the electrical power (110 volts of alternating current) to operate the gas chromatographic instruments and field equipment. A specialized hydraulic mechanism consisting of two cylinders and a set of jaws was used to drive and withdraw the sampling probes. A hydraulic hammer was used to drive probes past cobbles and through unusually hard soil.

SOIL GAS SAMPLING PROCEDURES

Sampling probes consisted of 7 foot lengths of 3/4 inch diameter hollow steel pipe that were fitted with detachable drive tips. Soil gas probes were advanced 4 to 6 feet below grade. Once inserted into the ground, the above-ground end of each sampling probe was fitted with a steel reducer and a length of polyethylene tubing leading to a vacuum pump. Gas flow was monitored by a vacuum gauge to insure that an adequate flow was obtained.

To adequately purge the volume of air within the probe, 2 to 5 liters of gas was evacuated with a vacuum pump. During the soil gas evacuation, samples were collected in a glass syringe by inserting a syringe needle through a silicone rubber segment in the evacuation line and down into the steel probe. Ten milliliters of gas were collected for immediate analysis in the Tracer Research analytical field van. Soil gas was subsampled

(duplicate injections) in volumes ranging from 1 uL to 2 mL, depending on the VOC concentration at any particular location.

Sample probe vacuums ranged from 2-23 inches Hg. The maximum pump vacuum was measured at 27 inches Hg.

ANALYTICAL PROCEDURES

A Hewlett Packard 5890 Series II GC was used for the soil gas analyses. It was equipped with a flame ionization detector (FID). Compounds were separated on a 6' by 1/8" OD packed column with SP-1000 as the stationary phase in a temperature controlled oven. Nitrogen was used as the carrier gas.

Hydrocarbons detected in the samples were identified by chromatographic retention time. Quantification of the compounds were achieved by comparison of the detector response of the sample with the response measured for calibration standards (external standardization). Instrument calibration checks were run periodically throughout the day and system blanks were run at the beginning of the day to check for contamination in the soil gas sampling equipment. Air samples were also routinely analyzed to check for background levels in the atmosphere.

Detection limits for the compounds of interest were a function of the injection volume as well as the detector sensitivity for individual compounds. Thus the detection limit varied with the sample size. Generally, the larger the injection size the greater the sensitivity. However, peaks for compounds of interest were kept within the linear range of the analytical equipment. If any compound had a high concentration, it was necessary to use small injections, and in some cases to dilute the sample to keep it within linear range. This may have caused decreased detection limits for other compounds in the analyses.

The detection limits for the hydrocarbon compounds were approximately 0.05 ug/L. Detection limits were dependant upon the conditions of the measurement, in particular, the sample size. If any component being analyzed was not detected, the detection limit for that compound in that analysis is given as a "less than" value (e. g. < 0.1 ug/L). Detection limits obtained from GC analyses were calculated from the current response factor, the sample size, and the estimated minimum peak size (area) that would have been visible under the conditions of the measurement.

QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES

Tracer Research Corporation's normal quality assurance procedures were followed in order to prevent any cross-contamination of soil gas samples. These procedures are described below:

- . Steel probes are used only once during the day and then washed with high pressure soap and hot water spray or steam-cleaned to eliminate the possibility of cross-contamination. Enough probes are carried on each van to avoid the need to reuse any during the day.
- . Probe adaptors (Tracer Research's patented design) are used to connect the sample probe to the vacuum pump. The adaptor is designed to eliminate the possibility of exposing the sample stream to any part of the adaptor. Associated tubing connecting the adaptor to the vacuum pump is replaced periodically as needed during the job to insure cleanliness and good fit. At the end of each day the adaptor is cleaned with soap and water and baked in the GC oven.
- . Silicone tubing (which acts as a septum for the syringe needle) is replaced as needed to insure proper sealing around the syringe needle. This tubing does not directly contact soil gas samples.

- . Glass syringes are usually used for only one sample per day and are washed and baked out at night. If they must be used twice, they are purged with carrier gas (nitrogen) and baked out between probe samplings.
- . Injector port septa through which soil gas samples are injected into the chromatograph are replaced on a daily basis to prevent possible gas leaks from the chromatographic column.
- . Analytical instruments are calibrated each day by analytical standards from Chem Service, Inc. Calibration checks are also run after approximately every five soil gas sampling locations.
- . Subsampling syringes are checked for contamination prior to sampling each day by injecting nitrogen carrier gas into the gas chromatograph.
- . Prior to sampling each day, system blanks are run to check the sampling apparatus (probe, adaptor, 10 cc syringe) for contamination by drawing ambient air from above ground through the system and comparing the analysis to concurrently sampled ambient air analysis.
- . All sampling and subsampling syringes are decontaminated each day and no such equipment is reused before being decontaminated each day. Microliter size subsampling syringes are reused only after a nitrogen carrier gas blank is run to insure it is not contaminated by the previous sample.
- . Soil gas pumping is monitored by a vacuum gauge to insure that an adequate gas flow from the vadose zone is maintained. A reliable gas sample can be obtained if the sample vacuum gauge reading is at least 2 inches Hg less than the maximum pump vacuum.

APPENDIX A: ANALYTICAL DATA

KENNEDY JENKS/LIQUID AIR/SANTA FE, CALIFORNIA/ 1-92-055-S

01/28/92

CONDENSED DATA

SAMPLE	C1 - C3 ug/l	SAMPLE	C1 - C3 ug/l
AIR	3	SG-15-4.5'	<0.05
SG-1-6'	<0.05	SG-16-5'	<0.05
SG-2-6'	<0.05	SG-17-4.5'	20
SG-3-6'	<0.05	SG-18-6'	<0.05
SG-4-6'	<0.05	SG-19-6'	3
SG-5-6'	3	SG-20-6'	<0.05
SG-6-6'	<0.05	SG-21-6'	<0.05
SG-7-5'	<0.05	SG-22-6'	<0.05
SG-8-5.5'	<0.05	SG-23-5'	<0.05
SG-9-6'	2	SG-24-4'	<0.05
SG-10-5'	1	SG-25-4.5'	<0.05
SG-11-6'	<0.05	SG-26-5'	<0.05
AIR	3	SG-27-5'	<0.05
SG-12-6'	<0.05	SG-28-5.5'	<0.05
SG-13-6'	<0.05	AIR	0.4
SG-14-5'	2		

DICE 00463

Analyzed by: P. Burke

Proofed by: *R. Jones*





TRY TO ACQUIRE

NORTH

PLANT PARKING
AC PAVING

N 320'

NO CANOPY SLOTS

VERY TIGHT FOR TRAILER
CAN'T PASS WHEN TRAILER BEING LOADED

OFFICE PARKING

CAN RELOCATE IF NECESSARY TO ALLOW FOR LIG STORAGE OFF SITE

TRAILER PARKING

WAREHOUSE
16,000 sq ft
15' HGT
N2/O2 GAS TRAILER FILLING AREA
CYLINDER FILLING DOCK
NO SPRINKLERS
14' EAVE HT.
10' ROWS OF MISC. VAP LIG
75 LBS
LUNARON BOARD
ELEV. PLATFORM
200' x 100' x 15'

1.50 sq ft paving asphalt

EASEMENT ROAD

LIME PIT AREA

DICE ROAD

**SANTAFE SPRINGS
SITE PLAN**

DICE 00464

SCALE 1"=20'- MR Dale Pruitt
Supt.

Skouson East Mo Lov Blvd Norwalk
First street East of Norwalk

CONSIDER PART OF 7 1/2 ACRES TO BE DIVESTED FOR TRUCK PARKING

LAND TO BE SOLD: (205' x 250') - (25' x 25') - (1430' x 1430')

$$49275 - 625 - 2056500 = 486420 \text{ sq ft} = 11.15 \text{ ACRES}$$

CONSIDER LIG INSTEAD OF ELECT. THIS PLANT
AVG 1400 POWER
COST 42.3 mil/kwh
H2 POWER COST 73.6/HCF

N.I.C.
PROPANE CYLINDER FILLING DOCK & STORAGE

Page 465

Removed Under CBI (Confidential Business Information)

TECHNICAL REPORT
ASSESSMENT OF IMPACT TO
GROUNDWATER QUALITY
FROM LIME STORAGE PITS

LIQUID AIR CORPORATION
SANTA FE SPRINGS, CA

Prepared for:

Liquid Air Corporation
8832 Dice Road
Santa Fe Springs, CA

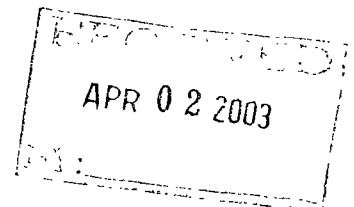


Prepared by:

Kennedy/Jenks Consultants
17310 Red Hill Avenue, Suite 220
Irvine, CA 92714

April 1993

K/J 924004.06



Kennedy/Jenks Consultants

Engineers and Scientists

17310 Red Hill Avenue, Suite 220
Irvine, California 92714
714-261-1577
FAX 714-261-2134

9 August 1993

Mr. Bryan Leger
Project Manager
Liquid Air Corporation
8832 Dice Road
Santa Fe Springs, CA 90670

Post-It™ brand fax transmittal memo 7671		# of pages > 4
To David Simon	From Bruce Thomas	
Co. Liquid Air Corp.	Co. Kennedy Jenks	
Dept.	Phone #	
Fax #	Fax #	

Subject: Lime Pit Closure Regulatory Support
Proposal for Additional Services
LAC Purchase Order #0449859
K/J 924004.08

Dear Mr. Leger:

As requested by David Simon of Liquid Air Corporation on 30 July 1993 and in response to the verbal directions received from Rodney Nelson with the Los Angeles Regional Water Quality Control Board (RWQCB), we are submitting this proposal for additional services and fees. In general the additional services are those regulatory support services required to take the next step in resolving the RWQCB's groundwater quality concerns beneath the lime pit area.

SCOPE OF SERVICES

- Task 1 Conduct record search and records review to obtain most current information on groundwater quality of adjacent sites.
- Task 2 Meet with the RWQCB in an attempt to resolve the Board's groundwater quality concerns using the most current information from adjacent sites and without further investigations on the part of Liquid Air.
- Task 3 Preparation of a Work Plan scoping the site activities required to sample and analyze soils beneath the lime pit bottoms and above the groundwater level.
- Task 4 Conduct field sampling by boring six holes onsite to approximately 35 feet below ground surface (bgs) and taking two soil samples from each boring at approximately 30 and 35 feet bgs. Five borings will be taken in the lime pit area through the compacted backfill, concretion layer in the bottom of the pit and into the native material for sampling. The sixth boring will be placed in an unpaved portion of the site due west of the acetylene building to sample for background pH levels in the native material at 35 feet bgs. Field analysis for pH of the soils will be made to evaluate the need for additional sampling. The lab analysis for each sample will be for pH only.

Kennedy/Jenks Consultants

Mr. Bryan Leger
 Liquid Air Corporation
 9 August 1993
 Page 2

SCHEDULE

Workplan - The Workplan can be prepared and submitted within five working days. The RWQCB has requested that the Workplan be submitted by 30 August 1993.

Field Work - Upon approval of the Workplan by the RWQCB, the field work can be completed within two weeks pending scheduling of the drilling equipment. Actual drilling is estimated to take two working days.

Summary Report - Laboratory results will be available within seven days and the summary report completed within seven days after receipt of the lab reports.

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Fees to accomplish the described scope of services are broken down as follows:

Task 1	Records Search	
	- Review of current agency documents	
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	Subtotal	651
	- Vista Area Records Report	
	\$330 + 10%	<u>363</u>
	Task 1 Subtotal	\$1,014
Task 2	RWQCB Meeting and Preparation	
	Supervising Engineer (6 hrs @ \$122.00) =	\$732
	Senior Engineer-Scientist (4 hrs @ \$113.00) =	<u>452</u>
	Task 2 Subtotal	\$1,184
Task 3	Preparation of Workplan & Submittal	
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Kennedy/Jenks Consultants

Mr. Bryan Leger
Liquid Air Corporation
9 August 1993
Page 3

Task 4	Field Borings, Sampling and Analysis	
	Supervising Engineer (4 hrs @ \$122.00) =	488
	Scientist Grade 3 (20 hrs @ \$67.00) =	<u>1340</u>
		1,828
	 Drilling Contractor	
	\$3,030 + 10%	3,333
	 Laboratory Analysis	
	\$240 + 10%	264
	 Miscellaneous Equipment/Shipping	<u>200</u>
	Task 4 Subtotal	<u>\$5,625</u>
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	Senior Scientist (2 hrs @ \$113.00) =	226
	Scientist Grade 3 (12 hrs @ \$67.00) =	804
	Drafting/Graphics (10 hrs @ \$54.00) =	540
	Word Processing (2 hrs @ \$46.00) =	<u>92</u>
	 Task 5 Subtotal	\$2,150
	 TOTAL	<u>\$10,461</u>

This budget proposal is based on the following assumptions regarding the field work and the response of the RWQCB.

- No hazardous material will be encountered, therefore the borings will be backfilled with drill cuttings and decontamination between borings will not be required.
- Placement of borings will not require geophysical location of underground utilities.
- The proposed Workplan including the sampling and analysis plan will be accepted by the RWQCB.

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Mr. Bryan Leger
Liquid Air Corporation
9 August 1993
Page 4

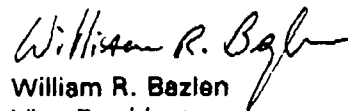
If you have any questions, please call. We have completed the records search and meeting with the RWOCB but will wait before proceeding with the Workplan until we've received your authorization.

Very truly yours,

KENNEDY/JENKS CONSULTANTS



R. Bruce Thomas, P.E.
Project Manager



William R. Bazlen
Vice President

RBT:WRB/ca
92400406.092


cc: David Simon
Robert Kuykendall

Kennedy/Jenks Consultants

27 August 1993

MEMORANDUM

TO: Bob Kuykendall / File 924004.02

FROM: Bruce Thomas 

SUBJECT: Lime Takeoff Quantities, Liquid Air Ponds

I called Bryan Leger to see how he came up with the 13,000 cubic yard number for the amount of lime in the pits. The number sounded high since the total volume of the original pits, before the buried lime was exposed or the lime pulled down from the pit walls, had only been calculated to be approximately 22,500 cubic yards. Bryan does not have an accurate count of the lime quantity. He obtained that figure, (actually the figure he has is 12,500 cubic yards) by adding the 5,000 cyds shown on the original bid package drawings to the 7,500 cyds shown on the revised bid package drawings. The two numbers are not additive.

The 5,000 cyds was determined by using a planimeter on the original topographic plan to measure the areas occupied by the stockpiled waste lime material around the sides of the two pits. The stockpiles were estimated to contain approximately 2,500 cyds. This figure should be fairly accurate. An additional estimate was made of the material hanging from the sides of the pits. This estimate was made by observing the location and approximate length of the fissures outside the pits and estimating the angle at which these fissures projected into the bottoms of the pits. At the time we were estimating the amount of lime on the walls of the pits the stockpiles of lime covered the west end of the large pit and the east end of the small pit. As a result the thickness of the lime slabs on the walls or any sign on the surface of buried lime were not visible. Where found, the slabs were about 10 feet thick at the top and the fissures were assumed to slope to the toe of the pit wall in the bottom of the pit. Based on these assumptions it was calculated that approximately 2,500 cyds were hanging from the pit walls. From these two estimates the total lime yet to be removed was estimated to be 5,000 cyds. The geotechnical report by Geomatrix did not indicate significant depths of lime in the bottom of the pits. Based on information from Bob Predmore and Bryan Leger we believed that except for the material hanging on the walls, the lime had essentially been removed from the pits. We did not therefore assume that the pits were actually bigger than they appeared due to unseen buried deposits of lime. We were aware however that it was only an estimate because no one really knew what the original pit limits were. Because of this uncertainty, the bid documents were structured so that if additional deposits of lime were uncovered during the excavation of the visible lime beyond 5,000 cyds, any additional yardage beyond the 5,000 cyds would be paid for as an extra on a predetermined unit cost that was included in the contractor's bid.

Post-It™ brand fax transmittal memo 7871 # of pages 2

To: Bob Kuykendall	From: Bruce Thomas
Co:	Co:
Dept:	Phone #
Fax #	Fax #

In October 1992, while clearing a path for the geotechnical drill rig the, stockpiled waste lime was pushed into the pits leaving the surface around the pits basically level. When construction resumed after the water was removed from the pits in the late winter, approximately 3,800 cyds of lime were hauled from the pits. In order to make room for the construction of a buttress against the railroad tracks on the east, the contractor pulled down all the lime from the walls of the large pit, cut down the wall between the two pits and piled all the remaining lime in and over what was previously the small pit. After completion of the construction of the buttress and removal of the 3,800 cyds of lime the contractor was put on hold and LAC decided to rebid the job.

The topography had changed drastically from the original plans, so in order to give potential bidders something on which to base their bids, the site was resurveyed to establish a new topographic plan. We again estimated the amount of lime piled on the site. This estimate was based on the dimensions of the new piles, on the previously calculated volume of the small pit (3,000 cyds) and again on an estimated guess as to the amount of lime on the walls of the small pond which we could now not see due to the piles of lime on top. It was estimated that the lime piles and lime on the pit walls totaled approximately 4,500 cyds. This amount added to the 3,000 cyds in the small pit resulted in a total estimate of 7,500 cyds. This amount was shown on the drawings of the rebid package. Again, the bid documents required the contractor to provide a unit cost for removal of the lime if additional quantities were uncovered.

If the 7,500 cyds was an accurate number after 3,800 cyds had been removed from the site under the first contract, then the total quantity of lime on site in the first place was 11,300 cyds, not 5,000 cyds. Advance has estimated that based on their count, they mixed and placed approximately 6500 cyds of lime into the pits. Adding this amount to the 3800 cyds of lime removed from the site results in a total of 10,300 cyds of lime being handled. This total compares within 10% of our estimate of $7,500 + 3,800 = 11,300$ cyds. This makes sense since it was only at that time did we have a much better understanding of the amount of lime still left in the large pit prior to commencing work back in January. Even at this time however we were still at risk as to the amount of lime in the small pit because it was completely covered by the lime which had been removed from the large pit.

In summary, for us to have been able accurately determined an exact figure before actually beginning excavation, we would have had to drill approximately 150 to 250 holes around the outside of the pits. No one from Liquid Air had any idea how big the original pits might have been. According to Bob Predmore and Bryan Leger there were no drawings or records available which could help us determine their original size. The bid documents were set up to account for the uncertainty concerning the actual amount of lime by establishing a predetermined unit cost to handle quantities beyond what had been estimated since it did not seem effective to spend a considerable effort conducting a detailed subgrade investigation.

Facsimile

KENNEDY/JENKS CONSULTANTS

Transmission Cover

Marathon Plaza, 10th Floor North
303 Second Street, San Francisco, CA 94107
Fax No.: (415) 896-0999 Office No.: (415) 243-2150

Date Sent: 8-31-93 Fax No. Sent to: 510-746-6306

Transmitted to: David Simon
(individual's name)

Air Liquide
(company name)

Transmittal from: B. Kennedy
(individual's name) FOIA ex 6, Personal Privacy

Total No. of pages transmitted, including this transmission sheet: 3 K/I Job No. 924004.06

Subject: Leim Pond Closure documents

Transmittal as Checked Below:

For Your Review Comments Required By: _____
(date & time)

Comments to: _____
(name)

For Your Approval Approval Required By: _____
(date & time)

Comments to: _____

For Your Information/As Requested

As Noted

Comments: Please find attached Bruce Thomas' analysis of quantities of leim managed at Santa Fe Springs

DRAFT

7/28/93 OK 'd

b Bryan Leger

b tell K/S

Brian Thomas to send to CAAWB

1.0 INTRODUCTION

This Work Plan is being submitted to the California Regional Water Quality Control Board, Los Angeles Region (Board) for review and approval. The Work Plan describes a program to sample and analyze subsurface soils beneath the bottoms of two closed lime storage ponds. The two ponds, which have been backfilled with a mix of imported soil and lime at an approximate 30 percent lime to soil ratio, are located on Liquid Air Corporation's property at 8832 Dice Road in Santa Fe Springs, California.

2.0 SITE INFORMATION

2.1 Address: Liquid Air Corporation
8832 Dice Road
Santa Fe Springs, CA. 90670

Contact: Bryan Leger, Liquid Air Corporation
Project Manager
FOIA ex 6, Personal
Privacy

2.2 SITE HISTORY:

For the past 30 years the production of acetylene at this facility has resulted in the co-production of calcium hydroxide (lime). For many years the lime was pumped as a slurry to two ponds on the east side of the property and stored. The two lime storage ponds differed in size and depth with the larger pond being approximately 250 feet long by 150 feet wide by 25 feet deep and the smaller pond being approximately 100 feet long by 80 feet wide by 12 feet deep. The lime slurry was allowed to evaporate in these ponds where it became a solid. Until 1992 the lime was commercially removed from the ponds and sold as a soil stabilizer.

In 1992 a Conceptual Closure Plan was developed to remove all lime from the ponds so that the holes could be properly backfilled and used for a truck parking area. The lime slurry resulting from the ongoing production of acetylene is now pumped into slurry holding tanks on site until subsequent removal under contract. On 17 August 1993, backfilling and compaction of two parts imported soils mixed with one part lime was completed to the subgrade elevation of the proposed concrete pavement.

The Los Angeles Regional Water Quality Control Board, (Board) has become concerned that as a result of the lime being stored in these two ponds, the pH of the ground water beneath these ponds may have been impacted. Consequently the Board has required Liquid Air to conduct soil sampling beneath the two ponds down to the water bearing zone to determine if there has been any increase in the pH of these soils above background levels in the area.

DRAFT P.6

Previous investigations of the site have been reported to the Board which expand on the history of the site. Those documents are:

- CONCEPTUAL CLOSURE PLAN, Liquid Air Corporation, 8832 Dice Road, Santa Fe Springs, California 90670; 4 September 1992; K/J 924004.00
- TECHNICAL REPORT ASSESSMENT OF IMPACT TO GROUNDWATER QUALITY FROM LIME STORAGE PITS; Liquid Air Corporation, Santa Fe Springs, Ca; April 1993; K/J 924004.06

3.0 OBJECTIVE

The objective of this sampling and analysis program is to evaluate the pH level of the soils beneath the bottoms of the previous lime storage ponds. The pH levels of these samples will be compared with pH background levels obtained from samples taken on site, at similar depths at a location cross gradient to the lime storage ponds. Refer to Figure 1 for the location of the site and to Figure 2 for locations of the proposed borings.

4.0 GEOLOGY

Subsurface exploration beneath and outside the lime storage ponds was conducted in the fall of 1992. Results of that exploration are reported in GEOTECHNICAL STUDY, PROPOSED OFFICE AND TRUCK MAINTENANCE BUILDING AND TANK FARM, LIQUID AIR WASTE PONDS, SANTA FE SPRINGS, CALIFORNIA; prepared by Geomatrix Consultants, dated 31 December 1992. This study identified the soils beneath the bottom of the ponds as native material 7 to 16 feet thick comprised of dense to very dense, silty, fine sands and fine sandy silts over stiff to very stiff clayey silts and silty clays. Borings outside the ponds encountered the same native material at similar depth except for the color and cementation. The soils beneath the ponds was dark gray to black in color and cemented while the sandy soils outside the ponds were brown and appeared not to be cemented.

Since the above described exploration was conducted the ponds have been completely backfilled with a mixture of imported fill and lime at a ratio of two parts imported fill to one part lime. The mixture was thoroughly mixed and placed in approximately nine inch layers and compacted to 90 percent relative density. The depth of fill in the large pond at its deepest point is approximately 25 feet and in the small pond, approximately 12 feet.

5.0 GROUNDWATER

In 1989 the United States Environmental Protection Agency (EPA) conducted a CERCLA Site Inspection of the Liquid Air facility. The subsequent report to that inspection indicated that the site is located over a confined aquifer which exists from 42 to 45 feet below ground surface. Borings conducted by Geomatrix during the exploration described in Section 4.0. above did not encounter groundwater at depths of 16.5 feet below the deepest area of the large pond or approximately 41.5 feet below ground surface.

DRAFT

6.0 INVESTIGATION METHODS AND PROCEDURES

The following sections are intended to provide a basic understanding of the techniques for borehole drilling and methods of subsurface soil sampling proposed by this Work Plan. Specific details of field procedures are included in Appendix A. All field activities will be conducted using proper health and safety procedures as described in the Site Safety and Health Plan, Appendix B.

6.1 Hollow Stem Auger Drilling and Sample Collection

Six borings will be drilled and sampled on site. Three borings in the large pond area, two borings in the small pond area and one boring west of the ponds in an area unrelated to any previous lime storage operations. Borings in the pond areas will be advanced through the backfill material, through the cemented material which formed the bottoms of the ponds and into native material above the water bearing zone. The sixth boring will be advanced to the same depth as the deepest pond area boring in order to establish background pH for the soils in this area. The boreholes will be made using a hollow stem auger. Boreholes are expected to be drilled to approximately 40 feet below ground surface (bgs).

Samples will be taken with a split spoon sampler lined with brass sample sleeves. The sampler will be advanced with a 140-pound free-falling drop hammer suspended through the hollow stem of the auger. Samples will be collected from each borehole at approximately 30, 35 and 40 feet bgs. The intent will be to take a sample immediately beneath the cemented pond bottom and at consecutive five-foot intervals to the total depth of the boring. Similar samples will be taken from the borehole used to determine background. The background boring, sampling and field screening sampling will be conducted before the pond area borings.

Upon retrieval, samples for laboratory analysis will be sealed in the brass sampler sleeves with teflon sheeting and plastic cap covers. Samples will be immediately labelled, logged into custody, and placed in a secured, chilled container for storage and transport to the laboratory. Procedures for boring, sampling, and hollow stem auger techniques are included in Appendix A.

6.2 Soil Sample Field Screening

Boring soil samples, collected by hollow stem auger techniques will be screened in the field for pH using field test kits. The field testing will be used to evaluate the need for sampling at greater depth should pH levels be found to be decreasing with depth from relatively elevated levels detected immediately beneath the pond bottom. Field testing methods for pH in soils are included in Appendix A.

6.3 Soil Borehole Abandonment

It is not expected that any hazardous materials will be encountered in these boreholes. The bottom of each borehole in the pond areas will be backfilled with bentonite pellets up to the top of the cemented layer which formed the bottom of the previous ponds. The boring above the cemented layer will be backfilled with drill cuttings and imported material used to backfill the ponds. Procedures for abandonment are detailed in Appendix A.

DRAFT

6.4 Equipment Cleaning

The cleaning of equipment in the field to prevent cross contamination will be limited to the cleaning of the split spoon sampler between each use. Cleaning of the hollow stem auger itself will not be necessary as hazardous materials should not be encountered.

7.0 SAMPLE ANALYTICAL PROCEDURES

Samples will be transported to a California certified laboratory for analysis. The samples will be analyzed using EPA Method 150.1. The samples will be collected in brass sleeves as described in Section 6.1.

8.0 SUMMARY REPORT

Following receipt of the analytical results, a Summary Report will be prepared for submittal to the Board. The report will document all field activities, borehole logs, chain-of-custody and analytical results.



PROPERTY OF LIQUID AIR CORPORATION. THE INFORMATION CONTAINED IN THIS FACSIMILE MESSAGE IS INTENDED ONLY FOR THE USE OF THE INDIVIDUAL OR ENTITY NAMED ABOVE AND MAY BE CONFIDENTIAL. IF THE READER OF THIS MESSAGE IS NOT THE INTENDED RECIPIENT, YOU ARE HEREBY NOTIFIED THAT ANY UNAUTHORIZED DISSEMINATION DISTRIBUTION OR COPY OF THIS COMMUNICATION IS STRICTLY PROHIBITED. IF YOU HAVE RECEIVED THIS COMMUNICATION IN ERROR, PLEASE NOTIFY US IMMEDIATELY BY TELEPHONE. THANK YOU.

F A C S I M I L E M E S S A G E

TO: Dave Simon

FROM: B. Lopez

NUMBER OF PAGES (INCLUDING COVER SHEET) 5

DATE: 8/26/93

LIQUID AIR CORPORATION
COMPRESSED GASES DIVISION
8832 DICE ROAD
SANTA FE SPRINGS, CA 90670

FACSIMILE PHONE (310) 693-1156
OFFICE PHONE (310) 945-1383
DIST./PRODUCTION(310) 698-4991

MESSAGE: Review and make comments

Kennedy/Jenks Consultants

Engineers and Scientists

17310 Red Hill Avenue Suite 220
Irvine California 92714
714 261 1577
FAX 714-261 2134

9 August 1993

SAFETY DEPARTMENT
RECEIVED

AUG 12 1993

Mr. Bryan Leger
Project Manager
Liquid Air Corporation
8832 Dice Road
Santa Fe Springs, CA 90670

Subject: Lime Pit Closure Regulatory Support
Proposal for Additional Services
LAC Purchase Order #0449659
K/J 924004.06

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DICE 00479

Kennedy/Jenks Consultants

Mr. Bryan Leger
Liquid Air Corporation
9 August 1993
Page 2

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Mr. Bryan Leger
Liquid Air Corporation
9 August 1993
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	Senior Scientist (2 hrs @ \$113.00) =	226
	Scientist Grade 3 (12 hrs @ \$67.00) =	804
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	Word Processing (2 hrs @ \$46.00) =	<u>92</u>
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- Placement of borings will not require geophysical location of underground utilities.
- The proposed Workplan including the sampling and analysis plan will be accepted by the RWQCB.

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Mr. Bryan Leger
Liquid Air Corporation
9 August 1993
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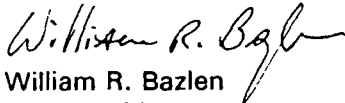
If you have any questions, please call. We have completed the records search and meeting with the RWQCB but will wait before proceeding with the Workplan until we've received your authorization.

Very truly yours,

KENNEDY/JENKS CONSULTANTS



R. Bruce Thomas, P.E.
Project Manager



William R. Bazlen
Vice President

RBT:WRB/ca
92400408 082

cc: David Simon
Robert Kuykendall

DICE 00482

SAFETY DEPARTMENT
RECEIVED

APR 01 1993

Kennedy/Jenks Consultants

Engineers and Scientists

17310 Red Hill Avenue, Suite 220
Irvine, California 92714
714-261-1577
FAX 714-261-2134

31 March 1993

Ms. Blythe Penek-Bacharowski
California Regional Water Quality Control Board
Los Angeles Region
101 Centre Plaza Drive
Monterey Park, CA

Subject: Site Investigation
Liquid Air Corporation, Santa Fe Springs
(File No. 92-03)
K/J 924004.02

Dear Ms. Penek-Bacharowski:

On behalf of Liquid Air Corporation, Kennedy/Jenks Consultants respectfully requests a two weeks extension for submission of the technical report required in the Board's 23 February 1993 letter from Rodney H. Nelson to Robert Predmore of Liquid Air. With this extension, the technical report will be due on 14 April 1993.

Thank you for your cooperation in this matter. Should you have any questions, please do not hesitate to call.

Very truly yours,

KENNEDY/JENKS CONSULTANTS



R. Bruce Thomas, P.E.
Project Manager

RBT/ca
92400402 038

cc: Robert Predmore
David Simon
Robert Kuykendall

DICE 00483

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APPENDICES

Appendix A	<i>Remediation Reports and Approval</i>
Appendix B	Underground Fuel Storage Tank Closure, 1990, by Aqua Science Engineers, Inc.
Appendix C	Lime and Its Uses, Specifications, various publications.
Appendix D	Excerpts from Handbook of Chemistry, Lange
Appendix E	Federal Register/Vol 44, No. 220, 65400, 13 November 1979
Appendix F	Excerpts and Boring Logs from Stability Analysis For Open Pits, 1991, Triad Geotechnical Associates.
Appendix G	Excerpts, Figure and Boring Logs from "Geotechnical Study Proposed Office And Truck Maintenance Building And Tank Farm" 1992 by Geomatrix Consultants, Inc.
Appendix H	California EPA Sampling and Analytical Data, 1991
Appendix I	CERCLA Site Screening Studies 1989 & 1990
Appendix J	Excerpts, Boring Log and Groundwater Data from Diversey Wyandotte Corp., Amended Closure Plan, 1989 by Kleinfelder
Appendix K	Excerpts, Boring Logs, Site Plan and Groundwater Data from Baseline Risk Assessment McKesson, 1992 by Harding Lawson Associates

I. SUMMARY

This report responds to the 23 February 1993 letter from the Regional Water Quality Control Board requesting information to confirm the environmental integrity of two impoundment areas ("pits") for lime storage at the Liquid Air Corporation Santa Fe Springs facility. After reviewing all available data, there is no evidence that the lime pits pose a threat to the waters of the State.

II. SITE HISTORY

A. Historical Operations.

Various corporate entities have operated an industrial gas facility at the Liquid Air Santa Fe Springs site. Reference Figure 1. In the mid-1940s, California Oxygen Company ("CalOx") built and operated an air separation facility.

In the early 1950s, CalOx installed an acetylene manufacturing plant. The acetylene manufacturing plant was re-built after a fire in the late 1950's and again after a second fire in 1971, and is still in operation. Acetone is used as an absorbent in the acetylene cylinders. Acetone had been historically stored in a 6,000 gallon underground storage tank ("UST"). That tank was removed in 1988 and replaced by a new double lined 6,000 gallon UST with cathodic protection that met the updated compliance requirements.

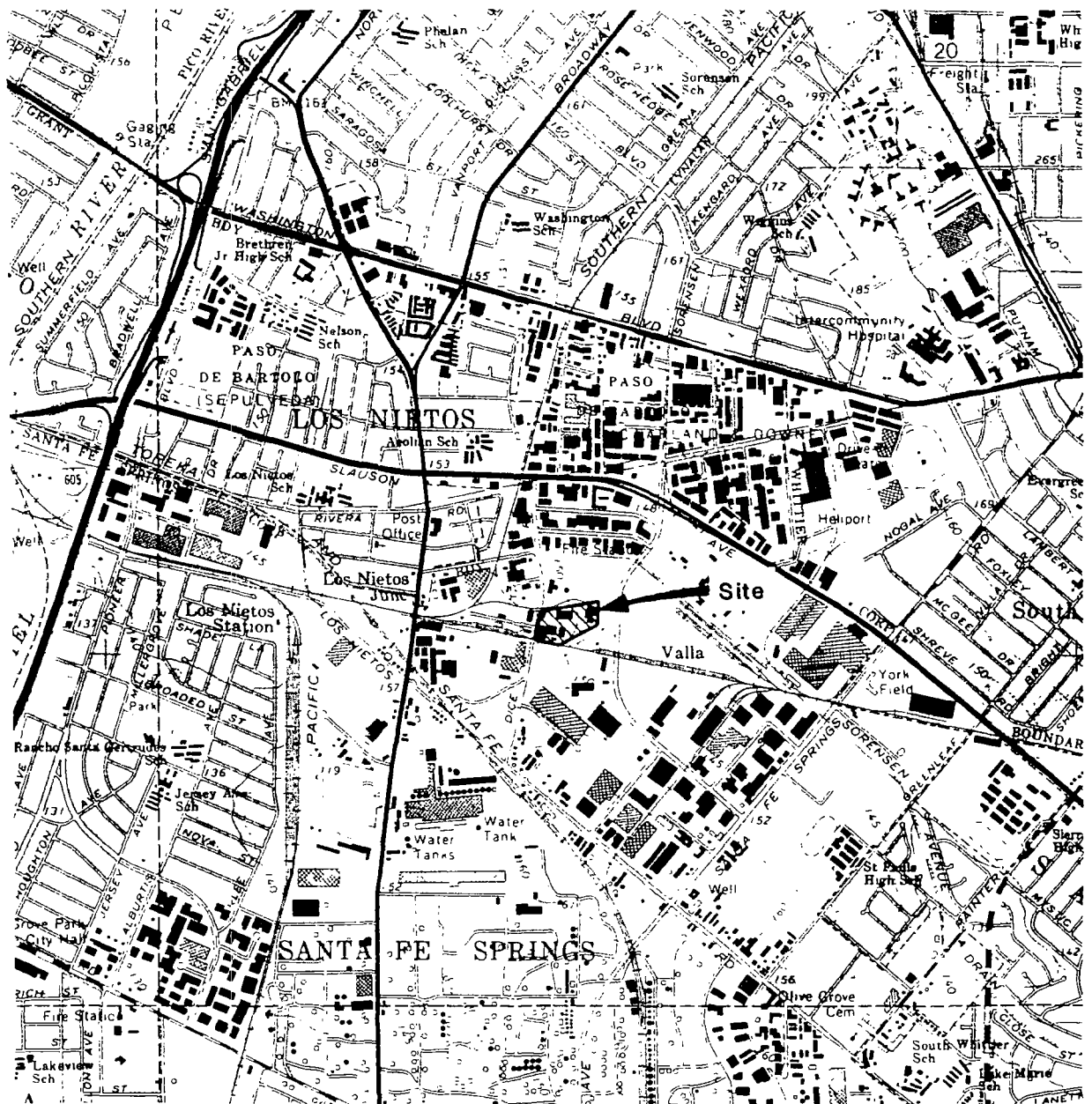
A gas cylinder repackaging plant was built in the early 1960s. This plant is still in operation.

An electrolytic hydrogen plant was built in the 1960s and was operated until 1975. The plant was removed in 1989.

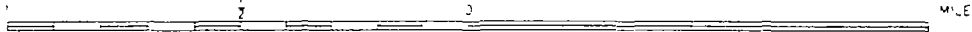
Liquid Air acquired the site in 1968. The air separation plant was shut down and the processing equipment sold in 1980. Caustic, used to remove carbon dioxide from processed air in the air separation process, was removed from the site after the air separation plant was sold in 1980.

In the early 1980s, Liquid Air used a portion of the facility for its Alphagaz operations to repackage specialty gases. The Alphagaz operations were moved off site in 1989. Sulfuric acid had been used for gas scrubbing operations for the specialty gases repackaging. After Alphagaz moved from the Santa Fe Springs facility, all remaining drums of sulfuric acid were properly removed from the site.

A vehicle maintenance garage was operated on site until 1989. As discussed in Section III, two diesel USTs and one waste oil UST were removed in 1988.



SCALE 1:24,000



Source: USGS Topographic Map,
Whittier Quadrangle
7.5 Minute Series
1965, Photo Revised 1981

Kennedy/Jenks Consultants
Liquid Air Corporation
Santa Fe Springs, California

Vicinity Map

April 1993
K/J 924004.06

Figure 1

DICE 00487

B. Current Operations.

At present, in addition to the acetylene plant and gas repackaging plant, Liquid Air operates a cylinder paint removal booth and a cylinder paint booth. Reference Figure 2.

1. Acetylene Production. Acetylene is produced by reacting calcium carbide with water. The acetylene is packaged into cylinders for sale to customers.

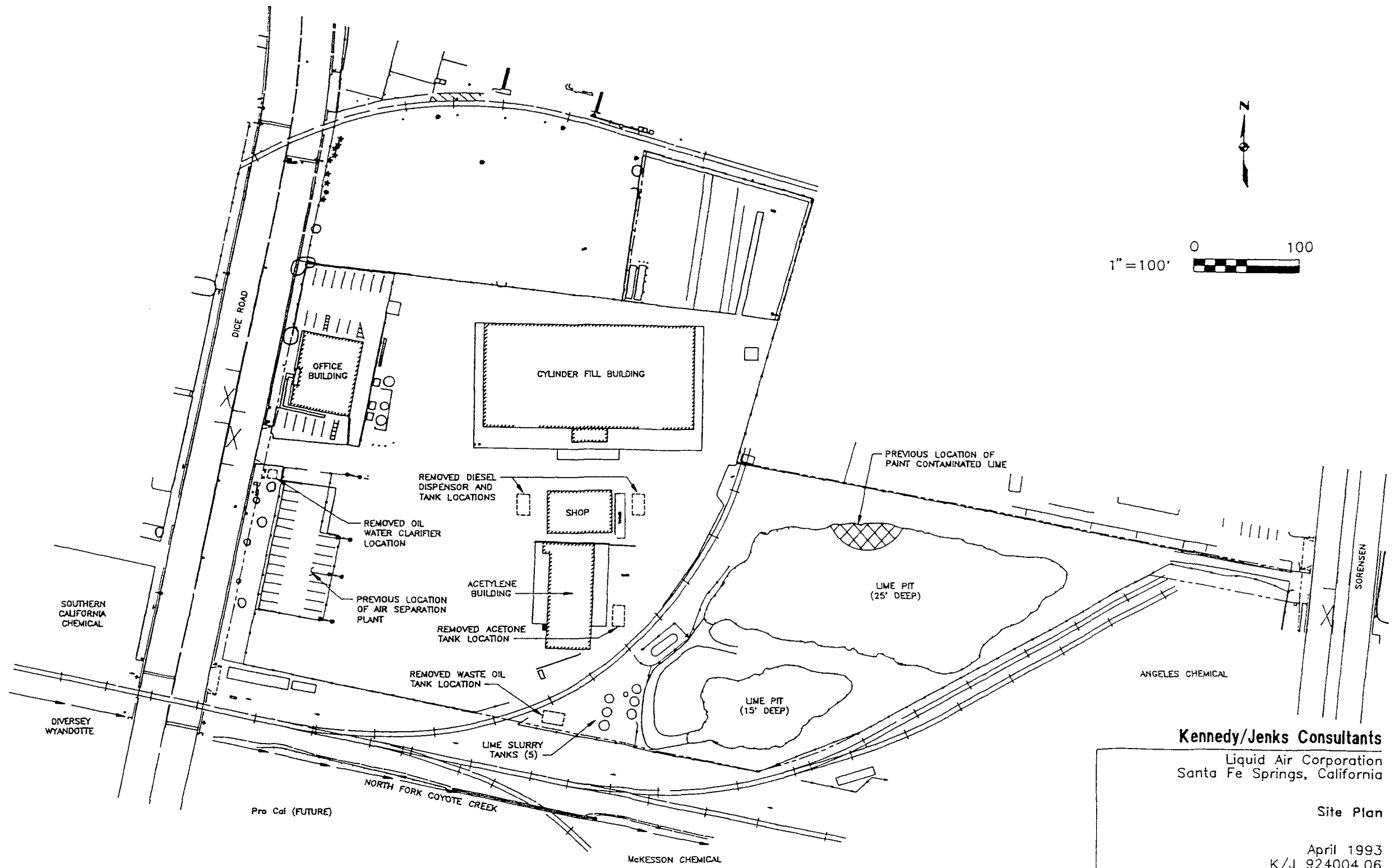
Calcium hydroxide ("lime") is produced as a by-product of this reaction. Because of the water used in the process, the lime is present as a slurry. Since July 1992, the lime slurry has been pumped into slurry tanks for temporary storage. It is then pumped into tanker trucks and sold to customers for use as a soil amendment and pH control at publicly owned wastewater treatment works. Between the late 1950s and July 1992, the lime slurry was stored in two pits. The small pit is approximately 100' long, 80' wide and 15' deep; the large pit is approximately 250' long, 100' wide, and 25' deep. As the water evaporates from the pits, the lime solidifies and dries within the pits. As discussed in greater detail below, the pits were originally unlined, however the lime has reacted with the native soils to form a relatively insoluble cemented layer in the pit bottom and walls. As a consequence, the permeability of the native soil has been sufficiently reduced so that storm water is retained in the pits. In the thirty some years of their use, there has been no evidence of a release of lime to groundwater from the pits.

2. Repackaging of Industrial and Medical Gases. Liquid Air repackages hydrogen, helium, nitrogen, nitrous oxide, propylene, oxygen, and carbon dioxide into cylinders which are sold to customers. Except for the cylinder refurbishing operations, which consists of the paint removal and paint spray facilities, there are no wastes from these operations.

3. Cylinder Refurbishing. If necessary, paint from the cylinders is sometimes removed using steel shot and the cylinder is then repainted. The steel shot and rinse water waste from the paint removal process are removed off-site by Van Waters & Rogers ("VWR") in accordance with applicable regulations.

C. Other Materials Used At The Site.

Small amounts of chlorinated solvents such as 1,1,1-trichloroethane ("TCA"), methylene chloride and freon were historically used in a closed system to internally clean process equipment and piping. On occasion, bulk TCA or methylene chloride would be brought on site for major cleaning efforts. The solvents would be pumped from the bulk carrier through the process equipment and recirculated back into the bulk carrier for removal off-site. TCA is still used for this purpose on a reduced scale. Only 22 gallons were removed from the site in 1992. Generally, the solvents were stored in drums on a concrete surface until they were properly removed from the site. Except for the pits, the area immediately adjacent to the pits, and an area along the south central portion of the site; the entire facility surface is covered by building slabs or pavement. There are no indications or records of an unauthorized release of any solvent.



1" = 100'

0 100

N

Kennedy/Jenks Consultants
 Liquid Air Corporation
 Santa Fe Springs, California

Site Plan

April 1993
 K/J 924004.06

Figure 2

DICE 00489

III. SITE INVESTIGATIONS AND REMEDIATIONS

Liquid Air has undertaken several site investigations and has addressed the few issues of concern that were identified. In each instance, Liquid Air hired environmental consultants, proceeded under the direction of local government regulatory agencies, and received approval from the agency on all remedial activities.

A. UST Removal.

In 1988, two 7,500 gallon diesel USTs and two fuel dispensers were removed along with one 1,000 gallon waste oil UST, and a 6,000 gallon acetone UST. Los Angeles County, Public Works, Waste Management Division ("County") approved the workplan and the closure activities. Appendix A includes the "Final Report for Remediation of Hydrocarbon Contaminated Lime and Soil," prepared by Aqua Science Engineers, Inc. in 1990 (ASE). Appendix A also includes a follow up from ASE to Los Angeles County dated 21 September 1990; a 1988 Site Investigation for Acetone Contamination by ASE and Los Angeles County's letter dated 24 December 1992 approving the closure.

Soil samples taken beneath the diesel and waste oil USTs did not contain any detectable petroleum hydrocarbons except one soil sample taken two feet below one diesel UST which was reported to contain 95 parts per million (ppm) total petroleum hydrocarbon ("TPH"). Soil samples beneath the fuel dispenser, however had reported levels of 805 to 6,930 ppm TPH. Because the soil samples to 40 feet below ground surface at the fuel dispenser location were reported to contain 13 ppm or less TPH, the environmental consultants concluded that the presence of diesel under the fuel dispensers was very localized. Approximately 25 cubic yards of soil were excavated from under the fuel dispensers. Samples from the walls and the bottom of the extraction pit were reported to contain less than 55 ppm of TPH. The excavated soil was bio-degraded on-site to below 100 ppm TPH. After approval by the County, the remediated soil was used as backfill.

Soil samples taken around the perimeter of the acetone tank had no detectable acetone (limit of detection was 2 ppb) except for a composite sample taken at 30 and 40 feet below ground surface which had a reported value of 6.8 parts per billion.

By letter dated 24 December 1992, the County formally approved the UST remediation. (Appendix A). More detailed descriptions of the UST site investigations and remediations are contained in the reports in Appendix A.

B. Paint Pigment in Lime.

In approximately 1985, a container of green pigment paint residue poured onto approximately 85-90 cubic yards of lime. With the approval of the County, the lime mixed with paint was excavated. The excavated lime was processed with above-ground vapor extraction. After treatment, samples from the lime treatment pile indicated that purgeable organic hydrocarbons were below the drinking water action levels. Upon approval by the County, the remediated lime was put back into the lime pit. (Appendix A). By letter dated 24 December 1992, the County formally approved the lime remediation. (Appendix A).

DICE 00490

C. Clarifier Removal.

In late 1989, a 2,000 gallon concrete oil/water clarifier was removed from the site. Because only trace levels of total petroleum hydrocarbons and no detectable volatile organic compounds were detected, no remediation was required. The site investigation and removal of the clarifier are discussed in Appendix B.

The observations by Geomatrix are consistent with the known properties of lime to form relatively insoluble calcium carbonate as described in the references in Appendix A. The Geomatrix observations are also consistent with Liquid Air experience with lime pits at several other sites in the United States. Even in areas where there is shallow groundwater, there is no evidence that lime has migrated from any pit, or otherwise adversely impacted groundwater.

IV. LIME PITS

A. Properties of Lime.

The many beneficial uses of lime have long been recognized. Lime is used as a stabilizer for sewage sludge prior to landfilling the sludge as well as a stabilizer for soils. Appendix C contains excerpts from three articles discussing the uses of lime and a copy of the Caltrans specifications for the use of lime as a soil stabilizer. Reference Appendix C for the following: 1) "Carbide Lime, Its Value and Uses," by Compressed Gas Associates, Inc.; 2) excerpts from the "Foundation Engineering Handbook", 1975 by Winterkorn and Fang; 3) "State-of-the-Art Report", 1981 by James K. Mitchell; and 4) a copy of the 1992 Lime Stabilization Standard Specification by Caltrans.

Lime has a limited solubility in water of 1.85 grams per liter in cold water. (Lange's Handbook of Chemistry, see Appendix D). Significantly, lime reacts readily with minerals in the soil to form cemented layers. (Appendix C: Foundation Engineering Handbook, 1975 Winterkorn and Fang).

In 1979, the EPA decided to remove lime from the list of substances determined as hazardous within the meaning of Section 311 of the Clean Water Act. (44 Fed.Reg. 65400; 13 November 1979, see Appendix E). It reasoned that the unique chemistry of lime is such that lime would not present an imminent and substantial danger to the public health or the environment if discharged to surface water.

B. Soil Borings In and Around the Lime Pits.

Triad Geotechnical Consultants Inc. ("Triad") took four soil borings within the large pit and one adjacent to the large pit. Based on the subsurface conditions as described in the boring logs, it would appear that lime was not observed beyond a depth of five feet below the bottom of the pit. (see excerpts from Triad 13 May 1991 report entitled "Stability Analysis for Open Pit" in Appendix F).

More recently, Geomatrix Consultants ("Geomatrix") drilled three soil borings in the large pit, two in the small pit, and several others at different locations on the site. (see excerpts from

Geomatrix "Geotechnical Study," 31 December 1992 in Appendix G). Geomatrix observed that the sandy soils underlying the bottom of the pits were cemented to depths of four to seven feet. The cemented nature of the sands are indicated on the logs of Borings B1 through B5 by the very high driving resistance of the soil sampler. Borings drilled outside of the pits did not encounter cemented sands and the penetration resistance of the soil sampler was lower than that encountered in the two pits. Geomatrix observed that the pits, while underlain by pervious sands, retain water. They concluded that the cementation decreased the permeability of the native soils and severely restricted the percolation of water from the pits.

C. RWQCB, DHS and EPA Investigations.

The 23 February 1993 letter states that the RWQCB staff noted that the pits contained water as a result of the rainstorms. Because the lime has formed a relatively impermeable barrier at the sides and bottom of the pit, stormwater which enters the pits is contained. As discussed below, Liquid Air proposes to backfill the pits and cover the backfilled area with concrete; this will prevent any future collection of stormwater into the pits.

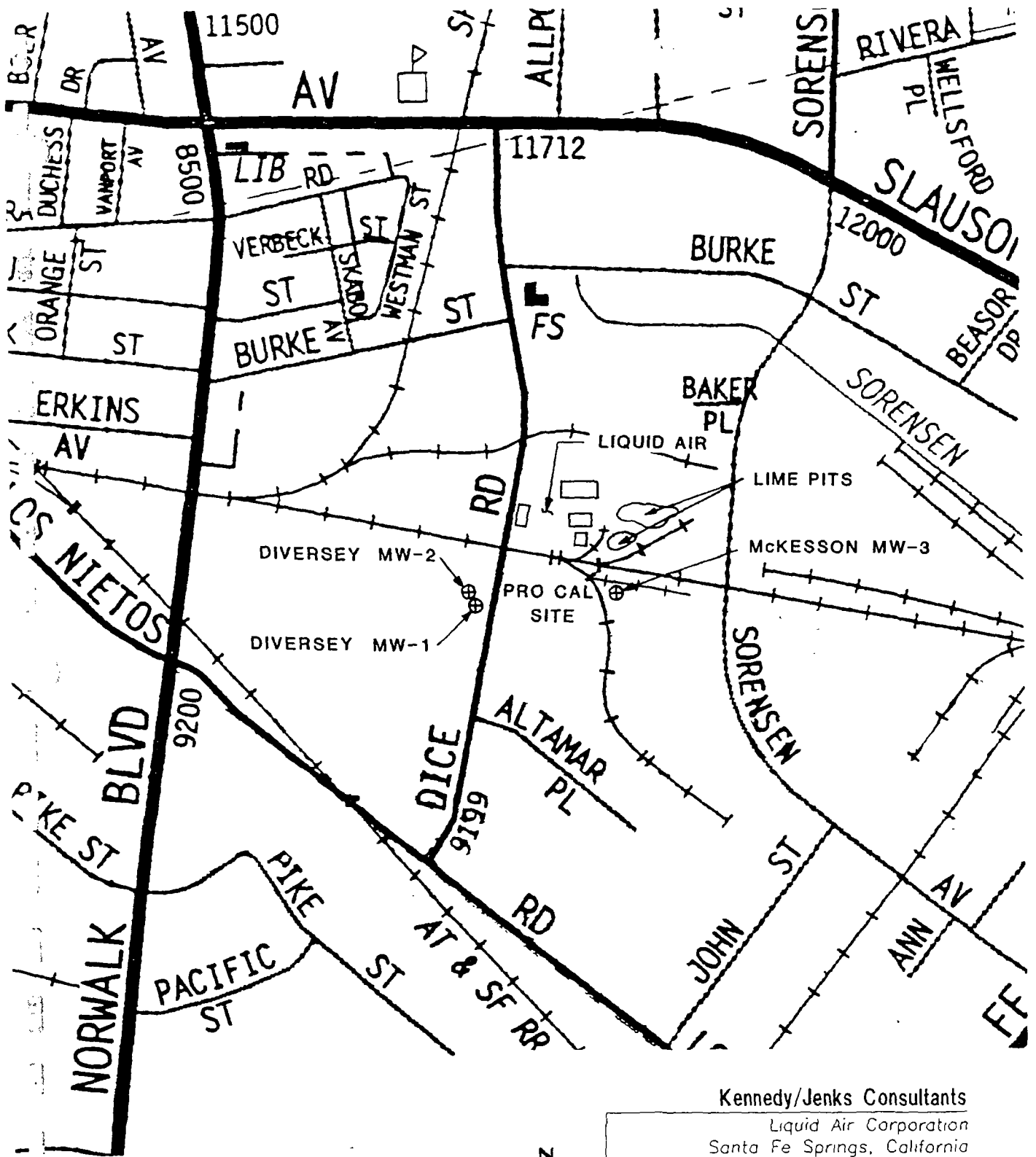
The 23 February 1993 letter also refers to analyses of water from the pit and from lime adjacent to the pits which indicated that the samples had high pH. These samples were taken in August 1991 by California EPA. The analytical data for these samples are found in Appendix H. First, as previously discussed, water in the pits does not leach from the pits because of the cementitious seal created by the lime and soil mixture. Consequently, the water or remaining lime will not pose a threat to groundwater. Second, even though calcium hydroxide is a basic material, as discussed below, based on analyses of pH of groundwater from nearby down-gradient wells, there is no evidence that the lime has migrated past the cementitious layer or that the groundwater has been affected. Finally, the referenced water subsequently has been pumped from the pits and has been properly disposed of off-site.

The U.S. Environmental Protection Agency (EPA) and the California Department of Health Services (DHS) have independently conducted two CERCLA site screenings to investigate the site for its potential to be placed on the National Priority List. These investigations were conducted in 1989 and in 1990 and are included in Appendix I. Both agencies concluded that no further remedial action was warranted.

D. Groundwater Data From Down-Gradient Wells.

The general regional groundwater flow in the area is south to southwest. (see Appendix I, CERCLA Site Inspection 1989 and Appendix J, Diversey Wyandotte Closure Plan). Depth to groundwater at the site is reported to be between 42 to 50 feet below ground surface. This places the depth to groundwater at 17 to 25 feet beneath the bottom of the deeper pit.

Two investigations which have been conducted on neighboring facilities are relevant to this Liquid Air site. The McKesson facility is located south to southeast and Diversey Wyandotte is located southwest of the Liquid Air facility. Groundwater monitoring well MW-3 on the McKesson facility is located immediately south of the lime pits on the Liquid Air facility, and groundwater monitoring wells MW-1 and MW-2 on the Diversey Wyandotte facility are located southwest of the lime pit area. Reference Figure 3 for the locations of these monitoring wells.



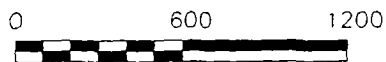
Kennedy/Jenks Consultants

Liquid Air Corporation
 Santa Fe Springs, California

Downgradient Monitoring Well
 Locations

April 1993
 K/J 924004.06

Figure 3



SCALE 1" = 600'



The typical groundwater pH of samples taken from these monitoring wells ranges from 6.5 to 8.0. These data suggest there has been no impact of the underlying groundwater from the lime materials stored in the ponds on the Liquid Air facility. Appendix J contains excerpts from the investigation on the Diversey Wyandotte property in 1989. Appendix K contains excerpts from the McKesson property investigation which was conducted in 1992.

E. Proposed Closure.

Approximately 20,000 cubic yards of lime have been removed from the pits and approximately 5,000 cubic yards of lime remain. It is proposed that this remaining lime be mixed with clean imported, clay-containing soils to comprise the 25,000 cubic yards of material required to completely fill the pits. The mixture would result in a backfill material containing approximately 25 to 30 percent lime.

The conceptual closure of the pits is summarized below:

- Imported, clay containing soils will be brought on site, spread in the bottom of the pits in eight inch layers and mixed with lime.
- Mixed backfill material will be compacted to a minimum of 90% maximum density in eight inch thick layers.
- The pits and adjacent area will be covered with an eight inch thick concrete pavement.
- A storm water drainage system will be installed to collect and convey surface drainage from the area of the pits.

V. CONCLUSIONS

There is no evidence that the lime pits at the Liquid Air Santa Fe Springs facility pose a threat to public health, the environment, or waters of the State. In addition, the site itself has been inspected and issues of concern have been addressed to the satisfaction of various regulatory agencies. Consequently, there is no reasoned basis to require any further site characterization or to not approve the proposed method for backfilling and capping these pits.

APPENDIX A

- Closure Certification Letter, 24 December 1992 from Los Angeles County
- Final Report for Remediation of Hydrocarbon Contaminated Lime and Soil, 1990; by Aqua Science Engineers, Inc.
- Aqua Science Engineers follow up submittal to Los Angeles County dated 21 September 1990.
- Site Investigation for Acetone Contamination in Soil, 1988; by Aqua Science Engineers, Inc.



**COUNTY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS**

900 SOUTH FREMONT AVENUE
ALHAMBRA, CALIFORNIA 91803-1331
Telephone: (818) 458-5100

THOMAS A. TIDEMANSON, Director

ADDRESS ALL CORRESPONDENCE TO
P.O. BOX 1460
ALHAMBRA, CALIFORNIA 91802-1460

December 24, 1992

SAFETY DEPARTMENT
RECEIVED

DEC 31 1992

IN REPLY PLEASE REFER TO FILE I-225

Mr. David Simon
Liquid Air Corporation
P. O. Box 8038
Walnut Creek, CA 94596

Dear Mr. Simon:

**HAZARDOUS MATERIALS UNDERGROUND STORAGE
CLOSURE CERTIFICATION
CLOSURE PERMIT NOS. 4784B AND 6555B
LOCATION: 8832 DICE ROAD, SANTA FE SPRINGS**

This office has reviewed the final closure report submitted on September 24, 1990. Based on the information submitted, this letter confirms the completion of site investigation and remedial action of contamination resulting from leaking underground storage tanks at the above site. With the provision that the information provided to this agency was accurate and representative of existing conditions, it is our position that no further action is required at this time.


Please be advised that this letter does not relieve you of any liability under the California Health and Safety Code or Water Code for past, present or future operations at this site. Nor does it relieve you of the responsibility to clean up existing, additional or previously unidentified conditions at the site which cause or threaten to cause pollution or nuisance or otherwise pose a threat to water quality or public health.

Additionally, be advised that changes in the present or proposed use of the site may require further site characterization and mitigation activity. It is the property owner's responsibility to notify this agency of any changes in report content, future contamination findings or site usage.

If you have any questions regarding this matter, please contact Nicole Long at FOIA ex 6,
Personal Privacy

Very truly yours,

T. A. TIDEMANSON
Director of Public Works


Pat A. Proano
Supervising Civil Engineer II
Waste Management Division

NL:rm
WP/225

cc: California Regional Water Quality Control Board
Ms. Jaqui Sikoryak, State Water Resources Control Board

DICE 00496



17895 Sky Park Circle, Suite E, Irvine, CA 92714
Tel 714/833-3667 • Fax 714/833-3468

April 30, 1990

Mr. David Esfundi
Los Angeles County Department of Public Works
Waste Management Division
UST Pilot Program - Annex Building
P.O. Box 1460
Alhambra, CA 91802-1460

Re: Final Report for Remediation of Hydrocarbon
Contaminated Lime and Soil

Site: Liquid Air Corporation
8832 Dice Road
Santa Fe Springs, CA 90670
Contact: David Simon
(415) 977-6500

CLADPW File No: I-225-1H

Dear Mr. Esfundi:

Enclosed are three copies of the final project report prepared for Liquid Air Corp. titled "Remediation of Hydrocarbon Contaminated Soil and Hydrated Lime for: Liquid Air Corporation." The report has been provided to your department at the request of Liquid Air Corporation.

Please contact me at (714) 833-3667 if you have any questions regarding this project.

Sincerely,

Aqua Science Engineers, Inc.

Michael Mareello
Geological Operations

cc: Mr. David Simon, Liquid Air Corp., Walnut Creek, Ca.
Mr. Rick Bang, Liquid Air Corp., Santa Fe Springs Ca.



17895 Sky Park Circle, Suite E, Irvine, CA 92714
Tel 714/833-3667 • Fax 714/833-3468

APRIL 23, 1990

PROJECT REPORT

REMEDICATION OF HYDROCARBON CONTAMINATED SOIL
AND HYDRATED LIME FOR:

LIQUID AIR CORPORATION
8832 DICE ROAD
SANTA FE SPRINGS, CALIFORNIA

CLADPW FILE NUMBER I-225-1H

PREPARED FOR:

Liquid Air Corporation
2121 North California Boulevard
Walnut Creek, CA 94596

PREPARED BY:

Aqua Science Engineers, Inc.
17895 Sky Park Circle, Suite E
Irvine, CA 92714



17895 Sky Park Circle, Suite E, Irvine, CA 92714
Tel 714/833-3667 • Fax 714/833-3468

APRIL 23, 1990

PROJECT REPORT

REMEDICATION OF HYDROCARBON CONTAMINATED SOIL
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SANTA FE SPRINGS, CALIFORNIA

CLADPW FILE NUMBER I-225-1H

For Aqua Science Engineers, Inc:

Michael Mareello
Project Geologist



David M. Schultz
Vice President
Senior Engineer

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1.0 INTRODUCTION AND PROJECT SUMMARY

1.1 Background

This report has been prepared for Liquid Air Corporation by Aqua Science Engineers and describes the methods and results of a remediation project involving hydrocarbon contamination in soil and hydrated lime (calcium hydroxide) at the Liquid Air industrial gases manufacturing plant, 8832 South Dice Road, Santa Fe Springs, California (Figure 1). The hydrocarbon contamination in soil is the result of leaking diesel product dispensers at two separate locations on site. The contamination in the hydrated lime is believed to be isolated surface spillage of paint residue within a lime settling pit at the east end of the site.

The subject site is occupied by AL/Liquid Air Corporation which operates a manufacturing plant for industrial gases. Acetylene is one of the main products manufactured at this site. The product is produced by mixing calcium carbide and water. The process by-product, hydrated lime, is dewatered in two lime settling pits located on the east boundary of the site. The material is harvested and shipped as "dry lime" for use in industrial water treatment and agriculture. The County of Los Angeles Department of Hydrologic Records indicates the depth to groundwater in the area is located generally between 60 and 70 feet below the ground surface. Soil types in the area are primarily composed of alluvial silt and sand with some clay and gravel associated with basin fill deposition.

On September 21, 1988, two 7,500 gallon underground diesel storage tanks, and product dispensers, were removed from the subject site by Whitaker Concrete Corporation. Soil samples collected beneath the product dispensers indicated elevated total hydrocarbon concentrations ranging to 805 ppm and 6,930 ppm. The tank closure report provided by George DeVries, Consulting Geologist, is provided in Appendix I.

On November 18, 1988, ASE drilled soil borings directly adjacent to the locations of each product dispenser in order to define the magnitude of diesel contamination. Soil sample analysis indicated very low (13 ppm) to non-detectable TPH concentrations by EPA method 418.1 in each boring to 40 feet below the surface. ASE concluded that the diesel contamination appeared vertically and laterally restricted to a relatively small volume of soil directly beneath the product dispensers. The ASE site assessment report is provided in Appendix II.

According to Mr. Tom Barber, Plant Manager of Liquid Air site, a container of green pigment paint residue was spilled on the north edge of the lime settling pit approximately five years ago. The paint residue seeped into fractures in the dried lime and contaminated an estimated 85 cubic yards of material at the edge of the pit (Figure 2). On March 29, 1988, IT Corporation collected samples of the contaminated lime for chemical analysis using EPA method 8240. Concentrations of contaminants ranges to 90 ppb acetone, 55 ppb carbon disulfide, 46 ppb Methyl-ethyl Ketone (MEK), 49 ppb

1,1,1-Trichloroethane, 86 ppb Toluene, and 30 ppb total Xylene. The IT chemical analysis report is provided in Appendix III.

1.2 Summary of ASE Remediation

Aqua Science Engineers was contracted by Liquid Air Corporation to mitigate the diesel contaminated soil and paint residue contaminated lime. A work plan for the remediation program was designed and submitted to Mr. David Esfundi of the Los Angeles County Department of Public Works, Waste Management Division (Appendix IV). The program called for excavation and enhanced bio-remediation of contaminated soil and lime.

On August 18, 1989, ASE excavated approximately 90 cubic yards of paint residue contaminated lime from the wall of northwest corner of the lime settling pit. On August 28, 1989, ASE excavated approximately 20 cubic yards, and on November 3, 1989 another five cubic yards, of diesel contaminated soil from beneath the locations of two former diesel product dispensers, as explained further in section 2.1. The excavated material was placed on treatment pads constructed of bermed, 20 mil. PCV liners.

Following excavation of contaminated material, samples were collected from the walls and bottoms of the two diesel dispenser excavations, and from the lime settling pit excavation. Chemical analysis of samples collected from the two dispenser excavations using EPA method 418.1 indicate diesel concentrations have been removed to below 100 ppm TPH. Chemical analysis of samples collected from the lime pit using EPA method 8240 indicate all purgeable organic concentrations have been removed to below California State DOHS Drinking Water Action Levels.

The diesel contaminated soil was treated using above-ground enhanced bio-degradation of hydrocarbons. The contaminated lime was treated using above-ground vapor extraction of volatile organic hydrocarbons. Chemical analysis of soil samples collected from the diesel treatment pile on April 4, 1990, indicate diesel concentrations have been reduced to below 100 ppm by EPA method 418.1. Chemical analysis of samples collected from the lime treatment pile on November 6, 1989 indicate purgeable organic hydrocarbon concentrations have been reduced to below California State DOHS Drinking Water Action Levels by EPA method 8240. Verbal approval was received by ASE on December 11, 1989 from Mr. Esfundi of CLADPW to close the lime remediation project. The treated lime was moved back into the settling pit on December 12, 1989. The treated soil was used to backfill the dispenser excavations on April 10, 1990.

2.0 EXCAVATION AND ASSESSMENT OF CONTAMINATION

2.1 Excavation of Diesel Contaminated Soil

On August 28, 1989, approximately 20 cubic yards of diesel contaminated soil was excavated from directly beneath two separate diesel dispenser locations using a Case 580-E backhoe (Figure 2). Approximately five cubic yards was excavated from dispenser-1 location generating a pit having dimensions of five feet by five feet by five feet deep. Approximately 15 cubic yards was excavated from dispenser-2 location generating a pit having dimensions of seven feet by seven feet by eight feet deep. The contaminated soil was placed on a prepared treatment pad constructed of 20 mil. PVC liner (Figure 3). The perimeter of the treatment pad was bermed to prevent surface run-off.

On August 29, 1989, soil samples were collected from the bottom and sides of the two diesel dispenser excavations. Two soil samples were collected from the bottoms, and one sample was collected from each wall of the excavation. The wall samples were collected at approximately two feet from the bottom of dispenser-1 excavation, and approximately three feet from the bottom of dispenser-2 excavation. The samples were collected by driving two inch diameter by six inch length pre-cleaned brass tubes into the bottoms and walls of each excavation. The sample tubes were capped with aluminum foil, plastic end caps and tape. The samples were placed on ice and shipped to West Coast Analytical Services, located in Santa Fe Springs, California, for chemical analysis using EPA method 418.1.

The chemical analysis of soil samples collected from dispenser-1 excavation indicates all diesel contaminated soil was removed to below 100 ppm TPH during the initial excavation on August 28, 1989. Of the samples collected from this location, the highest residual TPH concentration level was 53 ppm indicated in soil sample LA-1-BA collected from the west half of the pit bottom. A summary of the laboratory data is provided in Table 1. The certified laboratory report is given in Appendix V.

Chemical analysis of soil samples from dispenser-2 excavation indicated residual TPH concentration values ranging to 920 ppm in the north half of the pit bottom (sample LA-2-BB), 3,200 ppm on the east wall (sample LA-2-E), 170 ppm on the north wall (sample LA-2-N), and 2,300 ppm on the south wall (sample LA-2-S). These concentrations are above the acceptable level of 100 ppm TPH. TPH was non-detectable in soil samples from the south half of the pit bottom (sample LA-2-BA), and from the west wall (sample LA-2-W). A summary of the laboratory data is provided in Table 1. The certified laboratory reports are provided in Appendix V.

On November 3, 1989, approximately five additional cubic yards of soil was removed from the bottom, north, south and east sides of the dispenser-2 excavation. The soil was placed on the diesel treatment pad. The final depth of the dispenser-2 excavation was approximately ten feet. The final volume of soil removed from this excavation was approximately 20 cubic yards.

Additional soil samples were collected on November 6, 1989 from the bottom, north, south and east sides of dispenser-2 excavation. The samples were collected in the same manner as described in section above. The samples were shipped to Enseco-CRL Laboratories located in Garden Grove, California, for chemical analysis using EPA method 418.1.

Chemical analysis of the second set of soil samples collected from diesel dispenser-2 excavation indicates all diesel contaminated soil has been removed to below 100 ppm TPH. The highest residual TPH concentration was indicated in the sample collected from the south wall which ranged to 10 ppm TPH (sample LA-2-S2). A summary of the chemical analysis data is provided in Table 2. The certified laboratory report is provided in Appendix V.

2.2 Excavation of Paint Contaminated Lime

On August 18, 1989, approximately 90 cubic yards of suspected paint residue contaminated lime was excavated from the northwest corner of the north wall of the lime settling pit using a Kawasaki 650 loader (Figure 2). The excavated lime was placed on a bermed, 20 mil. treatment pad adjacent to the diesel soil treatment pad (Figure 3). The lime was piled in three, three foot lifts. Between the first and second and second and third lifts, three foot spaced rows of two inch diameter slotted PVC pipe was installed for use in vapor extraction. Volatile organic carbon (VOC) concentrations in the atmosphere were monitored during excavation using a Gastech model 1314 "Gastechtor Hydrocarbon Super Surveyor" according to ASE remediation workplan. At no time during excavation were VOC concentrations above 20 ppm encountered.

On November 6, 1989, a total of six samples were collected from the wall of northeast corner of the lime settling pit after excavation to determine if all contaminated lime had been removed. The samples were collected from approximately six inches beneath the surface of the excavation using an Arts Manufacturing hand boring and sampling tool. The samples were collected by driving the sampling tool into three-inch diameter bore-holes drilled to approximately six-inches into the hydrated lime. The samples were secured in two-inch diameter by six-inch length brass tubes and sealed with Teflon tape and plastic end-caps. The samples were immediately placed on ice and subsequently submitted to Enseco/CRL Laboratory for chemical analysis using EPA method 8240 for purgeable organics.

Chemical analysis of the samples using EPA method 8240 indicate all purgeable organics have been removed from the northwest corner of the lime settling pit to below California State DOHS Drinking Water Action Levels (Appendix VI).

3.0 REMEDIATION OF CONTAMINATION

3.1 Remediation of Diesel Contaminated Soil

The 25 cubic yard of diesel contaminated soil excavated from beneath the two diesel dispenser locations was decontaminated using above-ground enhanced bio-degradation techniques. The contaminated soil was piled approximately 1.5 foot high on a 20 foot by 20 foot treatment pad constructed of 20 mil. PVC liner. The treatment pad was enclosed by one foot high berms to prevent surface run-off from the pile (Figures 3 and 4).

Limiting bacterial nutrients were added to the soil pile which consisted of ammonium nitrate and humic material. Ammonium nitrate was initially added to the soil at a concentration of approximately 0.4%. Humic material was added to the soil at a concentration of approximately 5%. Moisture was added to the soil at a rate of approximately 500 gallons per week, or approximately 10% of soil volume per week. The soil was turned at two week intervals between the dates of November 6, 1989 and January 2, 1990.

Initial concentrations of total petroleum hydrocarbons in soil samples collected during excavation ranged to greater than 3,000 ppm total petroleum hydrocarbons (Table 1). A total of four soil samples were collected from the treatment pile on January 11, 1990; one sample for every five cubic yards of soil. The samples were collected between six inches and one foot below the pile surface and placed in 250 ml glass sample jars. The samples were immediately placed on ice and sent with a chain of custody form to West Coast Analytical Services for chemical analysis using EPA method 418.1. The chemical analysis indicated total petroleum hydrocarbon concentrations in the treated soil ranged to 2,000 ppm with an average concentration of 1,062 ppm. A summary of the laboratory data is provided in Table 3. The certified laboratory report is given in Appendix VII.

On January 23, 1990, additional amounts of ammonium nitrate and humic material were added to the soil at concentrations of 0.2% and 2% respectively. The soil was again completely turned to increase oxygen content. Moisture was again applied to the soil pile at a rate of approximately 500 gallons of water per week.

Chemical analysis of soil samples collected from the treatment pile on February 27, 1990 by Enseco/CRL Laboratory by EPA method 418.1 indicated total petroleum hydrocarbon concentration at this time ranged to 960 ppm, with an average concentration of approximately 788 ppm. The soil was again turned at this time to increase oxygen content. A summary of the laboratory data is provided in Table 3. The certified laboratory report is given in Appendix VII.

Chemical analysis of soil samples collected from the treatment pile on April 3, 1990 by Pace Laboratories indicated total petroleum hydrocarbon concentrations at this time ranged to 60.8 ppm, with an average concentration of approximately 53 ppm. A summary of the laboratory data is provided in Table 3. The certified laboratory report is given in Appendix VII.

Diesel fuel concentrations had been effectively reduced in the soil to below the CLADPW action level of 100 ppm TPH. On April 10, 1990 the treated soil was used to backfill the dispenser excavations.

3.2 Remediation of Paint Contaminated Lime

The ASE remediation workplan dated July 20, 1989 called for neutralization of the contaminated lime using sulfuric acid followed by enhanced bio-degradation of hydrocarbons. However, it was determined by ASE chemical engineers and safety personnel that the volume and concentration of sulfuric acid required to neutralize the lime posed a very high safety risk during high-wind conditions. Concentrated acid vapors could travel beyond the designated work zone and contact humans not wearing adequate safety equipment. Therefore, an alternate remediation plan using above-ground vapor extraction was adopted to reduce the risk of human contact with potentially hazardous materials.

The 90 cubic yard of paint residue contaminated lime excavated from the northwest corner of the settling pit was placed on a level 30 foot by 30 treatment pad constructed of 20 mil. PVC liner adjacent to the diesel soil treatment pad (Figures 3 and 4). The treatment pad was enclosed with one foot high berms to prevent surface run-off from the pad area. The lime was piled in three, three foot lifts. Between the first and second and second and third lifts, three foot spaced rows of two inch diameter slotted PVC pipe was installed for use in vapor extraction. The two inch diameter PVC pipe was manifolded at the south side of the pad into one four-inch diameter PVC pipe connected to a 0.5 HP electric blower. Vacuum pressure was applied to the lime pile on a 24 hour per day rate from September 1, 1989 to December 12, 1989. As described in the ASE remediation workplan dated July 20, 1989, the total beginning concentration of volatile organic carbon (VOC) in the contaminated lime was less than 10 ppm. Therefore, implementation of South Coast Air Quality Management rule 1166 for VOC contaminated soil handling was not required.

A total of ten treated lime samples were collected at depths between two and four feet beneath the surface of lime pile on November 6, 1989. The samples were collected using an Arts Manufacturing hand boring and sampling tool. The samples were collected by boring a three inch hole into the side of the pile followed by driving the sampling tool into the lime. The samples were secured in two-inch diameter by six-inch length brass tubes and sealed with Teflon tape and plastic caps. The samples were immediately placed on ice and subsequently submitted to Enseco/CRL Laboratory located in Garden Grove, California for analysis using EPA method 8240 (purgeable organics).

Chemical analysis of the treated lime by Enseco/CRL indicated all purgeable organics have been effectively removed to below California State DOHS Drinking Water Action Levels (Appendix VIII). The treated lime was moved back into the lime settling pit on December 12, 1989.

4.0 CONCLUSIONS

All diesel contaminated soil which was located beneath the two diesel product dispensers at the liquid air site has been removed and treated to acceptable levels. The final concentration of total petroleum hydrocarbons in the 25 cubic yard of treated soil ranges to 60.8 ppm with an overall average concentration of approximately 50 ppm. The "action level" for total petroleum hydrocarbons concentration in soil established by the County of Los Angeles Department of Public Works, Waste Management Division is 100 ppm. Soil having concentrations below this value are not considered significantly contaminated and can be used as clean land fill.

All paint residue contaminated lime which was located on the wall of the northwest corner of the lime settling pit has been removed and treated to California State DOHS Drinking Water Action Levels for volatile organic hydrocarbons. The treated lime can be combined with other lime onsite and processed for recycling.

It is the opinion of Aqua Science Engineers, Inc., that no further contamination mitigation work is required for soil in the area of the two diesel product dispensers, and for lime located at the northwest corner of the lime settling pit as described in this report.

The results of this investigation represent conditions at the time and location at which samples were collected and for the parameters analyzed in the laboratory. It does not characterize the site for contamination resulting from other sources or parameters not analyzed. This report is considered "proprietary and confidential." Information regarding this project will not be released by Aqua Science without permission from the client.

TABLE 1

SUMMARY OF CHEMICAL ANALYSIS OF SOIL SAMPLES COLLECTED
ON AUGUST 29, 1989 FROM BELOW DISPENSERS 1 AND 2
AFTER EXCAVATION OF SOIL

Sample Location	Sample Number	TPH by EPA 418.1 (ppm)
Disp. 1 Bottom-West	LA-1-BA (W)	53
Disp. 1 Bottom-East	LA-1-BB (E)	33
Disp. 1 Wall-East	LA-1-E	ND
Disp. 1 Wall-North	LA-1-N	34
Disp. 1 Wall South	LA-1-S	ND
Disp. 1 Wall-West	LA-1-W	ND
Disp. 2 Bottom-South	LA-2-BA (S)	ND
Disp. 2 Bottom-North	LA-2-BB (N)	920
Disp. 2 Wall-East	LA-2-E	3200
Disp. 2 Wall-North	LA-2-N	170
Disp. 2 Wall-South	LA-2-S	2300
Disp. 2 Wall-West	LA-2-W	ND
Detection Limit		10

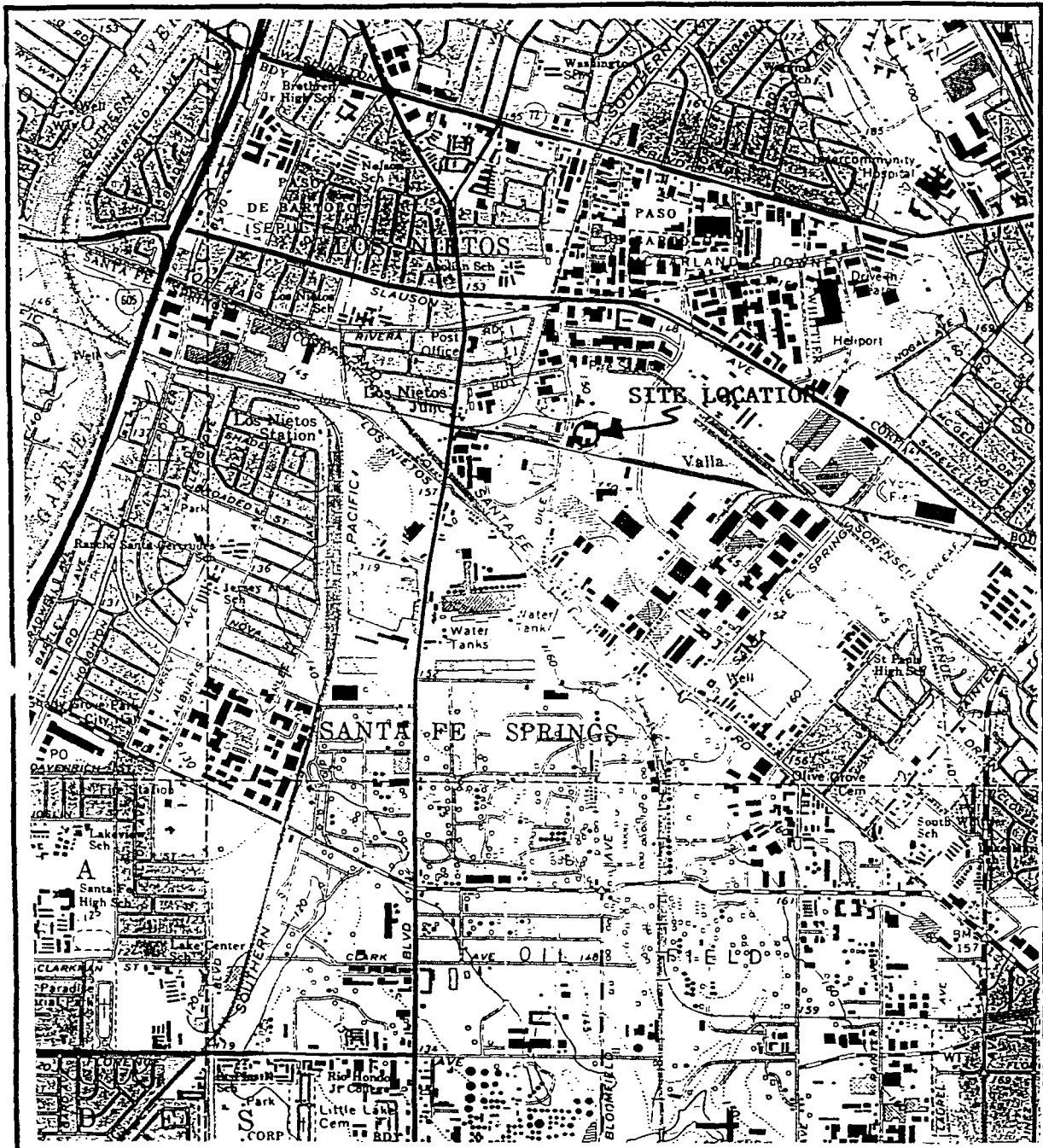
TABLE 2

SUMMARY OF CHEMICAL ANALYSIS OF SOIL SAMPLES COLLECTED
ON NOVEMBER 6, 1989 FROM BELOW DISPENSER 2
AFTER ADDITIONAL EXCAVATION OF SOIL

Sample Location	Sample Number	TPH by EPA 418.1 (ppm)
Disp. 2 Bottom-North	LA-2-BB (N-2)	8
Disp. 2 Wall-East	LA-2-E2	7
Disp. 2 Wall-North	LA-2-N2	8
Disp. 2 Wall-South	LA-2-S2	10
Detection Limit		1

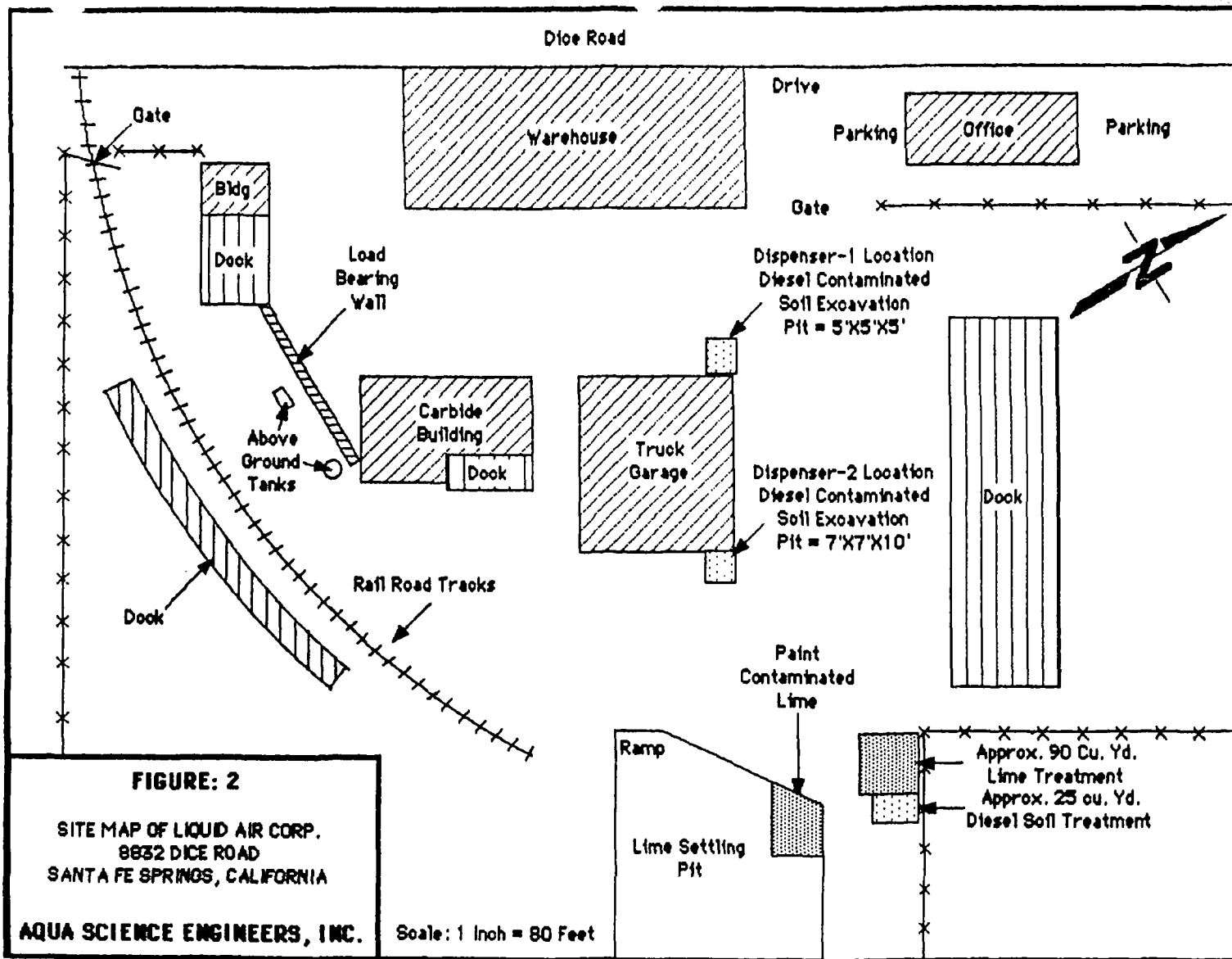
TABLE 3
 SUMMARY OF CHEMICAL ANALYSIS DATA FOR SOIL SAMPLES
 COLLECTED FROM TREATED DIESEL CONTAMINATED SOIL

Sample Designation	Sample Collection Date	TPH by EPA 418.1 (ppm)
TD-1B	01-11-90	2000
TD-2B	01-11-90	170
TD-3B	01-11-90	1500
TD-4B	01-11-90	580
Detection Limit		1
TD-1B	02-27-90	500
TD-2B	02-27-90	960
TD-3B	02-27-90	940
TD-4B	02-27-90	750
Detection Limit		1
TD-1	04-03-90	59.6
TD-2	04-03-90	46.6
TD-3	04-03-90	60.8
TD-4	04-03-90	46.0
Detection Limit		10

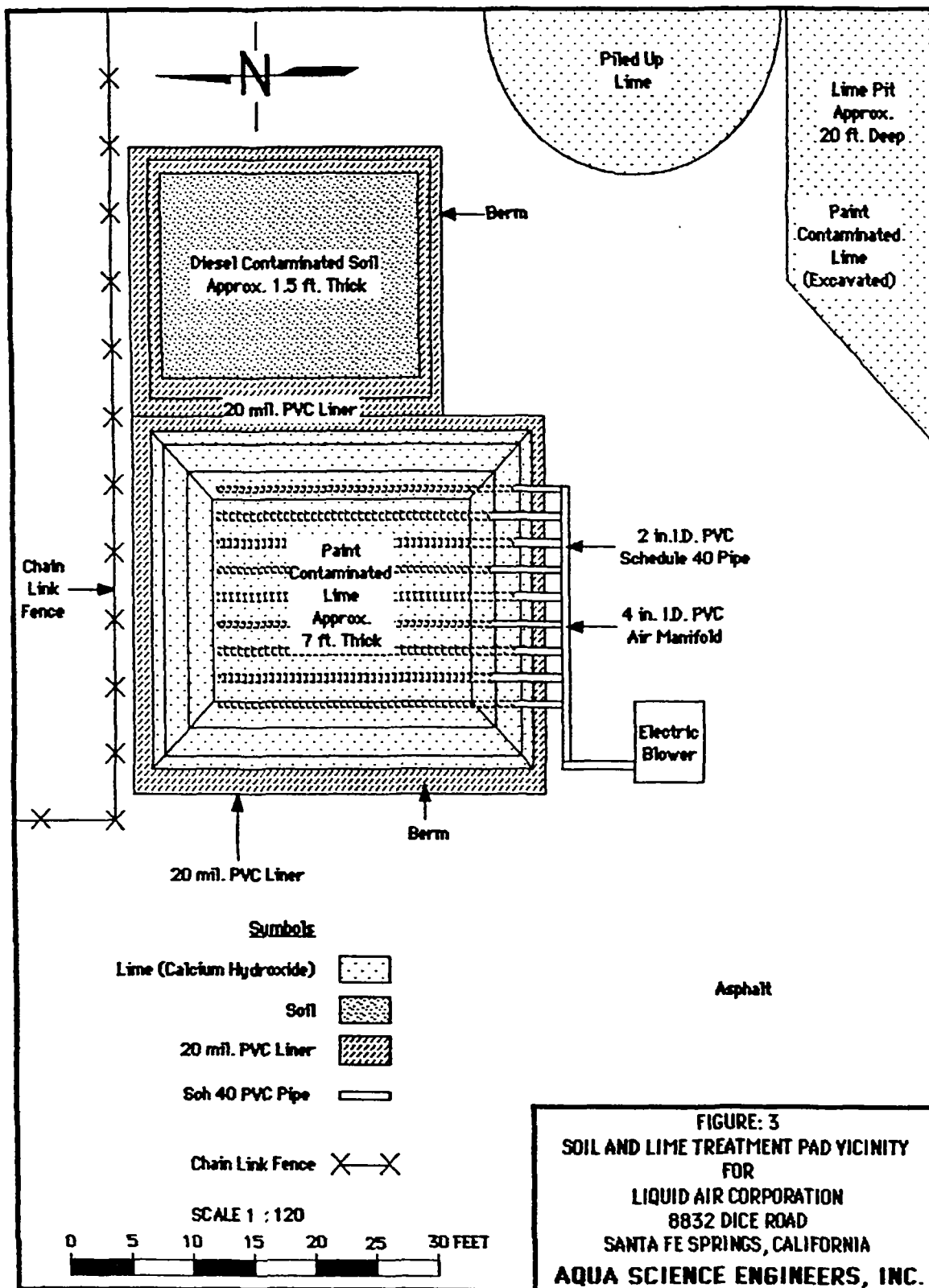


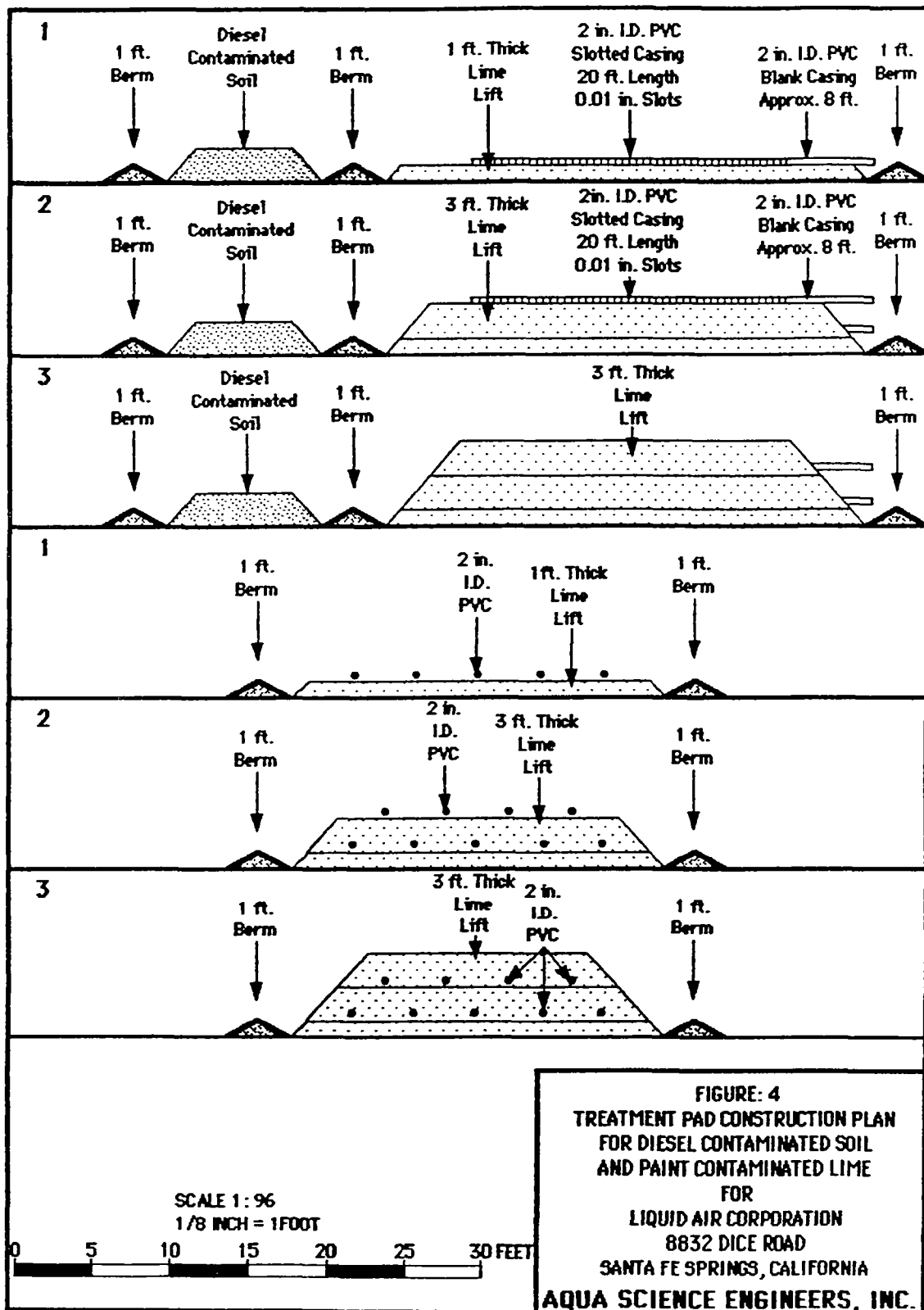
Taken From USOS 7.5 Min Series Topographical Map
Whittier Quadrangle

FIGURE 1
SITE LOCATION MAP
LIQUID AIR CORPORATION
8832 DICE ROAD
SANTA FE SPRINGS, CALIFORNIA
AQUA SCIENCE ENGINEERS, INC.



DICE 00512





APPENDIX I

NOVEMBER 2, 1988 TANK REMOVAL REPORT BY
GEORGE DEVRIES, CONSULTING GEOLOGIST

George DeVries

Consulting Geologist



4520 E Slauson Ave., Maywood, California 90270 — (213) 771-3046 / (213) 596-0467

November 2, 1988

Project No. 231-108
Closure Permit No. 4784
L.A. County File No. 225-1H

County of Los Angeles
Department of Public Works
Waste Management Division
900 S. Fremont Ave.
Alhambra, CA 91803-1331

Subject: Geotechnical Evaluation and Review
Subsurface Tank Removal
Liquid Air Corp.
8832 Dice Rd., Santa Fe Springs, CA
for Whitaker Concrete Co.

Gentlemen,

This report presents the results of a geotechnical evaluation of the subsurface storage tank removal at the referenced site and a review of the work performed, and summary data presented by Whitaker Concrete Co. (WCC). A total of four (4) tanks were removed from the site on September 21, 1988 by WCC and transported for disposal. The tanks consisted of two (2) 7500-gallon diesel fuel tanks, one (1) 6200-gallon acetone tank, and one (1) 1000-gallon waste-oil tank. A summary of the work performed is presented in the appendix. Vicinity and site maps are presented in Plates 1 & 2. Upon removal of the tanks, selected soil samples were taken from below the tanks to assess the soil and determine if any potential contamination exists. The results of laboratory testing are presented in Plate 4, while the Chain of Custody Record is presented in Plate 5. Plate 6 presents copies of the tank and waste manifests. No subsurface logging was performed.

Prior to removal of the tanks, two borings were excavated in the vicinity of the acetone tank by Combustion Engineering. The borings were sampled and laboratory testing was performed. It is

Registered Geologist

Certified Engineering Geologist

DICE 00516

understood the results of the earlier investigation was submitted to the regulatory agency and no additional analysis of that data is presented in this report. As a result of the initial borings, soil samples from below the removed acetone tank were not required in the county permit.

SITE LOCATION AND GEOLOGY

The subject site is located on the east side of Dice Rd. south of the junction with Slauson Ave. in the City of Santa Fe Springs, Los Angeles County. The present elevation is approximately 150 feet above sea level. The site consists of predominantly alluvial basin fill deposits associated with ephemeral stream deposition within the L.A. basin. The present course of the San Gabriel River is located approximately 1.3 miles to the west. The alluvial materials are generally sandy and silty in nature, though some areas contain some clay and gravel.

Analysis of subsurface ground-water contour data on file with the County of Los Angeles indicate the ground-water level in the vicinity of the site to be on the order of 70 feet below the ground surface. No water was encountered in the excavation.

SOIL SAMPLING AND EVALUATION

Selected soil samples were obtained from the earth materials below the tanks. Sample location was chosen in a manner so as to provide the most complete coverage of the subsurface materials and to provide for a more complete evaluation of potential soil contamination. Special attention was given to geological conditions which may provide for accelerated downward movement of ground water. Sample locations are depicted in Plate 2. As mentioned earlier, samples were not required from below the acetone tank due the results of earlier borings excavated at the site by Combustion Engineering.

A total of seven (7) samples were taken from the earth materials in the vicinity of the removed tanks. Two samples each were taken from below the diesel fuel tanks, one sample was taken from below the waste-oil tank, and one sample each was taken from below each one of the pumps (Plate 2). The samples from below the tanks were taken approximately two feet below the tank bottom and the samples from below the pumps were taken approximately four feet below the pumps. The samples were placed in glass jars, sealed with tape, placed in ice to chill, and transported to Certified Testing Laboratories, Inc. for laboratory analysis. The samples were tested for Total Petroleum Hydrocarbons (TPH) using EPA method 418.1. The laboratory test results and the Chain of Custody Record are presented in the appendix (Plates 4 & 5).

CONCLUSIONS

Review of the summary data presented by Whitaker Concrete Corp., Chain of Custody Record, and laboratory test results, indicate the amount of hydrocarbon contamination in some of the earth materials in the vicinity of the removed tanks to be in excess of the "action limit". The County of Los Angeles considers 100 mg/Kg to be an "action limit" where concentrations in excess of this limit may be considered contaminated. Specifically, test results from below both of the pumps indicate excess hydrocarbon contamination of the soil.

It is recommended that remedial action be taken to reduce the amount of hydrocarbon contamination in the earth materials in the vicinity of the pumps. A combination of: 1) removal and transport, and/or 2) aeration, and/or 3) biodegradation, is recommended, subject to approval by the County of Los Angeles. Sufficient data are not presently available to determine the total extent of contamination in the vicinity of the pumps and it is recommended that a site assessment be performed to determine the extent of any contamination and provide recommendations for possible remedial action at the site. Any future work is subject to approval by the Los Angeles County Department of Public Works. This work should be conducted in accordance with Federal, State, and Local regulations.

Laboratory test results from the soil below the removed tanks indicate the amount of TPH to be within the guidelines of the County of Los Angeles. No additional removal or treatment of the earth material below the removed tanks is deemed necessary.

REMARKS

This investigation was made in accordance with generally accepted geologic procedures and within the limits prescribed by the client. No other warranty, expressed or implied, is made as to the professional evaluation included in this report.

Although no significant variations in bedrock or soil conditions are anticipated, if conditions are encountered during future restoration work, and these conditions appear to be different from those disclosed by this preliminary report, this office shall be notified to consider the need for modification.

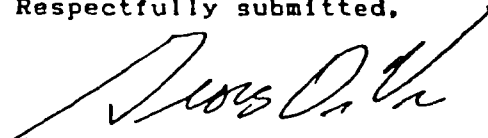
The backfill at the site was compacted using on-site equipment. While a relative degree of compaction can be obtained in this manner, the fill was not tested and does not qualify as a certified fill. Should this area be used in the future to support structural loads, steps should be taken to test and insure the competence of the fill.

It should be realized that subsurface excavations are subject to caving and may present a hazard. In this regard, all shoring and bracing, if necessary, shall conform to current standards of the Industrial Accident Commission of the State of California and other public agencies having jurisdiction.

This report is subject to review by controlling public agencies having jurisdiction.

If you have any questions, please contact this office.

Respectfully submitted,



George DeVries
Registered Geologist 3721

GD:ga

Distr: Addressee (1)
Whitaker Concrete Co. (1)
Liquid Air Corp. (1)

Attachments: Appendix A - Plates 1 thru 6

Appendix A

Vicinity Map

Site Map

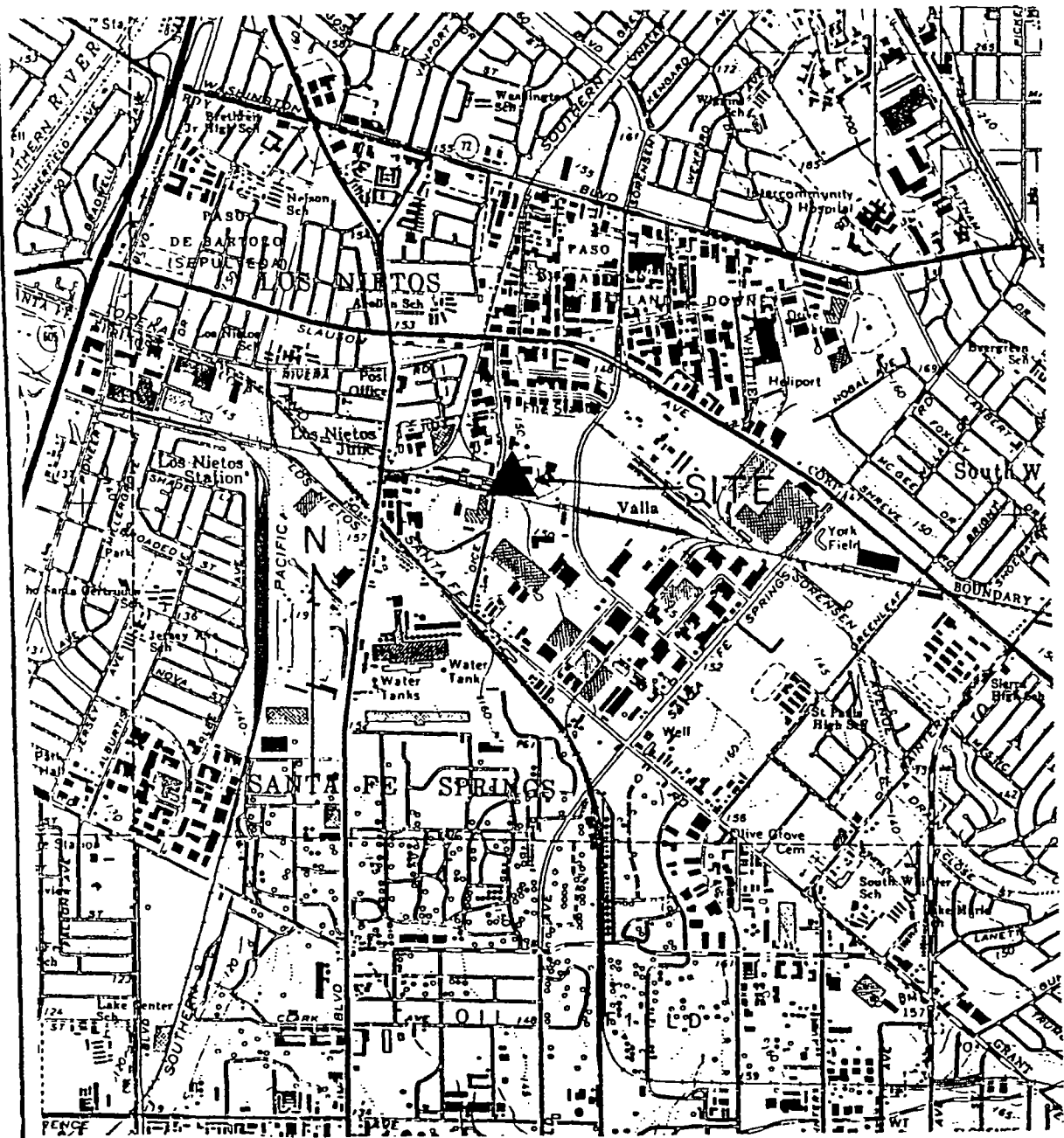
Closure Summary

Laboratory Test Results

Chain of Custody Record

Tank/Waste Manifests

VICINITY MAP



from USGS Whittier Quadrangle Map

SCALE 1:24,000

Liquid Air Corp.
8832 Dice Rd.
Santa Fe Springs, CA

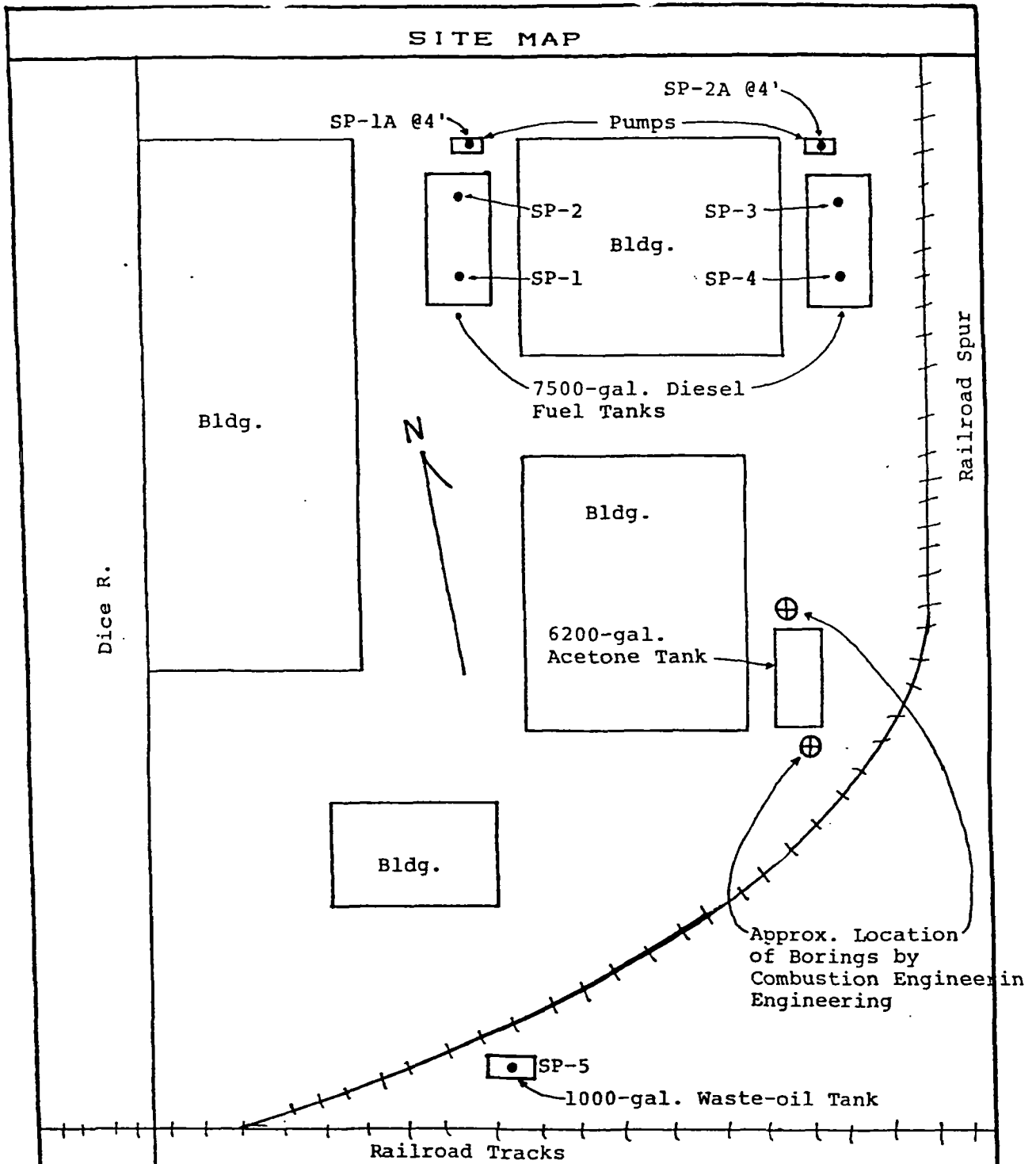
Proj. No 231-108

Plate 1

George DeVries - Consulting Geologist

DICE 00521

SITE MAP



Liquid Air Corp.
8832 Dice Rd.
Santa Fe Springs, CA

Proj. No 231-108
Plate 2

George DeVries - Consulting Geologist



Whitaker Concrete Corp.

P.O. BOX 275, LYNWOOD, CA 90262 • (213) 639-1904

October 13, 1988

George DeVries
4520 E. Slauson Ave.
Maywood, Ca. 90270

Re: Liquid Air
8832 Dice Rd.
Santa Fe Springs

Dear Mr. DeVries:

Liquid Air has requested the permanent closure of 2-7,500 diesel, 1-6,200 gallon acetone, and 1-1000 wasteoil steel tanks. The decision was based on the possibility of future tank leakage that could cause a contamination of the soil.

The necessary tank removal permits were obtained by an agent of Whitaker Concrete Corp. and signed by the proper regulatory agency. The tanks were rendered inert and removed from the site on September 21, 1988. The tanks were flushed three times and cooled with dry ice. Excavation and removal was performed by agents of WCC and observed by inspectors from the applicable regulatory agencies.

Upon removal of the tank, seven soil samples were taken from approximately two feet below the removed tanks. The samples were stored in ice and transported to Certified Testing Lab. Inc. for analysis. Chain-of Custody records were maintained to insure its traceability.

The soil samples were tested for Total Petroleum Hydrocarbons (TPH) using EPA method 418.1. Laboratory test results are attached.

The test results (see laboratory results) indicate the soil to be clear of contaminates.

Respectfully Submitted,

Sid Whitaker
Project Manager

Plate 3

"WE SAW YOU FIRST"

DICE 00523



certified testing laboratories, inc.

29. 1ST CENTURY BLVD. • SOUTH GATE, CAL. 90280 • (213) 564-2841

LABORATORY NO. 4023 REPORTED 10-09-88
CLIENT Whitaker Concrete Corp. SAMPLED
P.O. Box 275
Lynwood, CA 90262 RECEIVED 09-29-88
Attn: Syd Whitaker
SAMPLE Soil
MARKS Project name: Liquid Air - Santa Fe Springs 9/29/88
BASED ON SAMPLE As received
RESULTS

Sample ID	Total Recoverable Petroleum Hydrocarbons Method 418.1, mg/Kg
SP-1 West 4 feet	805
SP-2 East 4 feet	6,930
SP-1A	
SP-2A	

Attachment: Chain of Custody.

Note: Samples relabeled to correspond to Plate 2

Respectfully submitted,
CERTIFIED TESTING LABORATORIES, INC.

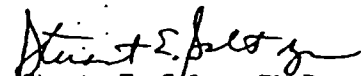

Stuart E. Salot, Ph.D.
Laboratory Director

Plate 4
(2 of 2)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from these Laboratories.

DICE 00524



certified testing laboratories, inc.

29 ST CENTURY BLVD. • SOUTH GATE, CAL 90240 • (213) 584-2841

LABORATORY NO 3922 REPORTED 09-29-88

CLIENT Whitaker Concrete Corporation
 P.O. Box 275
 Lynwood, CA 90262
 Attn: Sid Whitaker
 SAMPLED
 REPORTED 09-21-88

SAMPLE Soil

MARKS Liquid Air Corp. 9/21/88
 Location Description: 2 ft under tank

BASED ON SAMPLE As received

RESULTS	Total Recoverable Petroleum Hydrocarbons EPA 418.1, mg/Kg	Detection Limit, mg/Kg
SP-1 2:30	ND	5
SP-2 2:30	ND	5
SP-3 3:00	95	5
SP-4 3:00	ND	5
SP-5 1:00	ND	5

Attachment: Chain of custody

Respectfully submitted,
CERTIFIED TESTING LABORATORIES, INC.

Stuart E. Salof
Stuart E. Salof, Ph.D.
Laboratory Director

Plate 4
(1 of 2)

This report applies only to the sample, or samples, investigated and is not necessarily indicative of the quality or condition of apparently identical or similar products. As a mutual protection to clients, the public and these Laboratories, this report is submitted and accepted for the exclusive use of the client to whom it is addressed and upon the condition that it is not to be used, in whole or in part, in any advertising or publicity matter without prior written authorization from these Laboratories.



CERTIFIED TESTING LABORATORIES, INC.
 2905 E. CENTURY BLVD. • SOUTH GATE, CA 90280 • 213/564-2641

- AN DICKER
- ARBOR CITY
- BAKERSFIELD
- SOUTH GATE
- MOBILE LAB

MAINTENANCE UNIT
 Date 9-21-88 Page of

CLIENT WHITAKER CONCRETE Corp.
 ADDRESS 639-1904 (SID)

PROJECT MANAGER Sid Whitaker
 PHONE NUMBER

PROJECT NAME LIQUID AIR Corp

SAMPLERS: (Signature) Sid Whitaker

SAMPLE NUMBER	LOCATION DESCRIPTION	DATE	TIME	SAMPLE TYPE			NO. OF CONTAINERS	TESTS REQUIRED	
				WATER		AIR			SOLID
				Comp.	Grab.				
1	2 FT UNDER TANK	9-21-88	2:30				1	418.1	
2	2 FT UNDER TANK	11	2:30				1	418.1	
3	2 FT UNDER TANK	11	3:00				1	418.1	
4	2 FT UNDER TANK	11	3:00				1	418.1	
5	2 FT UNDER TANK	11	1:00				1	418.0	

Relinquished by: (Signature)	Received by: (Signature)	CTL will store sample for 30 days at no charge. Storage after 30 days is charged at \$10 per month per sample. Disposal requires special arrangement. Indicate the disposition of your sample. 1. Client retrieved _____ by _____ 2. Lab Disposal _____ by _____ 3. Store for _____ days by _____ 4. Other _____ by _____	Date/Time
Relinquished by: (Signature)	Received by: (Signature)		Date/Time
Relinquished by: (Signature)	Received by Mobile Laboratory for field analysis: (Signature)		Date/Time
Dispatched by: (Signature)	Date/Time	Received for Laboratory by:	Date/Time

Method of Shipment: I.E. chest
 Special Instructions:

I hereby authorize the performance of the above indicated work.
Sid Whitaker

Plate 5
(1 of 2)

DICE 00526

SOURCE: Adapted from U.S. EPA, 1985

CERTIFIED TESTING LABORATORIES, INC.
 2905 E. CENTURY BLVD. • SOUTH GATE, CA 90280 • 213/564-2641

- DIEG
- JOR CITY
- BAKERSFIELD
- SOUTH GATE
- MOBILE LAB

AIN CL...
 Date 9-29- Page 1 of 1

CLIENT Whitaker Concrete Corp.
 ADDRESS _____

PROJECT MANAGER Sid Whitaker

PHONE NUMBER 639-1904

PROJECT NAME Zig. Air - Santa Fe Spring

SAMPLERS: (Signature) Sid Whitaker

SAMPLE NUMBER	LOCATION DESCRIPTION	DATE	TIME	SAMPLE TYPE			NO. OF CONTAINERS	TESTS REQUIRED
				WATER		AIR		
				Comp.	Grab.			
1	SP-1 West 4th	9-29-88				1	418.1	
2	SP-2 East 4th	9-29-88				1	418.1	

Completed on 10/1/88

Relinquished by: (Signature) _____
 Relinquished by: (Signature) _____
 Relinquished by: (Signature) _____
 Dispatched by: (Signature) _____

Received by: (Signature) _____
 Received by: (Signature) _____
 Received by Mobile Laboratory for field analysis: (Signature) _____
 Received for Laboratory by: Naomi Humphrey

CTL will store sample for 30 days at no charge. Storage after 30 days is charged at \$10 per month per sample. Disposal requires special arrangement. Indicate the disposition of your sample.
 1. Client retrieved _____ by _____
 2. Lab Disposal _____ by _____
 3. Store for _____ days. by _____
 4. Other _____ by _____

Date/Time _____
 Date/Time _____
 Date/Time _____
 Date/Time 9-29 5:01pm

Method of Shipment: FOR chest
 Special Instructions: _____

I hereby authorize the performance of the above indicated work.
Sid Whitaker

DICE 00527

Plate 5
(2 OF 2)



2202 South Milliken Avenue
 Ontario, CA 91761
 (714) 947-2888

No. 28384

TANK DISPOSAL FORM

Date: 9-15-1988
 Job # _____
 P.O. # _____

CONTRACTOR: WHITAKER CONCRETE
 ADDRESS: PO BOX 275 LINDSEY CA 96262
 JOB SITE: LIQUID AIR CORP
 ADDRESS: 8832 DICE RD SANTA FE SPRINGS CA
 DESTINATION: A.M.R. 2202 S. Milliken Ave., Ontario, CA 91761

DATE: 7-21-88 TIME: 1:00 PROJECTED TANKS: 2-7500 1-6000 1-1000 ORDERED BY: _____ LIC NO: _____

SPECIAL INSTRUCTIONS: 2 TRUCKS
 TIME IN: 1:00
 TIME OUT: 2:00

QTY.	TANKS RECEIVED		NET TONS	TOTAL
	GALLONS	TYPE F S*		
_____	280	<input type="checkbox"/> <input type="checkbox"/>	.14	
_____	500	<input type="checkbox"/> <input type="checkbox"/>	.21	
_____	550	<input type="checkbox"/> <input type="checkbox"/>	.24	
_____	1000 - 12 fl.	<input type="checkbox"/> <input type="checkbox"/>	.44	
<input checked="" type="checkbox"/>	1000 - 6 fl.	<input type="checkbox"/> <input checked="" type="checkbox"/>	.61	.87
_____	1500	<input type="checkbox"/> <input checked="" type="checkbox"/>	.87	
_____	2000	<input type="checkbox"/> <input type="checkbox"/>	.97	
_____	2500	<input type="checkbox"/> <input type="checkbox"/>	1.14	
_____	3000	<input type="checkbox"/> <input type="checkbox"/>	1.32	
<input checked="" type="checkbox"/>	4000	<input type="checkbox"/> <input checked="" type="checkbox"/>	1.64	2.42
_____	5000	<input type="checkbox"/> <input checked="" type="checkbox"/>	2.42	
_____	6000	<input type="checkbox"/> <input type="checkbox"/>	2.84	
_____	7500	<input type="checkbox"/> <input type="checkbox"/>	3.26	
_____	8000	<input type="checkbox"/> <input type="checkbox"/>	3.44	
_____	9000	<input type="checkbox"/> <input type="checkbox"/>	3.82	
_____	10000	<input type="checkbox"/> <input type="checkbox"/>	4.33	
_____	12000	<input type="checkbox"/> <input type="checkbox"/>	4.93	

All fees incurred are per load unless specified.
 Terms are net 30 days from date of invoice.
 Contractor's signature represents acceptance
 of terms for payment, and confirms that tank
 removal complies with State laws.

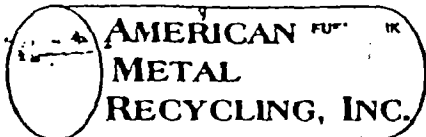
Stephen King
 CONTRACTOR'S SIGNATURE

NO. OF TANKS: 2 TOTAL NET TONS: 3.29
 *F - FIBERGLASS *S - STEEL 105

CERTIFICATE OF TANK DISPOSAL / DESTRUCTION
 THIS IS TO CERTIFY THE RECEIPT AND ACCEPTANCE OF THE TANK(S) AS SPECIFIED ABOVE. ALL MATERIALS SPECIFIED
 HAVE BEEN COMPLETELY DESTROYED FOR SCRAP PURPOSES ONLY.

M. [Signature] AUTHORIZED REP. 9-11-88 DATE

GENERATOR COPY



2202 South Milliken Avenue
 Ontario, CA 91761
 (714) 947-2888

No. 28383

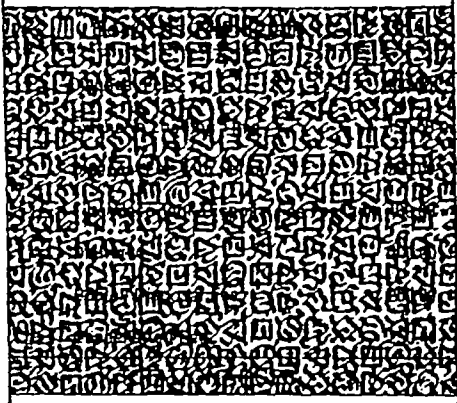
TANK DISPOSAL FORM

Date: 9-15-1988
 Job # _____
 P.O. # _____

CONTRACTOR: WHITEKER CONCRETE
 ADDRESS: PO Box 275 LYNWOOD CA 90262
 JOB SITE: LIQUID AIR CORP
 ADDRESS: 8122 DICE RD SANTA FE SPRINGS CA
 DESTINATION: A.M.R. 2202 S. Milliken Ave., Ontario, CA 91761

DATE: 9-15-88 TIME: 1:00 PROJECTED TANKS: 2-3500 1-6000 1-10000 ORDERED BY: _____ LIC. NO. 8E5

SPECIAL INSTRUCTIONS: _____
2 tanks
 TIME IN: 1:00
 TIME OUT: 3:30
TWO HOURS 30 MIN
LOADING TIME 7:15



QTY.	TANKS RECEIVED		NET TONS	TOTAL
	GALLONS	TYPE F' S'		
_____	280	<input type="checkbox"/> <input type="checkbox"/>	.14	
_____	500	<input type="checkbox"/> <input type="checkbox"/>	.21	
_____	550	<input type="checkbox"/> <input type="checkbox"/>	.24	
_____	1000 - 12 ft.	<input type="checkbox"/> <input type="checkbox"/>	.44	
_____	1000 - 6 ft.	<input type="checkbox"/> <input type="checkbox"/>	.61	
_____	1500	<input type="checkbox"/> <input type="checkbox"/>	.87	
_____	2000	<input type="checkbox"/> <input type="checkbox"/>	.97	
_____	2500	<input type="checkbox"/> <input type="checkbox"/>	1.14	
_____	3000	<input type="checkbox"/> <input type="checkbox"/>	1.32	
_____	4000	<input type="checkbox"/> <input type="checkbox"/>	1.64	
_____	5000	<input type="checkbox"/> <input type="checkbox"/>	2.42	
_____	6000	<input type="checkbox"/> <input type="checkbox"/>	2.84	
<u>2</u>	7500	<input checked="" type="checkbox"/> <input type="checkbox"/>	3.26	<u>6.52</u>
_____	8000	<input type="checkbox"/> <input type="checkbox"/>	3.44	
_____	9000	<input type="checkbox"/> <input type="checkbox"/>	3.82	
_____	10000	<input type="checkbox"/> <input type="checkbox"/>	4.33	
_____	12000	<input type="checkbox"/> <input type="checkbox"/>	4.93	

All fees incurred are per load unless specified.
 Terms are net 30 days from date of invoice.
 Contractor's signature represents acceptance
 of terms for payment, and confirms that tank
 removal complies with State laws.

[Signature]
 CONTRACTOR'S SIGNATURE

NO. OF TANKS: 2 TOTAL NET TONS: 6.52
 *F - FIBERGLASS STEEL 105

CERTIFICATE OF TANK DISPOSAL / DESTRUCTION
 THIS IS TO CERTIFY THE RECEIPT AND ACCEPTANCE OF THE TANK(S) AS SPECIFIED ABOVE. ALL MATERIALS SPECIFIED
 HAVE BEEN COMPLETELY DESTROYED FOR SCRAP PURPOSES ONLY.

[Signature] AUTHORIZED REP. 9-21-88 DATE

GENERATOR COPY

UNIFORM HAZARDOUS WASTE MANIFEST

Generator's US EPA ID No. 01A101810101219171710 Manifest Document No. 01A10181010113131512

Page 1 of 1 Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address:
Liquid Air Corporation
8832 Dice Rd. Santa Fe Springs, Ca. 90670

4. Generator's Phone (213) 945-1383

5. Transporter 1 Company Name: Roadwest Oil & Vacuum Co., Inc.

6. US EPA ID Number: 01A101810101219171710

7. Transporter 2 Company Name:

8. US EPA ID Number:

9. Designated Facility Name and Site Address:
DeMenno/Kerdoon
2000 N. Alameda Street
Compton, Ca. 90222

10. US EPA ID Number: 01A10181010113131512

A. State Manifest Document Number: **87848662**

B. State Generator's ID:

C. State Transporter's ID: **200098**

D. Transporter's Phone: **213-693-9881**

E. State Transporter's ID:

F. Transporter's Phone:

G. State Facility's ID:

H. Facility's Phone: **213-577-7100**

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers		13. Total Quantity	14. Unit	15. Waste No.
	No.	Type				Wt/Vol
a. Waste Flammable Liquid, N.O.S. UN 1993	1	11	118010	G	State: 213 EPA/Other: NONE
b. DOT-E <u>8832</u>					State: EPA/Other:
c.					State: EPA/Other:
d.					State: EPA/Other:

Additional Descriptions for Materials Listed Above:
5% GUS 10/21
95% 11/15

16. Handling Codes for Wastes Listed Above:

15. Special Handling Instructions and Additional Information:
Gloves + GOGGLES

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: **STEPHEN KING** Signature: *Stephen King* Month Day Year: **5/19/88**

Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: **TIM REES** Signature: *Tim Rees* Month Day Year: **09/21/88**

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name: _____ Signature: _____ Month Day Year: _____

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name: _____ Signature: _____ Month Day Year: _____

(1) Blue: GENERATOR SENDS THIS COPY TO DOHS WITHIN 30 DAYS INSTRUCTIONS ON THE BACK
(2) our editions are obsolete. To: P.O. Box 400, Sacramento, CA 95802

DICE 00531

GENERATOR
 WITHIN 30 DAYS
 424-1
 1-800-85-50

APPENDIX II
DECEMBER 5, 1988 SITE ASSESSMENT REPORT BY
AQUA SCIENCE ENGINEERS, INC.



So. California Field Office, 1666 Newport Blvd., #116, Costa Mesa, CA 92626
Tel 714-675-5754 • Fax 714-675-5943

December 5, 1988

PROJECT REPORT

SITE ASSESSMENT FOR DIESEL CONTAMINATION OF SOIL AT:

LIQUID AIR CORPORATION
8832 DICE ROAD
SANTA FE SPRINGS, CA

Prepared For:

Liquid Air Corporation
8832 Dice Road
Santa Fe Springs, Ca

Submitted By:

Aqua Science Engineers
1666 Newport Blvd. #166
Costa Mesa, CA 92926



So. California Field Office, 1606 Newport Blvd., #116, Costa Mesa, CA 92626
Tel 714-675-5754 • Fax 714-675-5943


December 5, 1988

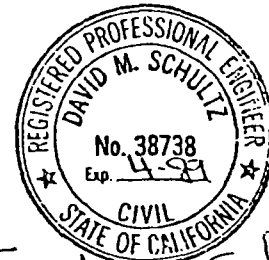
PROJECT REPORT

SITE ASSESSMENT FOR DIESEL CONTAMINATION OF SOIL AT:

LIQUID AIR CORPORATION
8832 DICE ROAD
SANTA FE SPRINGS, CA

For Aqua Science Engineers, Inc.:


Michael Mareello
Geological Operations





David M. Schultz
Vice President
Field Operations

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EXECUTIVE SUMMARY

The following is a report on the methods and findings of a site contamination assessment project conducted by Aqua Science Engineers at Liquid Air Corporation, Santa Fe Springs, California. This project is in response to hydrocarbon contamination discovered during the tank closure project conducted on September 21, 1987.

Chemical analysis of soil samples from the tank removal project indicated 805 ppm and 6,930 ppm total petroleum hydrocarbons (TPH) in soil samples collected from beneath two diesel fuel product dispensers (see George DeVrees tank closure report dated November 2, 1988). The soil samples were collected at approximately four feet below the dispensers. Soil samples collected from beneath the diesel fuel tanks indicated non-detectable levels of TPH.

On November 18, 1988 Aqua Science collected soil samples at 5, 10, 15, 20, 30 and 40 feet from each of two soils borings drilled directly adjacent to the locations of two product dispensers (Figure 1). The purpose of the bore holes were to collect soil samples to determine the extent of the hydrocarbon contamination discovered during the tank closure project. Groundwater was not encountered during drilling.

Logs of the well cuttings show that the native soils are primarily composed of silt, clayey-sandy silt, and well graded sand. The nearest LACFCD test well to the site is well #1623L which is located approximately 0.75-miles northeast of the site. The depth to groundwater from the surface, as measured in November 1987, was 58.2 feet below the ground surface. Local groundwater movement in the area is most probably southwest.

Chemical analyses of the soil samples conducted by West Coast Analytical Services, Santa Fe Springs, California, indicate 13 ppm TPH in the five-foot sample from boring #2. The laboratory analysis of the remaining samples from this boring, and from boring #1, indicate non-detectable levels of TPH by EPA method 418.1.

INVESTIGATIVE METHODS

DRILLING

The soils borings were drilled with a CME-75 truck mounted hydraulic rotary drill. Eight-inch O.D. hollow-stem continuous flight auger was used for all of the borings. A total of two borings were drilled to 40 feet below the ground surface. Locations of the borings are shown in Figure 1.

Soil samples were collected in each boring at 5, 10, 15, 20, 30 and 40 feet below the ground surface. The borings were backfilled with clean native soil after soil sample collection. Logs of the drill cuttings are shown on Figures 2 and 3.

SOIL SAMPLING

Soil samples were taken in the borings using a California split spoon sampler on November 18, 1988. The California split spoon sampler was steam cleaned before sampling and all drilling equipment was decontaminated by steam cleaning prior to drilling. The sampler was washed with a TSP and water solution between samplings.

The soil samples were collected in pre-cleaned, 2-inch by 4-inch aluminum liner tubes. The tube ends were secured with double-thickness aluminum foil and plastic end caps. The samples were placed in an ice chest with ice, and transported to West Coast Analytical Services (WCAS) in Santa Fe Springs, Ca for chemical analysis. A Chain-of-Custody form accompanied the samples to the laboratory (Appendix I).

CHEMICAL ANALYSIS

WCAS conducted the chemical analysis of the soils samples using the EPA methods shown in Table I. The soil samples were analyzed for total petroleum hydrocarbons (diesel) using modified EPA method 418.1. Values are given in ug/g (parts per million). Laboratory data sheets provided by WCAS are given in Appendix II.

RESULTS OF THE INVESTIGATION

GEOLOGY AND HYDROGEOLOGY

The bore hole locations are shown on Figure 1. An examination of the bore hole logs show that the soils to 40 feet beneath the site consist of the following: silt, clayey-sandy silt and well graded sand. The soil types encountered were classified using the Unified Soil Classification System (Appendix III).

The nearest LACFCD test well to the site is well number 1623L. The well is located approximately 0.75 miles to the northeast of the site.

The last groundwater measurement was conducted in November 1987. The depth to groundwater on that date was 58.2 feet below the ground surface.

An accurate determination of groundwater flow direction is beyond the scope of this project. However, the estimated direction of flow is southeast.

CHEMICAL ANALYSIS

The chemical analyses provided by WCAS of the soil samples from bore hole #2 indicate total petroleum hydrocarbon contamination ranging to 13 ppm in the five-foot sample. The analyses of the remaining samples from this boring were below detectable levels for EPA method 418.1; below 10 ppm. The chemical analyses of the soil samples from boring #1 indicated non-detectable levels of TPH for all samples. A summary of the laboratory data is given in Table I. The laboratory report provided by WCAS appears in Appendix II.

CONCLUSIONS

Elevated hydrocarbon concentrations were discovered in soil samples collected from beneath the two diesel product dispensers at this site. These samples were collected during the tank removal project conducted on September 21, 1988. The locations of the soil borings conducted for this project are located within five feet of the diesel product dispensers. If a significant amount of product leaked into soil at the dispensers, significant levels of soil contamination should have been indicated in the soils boring samples. However, only trace levels of TPH (13 ppm) were discovered in the five-foot sample from boring #2 (sample B2-5').

Bases on these results, significant levels of diesel contamination (if present) appear to be vertically and laterally restricted to small volumes of soil directly beneath the product dispensers. The total amount of effected soil is unknown. However, the total volume of soil containing TPH contamination above the 100 ppm action level established by Los Angeles County is expected to be small.

The suspect soil is presently located under a six-inch concrete pad which covers the entire site. Since the source of diesel contamination has been removed (product dispensers), potential vertical migration of the long-chain diesel hydrocarbons present in the soil is expected to be very limited. The potential impact of the contamination on land or groundwater use if expected to be insignificant. It is the opinion of Aqua Science Engineers that no further assessment or remediation work be required along these lines.

The results of this investigation represent conditions at the time and location at which samples were collected and for the parameters analyzed in the laboratory. It does not fully characterize the site for contamination resulting from other sources or parameters not analyzed. This report is subject to review by governing regulatory agencies.

TABLE I

Chemical Constituents	EPA Method Used in Analysis
Total Petroleum Hydrocarbons	418.1

Boring Number	Sample Designation	TPH Conc.
B-1	B1-5'	ND
	B1-10'	ND
	B1-15'	ND
	B1-20'	ND
	B1-30'	ND
	B1-40'	ND
B-2	B2-5'	13
	B2-10'	ND
	B2-15'	ND
	B2-20'	ND
	B2-30'	ND
	B2-40'	ND

* Detection level for EPA method 481.1 is 10 ug/g (ppm)
(LUFT manual, May 1988)

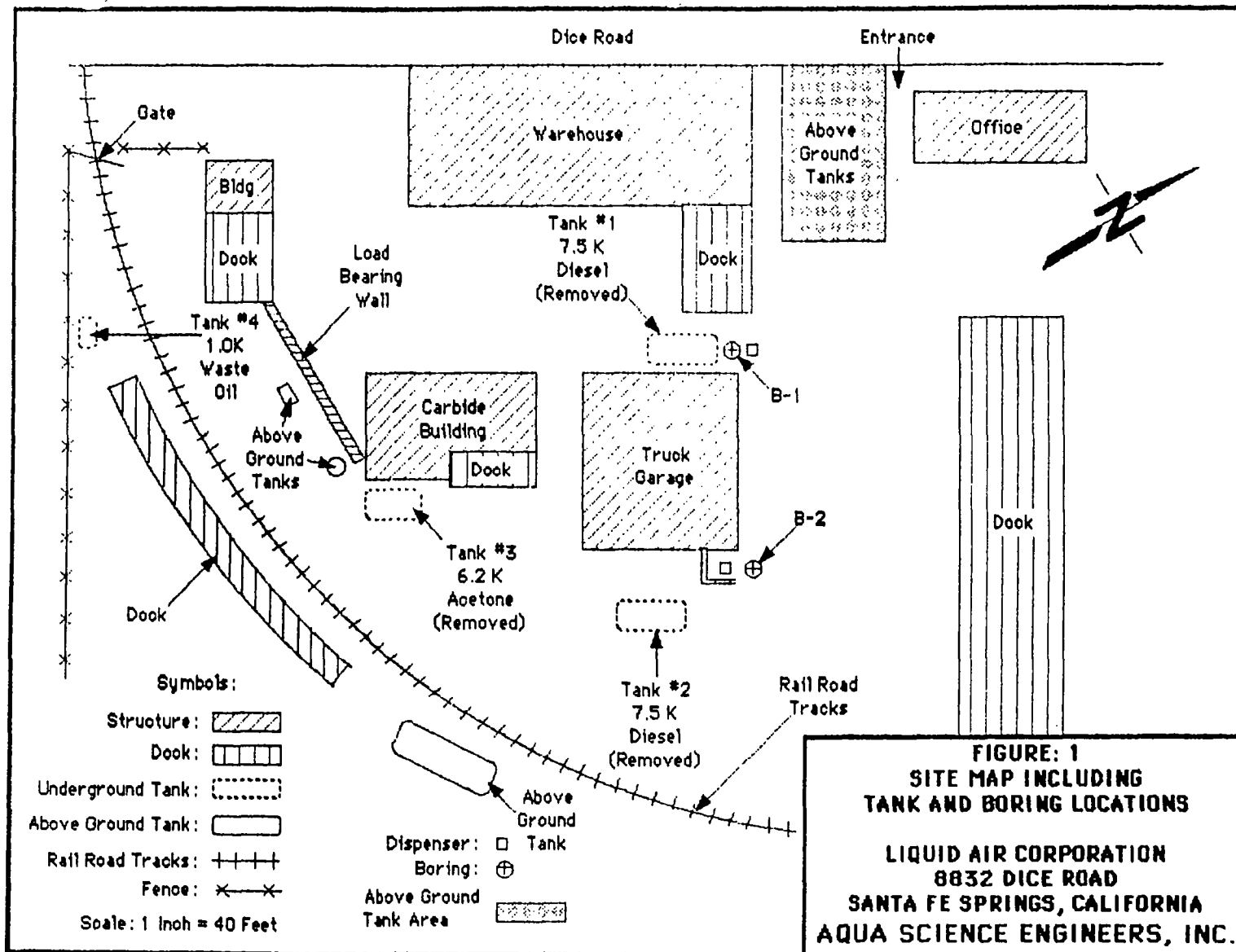
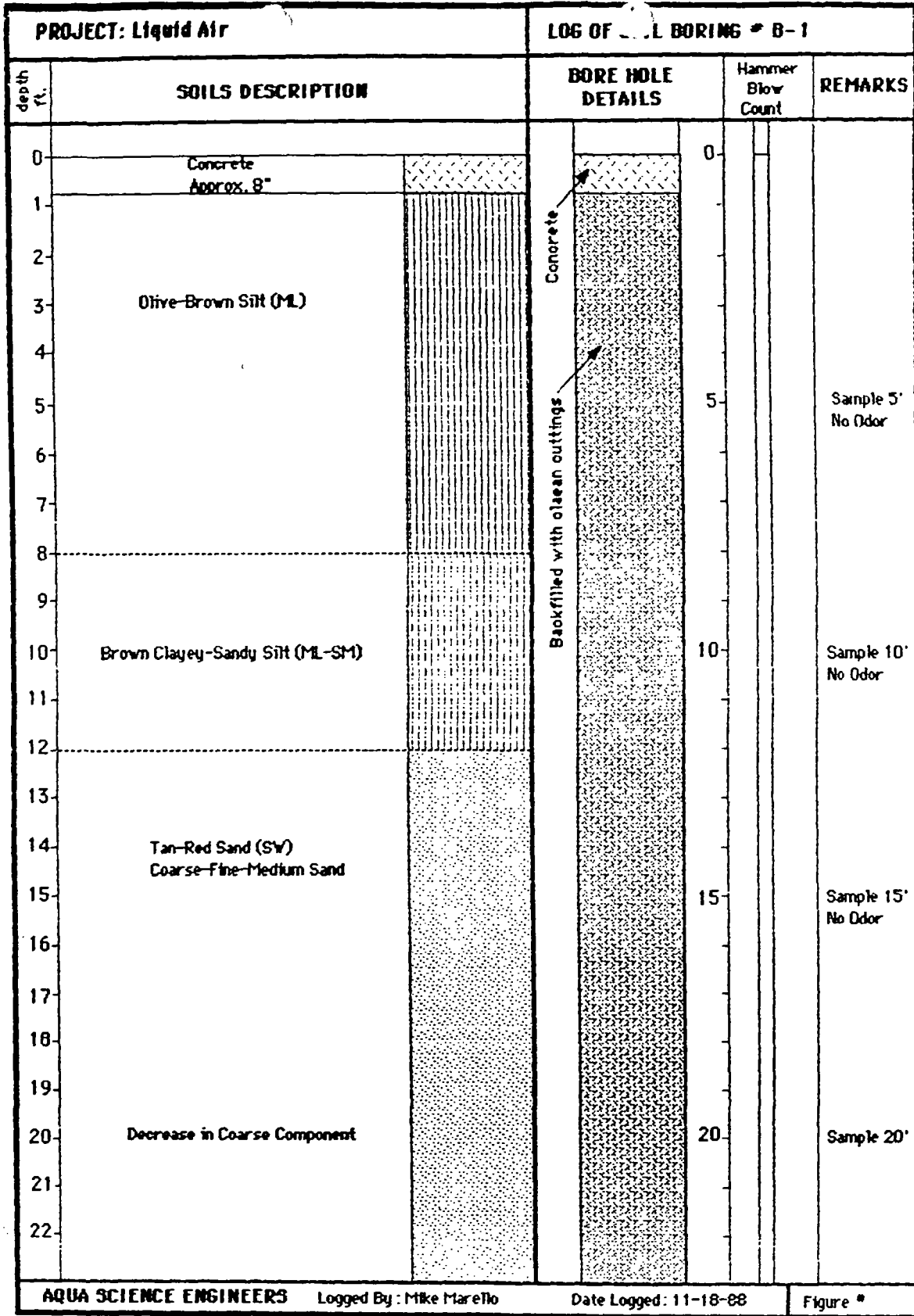


FIGURE: 1
SITE MAP INCLUDING
TANK AND BORING LOCATIONS
LIQUID AIR CORPORATION
8832 DICE ROAD
SANTA FE SPRINGS, CALIFORNIA
AQUA SCIENCE ENGINEERS, INC.

Figure 1

DICE 00540

Figure 2



AQUA SCIENCE ENGINEERS

Logged By: Mike Marella

Date Logged: 11-18-88

Figure #

Figure 2

PROJECT: Liquid Air		LOG OF SOIL BORING # D-1				
depth ft.	SOILS DESCRIPTION	BORE HOLE DETAILS		Hammer Blow Count	REMARKS	
23	Tan-Red Sand (SY) Coarse-Fine-Medium Sand			23		
24						
25	Pale-Olive Silt (ML)					
26						
27						
28				26		
29						
30						Sample 30' No Odor
31						
32						
33				33		
34						
35						
36						
37						
38				38		
39						
40	E.O.H.				Sample 40' No Odor	
41						
42						
43			43			
44						
45						

AQUA SCIENCE ENGINEERS

Logged By: Mike Marella

Date Logged: 11-18-88

Figure #

Figure 3

PROJECT: Liquid Air		LOG OF SOIL BORING # B-2			
depth ft.	SOILS DESCRIPTION	BORE HOLE DETAILS	Hammer Blow Count	REMARKS	
0	Concrete Approx. 8"	Concrete	0		
1					
2	Olive-Brown Silt (ML) Minor Clay	Backfilled with oilseam outtings			
3					
4					
5				5	Sample 5' No Odor
6					
7	Brown Clayey-Sandy Silt (ML-SM)				
8					
9					
10				10	Sample 10' No Odor
11					
12					
13	Tan-Red Sand (SW) Coarse-Fine-Medium Sand				
14					
15				15	Sample 15' No Odor
16					
17					
18					
19					
20				20	Sample 20'
21	Decrease in Coarse Component				
22					

AQUA SCIENCE ENGINEERS

Logged By: Mike Marello

Date Logged: 11-18-88

Figure #

Figure 3

PROJECT: Liquid Air		LOG OF SOIL BORING # B-2			
depth ft.	SOILS DESCRIPTION	BORE HOLE DETAILS	Hammer Blow Count	REMARKS	
23	Tan-Red Sand (SW) Coarse-Fine-Medium Sand		23		
24					
25	Pale-Olive Silt (ML)				
26					
27					
28			28		
29					
30					Sample 30' No Odor
31					
32					
33			33		
34					
35					
36					
37	Pale-Olive-Tan Silt (ML)				
38			38		
39					
40					Sample 40' No Odor
41					
42					
43			43		
44					
45					

AQUA SCIENCE ENGINEERS

Logged By: Mike Marella

Date Logged: 11-18-88

Figure #

LA0148

P.O. Box 535, San Ramon, CA 94583-0535



(415) 820-9391

Project Name: Liquid Air Site: Santa Fe Springs Date: 11-18-89 Laboratory: WCAS

Sample ID	Sample/Container Type	Analyze/ Hold	Analyze For:	Method - Detection Limit	Notes/Remarks
B1-5'	soil AL tube	A	418.1		
"1-10'					
"1-15'					
"1-20'					
"1-30'					
"1-40'					
B2-5'					
"2-10'					
"2-15'					
"2-20'					
"2-30'					
"2-40'					

S = Soil W = Water O = Other
 G = Glass BT = Brass Tube P = Plastic V = Vial Q = Other

Chain of Custody

1. Sampled by: Michael Masella
 2. Courier: _____
 3. Received by Lab: Masella
 Date: 11-18-88 Time: 1250
 4. Received in Office: Date: _____

- Collate all samples for single analysis.
- Collate and analyze two top samples and if clean, do not analyze other sample.
- Call ASE for instructions.
- See attached protocol.

Appendix I

DICE 00545

#11357

November 28, 1988

AQUA SCIENCE ENGINEERS
414 31st Street, #A
Newport Beach, CA 92663

Attn: Mike Marello

JOB NO. 11357

WCAS

**WEST COAST
ANALYTICAL
SERVICE, INC.**

ANALYTICAL CHEMISTS

A

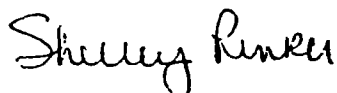
 LABORATORY REPORT

Samples Received: Twelve (12) soils
Date Received: 11-18-88
Purchase Order No: LA 0148/Liquid Air

The samples were analyzed as follows:

<u>Samples Analyzed</u>	<u>Analysis</u>	<u>Results</u>
Twelve (12) soils	Total Petroleum Hydrocarbons by EPA 418.1	Table I

Page 1 of 2



Shelley Rinker
Senior Chemist



D.J. Northington, Ph.D.
Technical Director

WEST COAST ANALYTICAL SERVICE, INC.

AQUA SCIENCE ENGINEERS
Mr. Mike MareloJob # 11357
November 28, 1988

LABORATORY REPORT

TABLE IParts Per Million (ug/g)

<u>Sample No.</u>	<u>Total Petroleum Hydrocarbons</u>
B1-5'	ND
B1-10'	ND
B1-15'	ND
B1-20'	ND
B1-30'	ND
B1-40'	ND
B2-5'	13
B2-10'	ND
B2-15'	ND
B2-20'	ND
B2-30'	ND
B2-40'	ND
Detection Limit	10

ND-Not Detected

Date Analyzed: 11-23-88

SOIL CLASSIFICATION SYSTEM			MAJOR DIVISIONS	TYPICAL NAMES	
COARSE GRAINED SOILS MORE THAN HALF IS LARGER THAN #200 SIEVE	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE SIZE	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW	WELL GRADED GRAVELS, GRAVEL - SAND MIXTURES	
			GP	POORLY GRADED GRAVELS, GRAVEL, GRAVEL - SAND MIXTURES	
		GRAVELS WITH OVER 12% FINES	GM	SILTY GRAVELS, POORLY GRADED GRAVEL - SAND - SILT MIXTURES	
			GC	CLAYEY GRAVELS, POORLY GRADED GRAVEL - SAND - CLAY MIXTURES	
	SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	CLEAN SANDS WITH LITTLE OR NO FINES	SW	WELL GRADED SANDS, GRAVELLY SANDS	
			SP	POORLY GRADED SANDS, GRAVELLY SANDS	
		SANDS WITH OVER 12% FINES	SM	SILTY SANDS, POORLY GRADED SAND - SILT MIXTURES	
			SC	CLAYEY SANDS, POORLY GRADED SAND - CLAY MIXTURES	
	FINE GRAINED SOILS MORE THAN HALF IS SMALLER THAN #200 SIEVE	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR, CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			OL	ORGANIC CLAYS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50			MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS	
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS	
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS	
HIGHLY ORGANIC SOILS			PT	PEAT AND OTHER HIGHLY ORGANIC SOILS	

APPENDIX III

**CHEMICAL ANALYSIS REPORT FOR CONTAMINATED LIME
INVESTIGATION PROVIDED BY IT CORPORATION**



ANALYTICAL SERVICES



17605 Fabrica Way • Cerritos, California 90701 • 213-921-9831 / 714-523-9200

EXHIBIT B (1 of 3)

CERTIFICATE OF ANALYSIS

Prepared for: IT Corporation
336 West Anaheim Street
Wilmington, CA 90744

Date: March 31, 1988

Attn: Travis Hunt

Date Received: March 29, 1988

P.O. Number 202596
Liquid Air Corp.

Job Number 45658/1h
Page 1

One (1) soil sample labeled: "74"

The sample was analyzed for volatile organic contaminants using combined gas chromatography-mass spectrometry according to a modified EPA Method 8240, purge and trap. Results for compounds on the EPA Hazardous Substances List (HSL) are given on the enclosed summary sheet. Additional non-HSL volatile organic compounds found are listed in Table I.

The sample was also analyzed for pH using EPA method 9045 and sulfide using EPA method 9030. The results are listed in Table II.

I certify that this report truly represents the finding of work performed by me or under my direct supervision.

Mary Hammons
Mary Hammons
Group Leader

Reviewed and Approved

Ken Faust
Ken Faust
Technical Director

Accredited by the American Industrial Hygiene Association

IT - Wilmington
Travis Hunt

EXHIBIT B (2 of 3)

Job# 4565
Page :

Table I

<u>Sample</u>	<u>Non-HSL</u> <u>Volatile Organic Compound</u>	<u>ug/kg</u>
#4	Trimethylcyclopentane	6
	Hexanal	30
	Dimethylcyclohexaneisomers	5
	Trimethylcyclohexane	5
	Unknown alkane	10
	Unknown hydrocarbon	20
	Unknown	100

Table II

<u>Parameter</u>	
pH	12.5
	<u>Milligrams per kilogram</u>
Sulfide	59

[Signature]

10/11/88

IT - Wilmington
Travis Hunt

EXHIBIT B (3 of 3)

Job# 45658

Page 3

Volatile Organic Compounds
(Micrograms Per Kilogram)

<u>Compound</u>	<u>Detection Limit</u>	<u>#4</u>
Chloromethane	10	ND
Bromomethane	10	ND
Vinyl chloride	10	ND
Chloroethane	10	ND
Dichloromethane (methylene chloride)	5	ND
Acetone	5	ND
1,1-Dichloroethane	5	55
1,1-Dichloroethylene	5	ND
1,1-Dichloroethane	5	ND
trans-1,2-Dichloroethene	5	ND
Chloroform	5	ND
1,2-Dichloroethane	5	ND
Methyl ethyl Ketone (2-Butanone)	10	46
1,1,1-Trichloroethane	5	49
Carbon tetrachloride	5	ND
Vinyl acetate	10	ND
Bromodichloromethane	5	ND
1,2-Dichloropropane	5	ND
trans-1,3-Dichloropropene	5	ND
Trichloroethene	5	ND
Chlorodibromomethane	5	ND
1,1,2-Trichloroethane	5	ND
Benzene	5	ND
cis-1,3-Dichloropropene	5	ND
2-Chloroethyl vinyl ether	10	ND
Tribromomethane, (Bromoform)	5	ND
2-Hexanone	10	ND
4-Methyl-2-pentanone	10	ND
Tetrachloroethene	5	ND
1,1,2,2-Tetrachloroethane	5	ND
Toluene	5	86
Chlorobenzene	5	ND
Ethyl benzene	5	TR
Styrene	5	ND
Xylene (1021)	5	30
Acrolein	20	ND
Acrylonitrile	5	ND
Dichlorobenzenes	5	ND

ND - This compound was not detected; the limit of detection for this analysis is less than amount stated in the table above.

Approva V. J. K. A. W. | 4-11-88 |

APPENDIX IV

WORKPLAN FOR REMEDIATION OF DIESEL CONTAMINATED SOIL
AND PAINT RESIDUE CONTAMINATED LIME BY
AQUA SCIENCE ENGINEERS, INC.



COPY

So. California Field Office, 414 - 31st Street, Unit A, Newport Beach, CA 92661
Tel 714-675-5754 • Fax 714-675-5943

July 20, 1989

Mr. David Esfundi
County of Los Angeles
Department of Public Works
Waste Management Division
900 South Fremont Avenue
Alhambra, Ca 91803-5100

RE: Excavation and Remediation of Contaminated Soil at:

Liquid Air Corporation
8832 South Dice Road
Santa Fe Springs, Ca

CLADPW File No. WM-1, I-255-1H

Dear Mr. Esfundi:

The following workplan has been prepared for excavation and remediation of contaminated soil at Liquid Air Corp., Santa Fe Springs California. The workplan is required in your letter to Mr. David Simon of Liquid Air Corp., dated March 13, 1989 (Appendix I). Item 15 checked on you letter requests information regarding future uses of the area related to the contamination. Liquid Air has indicated the effected area will not change from current usage as a hydrated lime settling pit. The entire area occupied by Liquid Air will continue to be used as a manufacturing plant for industrial gases.

Item 16 checked in your letter indicates a health and safety plan prepared by a Certified Industrial Hyginist is required. A health and safety plan has been prepared by Mr. Brian P. Daily, CIH, of Envirohealth Inc., for this project and is included in Appendix II. Item 16 of your letter has also indicated a permit may be required prior to excavation of contaminated soil from the South Coast Air Quality Management Disrtict (SCAQMD) under Rule 1166. As indicated in our letter to Mr. Bill Thompson of SCAQMD (Appendix III), diesel fuel is exempt from Rule 1166 and does not require a permit for excavation. In addition to this, the total concentration levels of volatile organic carbon (VOC) in the contamiated hydrated lime is less than 10 ppm. Therefore, VOC levels in the atmosphere directly above the excavation will not reach 50 ppm, which is the level requiring implimentation of SCAQMD Rule 1166. Excavation of this material is also exempt. However, as indicated in our letter to the SCAQMD, the soil will be monitored during excavation by GC/PID. If VOC levels reach or exceed 50 ppm, the excavation will cease and requirements of Rule 1166 will be applied.

DICE 00554

Liquid Air Corporation would like to begin this project as soon as possible. Space has been made available for on-site treatment to begin immediately. The planned date to begin soil excavation is July 28, 1989.

Scope of Work

The scope of work will include excavation and remediation of approximately 10 cubic yards of diesel contaminated soil having total petroleum hydrocarbon concentrations ranging to 6,930 parts per million (ppm) (Figure 1). And, excavation, neutralization and remediation of approximately 100 cubic yards of a soil and calcium hydroxide (hydrated lime) mixture which is contaminated with various solvents (Appendix IV). The solvents are:

- 1) Hexanol
- 2) Acetone
- 3) Carbon disulfide
- 4) Methyl ethyl Keytone (MEK)
- 5) 1,1,1-Trichloroethane
- 6) Toluene
- 7) Xylene

The total concentrations of these chemicals in the soil and calcium hydroxide mixture is very low; less than 10 ppm total voalatile organics (solvents) (Appendix IV).

Soil samples will be collected a the bottoms and sides of the excavations during and after soil removal to confirm complete removal of significant contamination. The soil samples in the area of diesel contamination will be analyzed for total petroleum hydrocarbons using modified EPA method 8015 (for diesel fuel). The soil samples in the area of solvent contamination will be analyzed for those chemicals described above.

The excavated soil and calcium hydroxide mixture will be neutralized prior to remediation. The present pH of the soil mixture is 12.5. The soil mixture will be neutralized by application of a sulfuric acid and water solution having an pH of 3. The sulfuric acid solution will be applied by low-mist coarse spray after excavation. The resultant product will be a neutral mixture of solvent contaminated soil and CaSO (an inert mineral). This soil mixture will then be combined with the diesel contaminated soil and placed in treatment area note in Figure 1. The treatment area is approximatley 1,000 square feet in area. The treatment area will be covered with a bermed 20ml PVC liner prior to placement of soil.

The hydrocarbon contaminated soil will be treated using enhanced bio-remediation. Limiting bacterial nutrients (nitrogen, phosphorous and potassium) will be mixed into a water solution and continuously sprayed onto the contaminated soil to generate a bacterial sludge which will digest hydrocarbons in the soil. Once treated, the soil will be used as fill material onsite. Samples of the treated soil will be collected and analyzed by a California DOHS Certified

Laboratory to confirm the remediation process is complete. Target levels for contamination in the treated soil is less than 100 ppm diesel fuel, and non-detectable solvent concentrations. A complete report will be provided to your department upon completion of the project.

Names, Addresses and Telephone No's of Key Personnel

Aqua Science Engineers:

Project Supervisor: David M. Schultz (P.E., Vice President)
251 Lugonia
Newport Beach, CA 92663

Project Manager: Henry Nakayama (Chemical Engineer)
10601 Frances Avenue
Garden Grove, Ca 92643

Work Team Members: Alex Martinez
2534 W. Occidnetal
Santa Ana, CA 92701

Brad Mann
8792 DeVille
Huntington Beach, CA 92627

If you have any questions, please contact Mr. David Schultz at (714) 675-5754.

Sincerely,

Aqua Science Engineers, Inc.



Michael Mareello
Geological Operations

cc: Mr. David Simon, Liquid Air Corporation

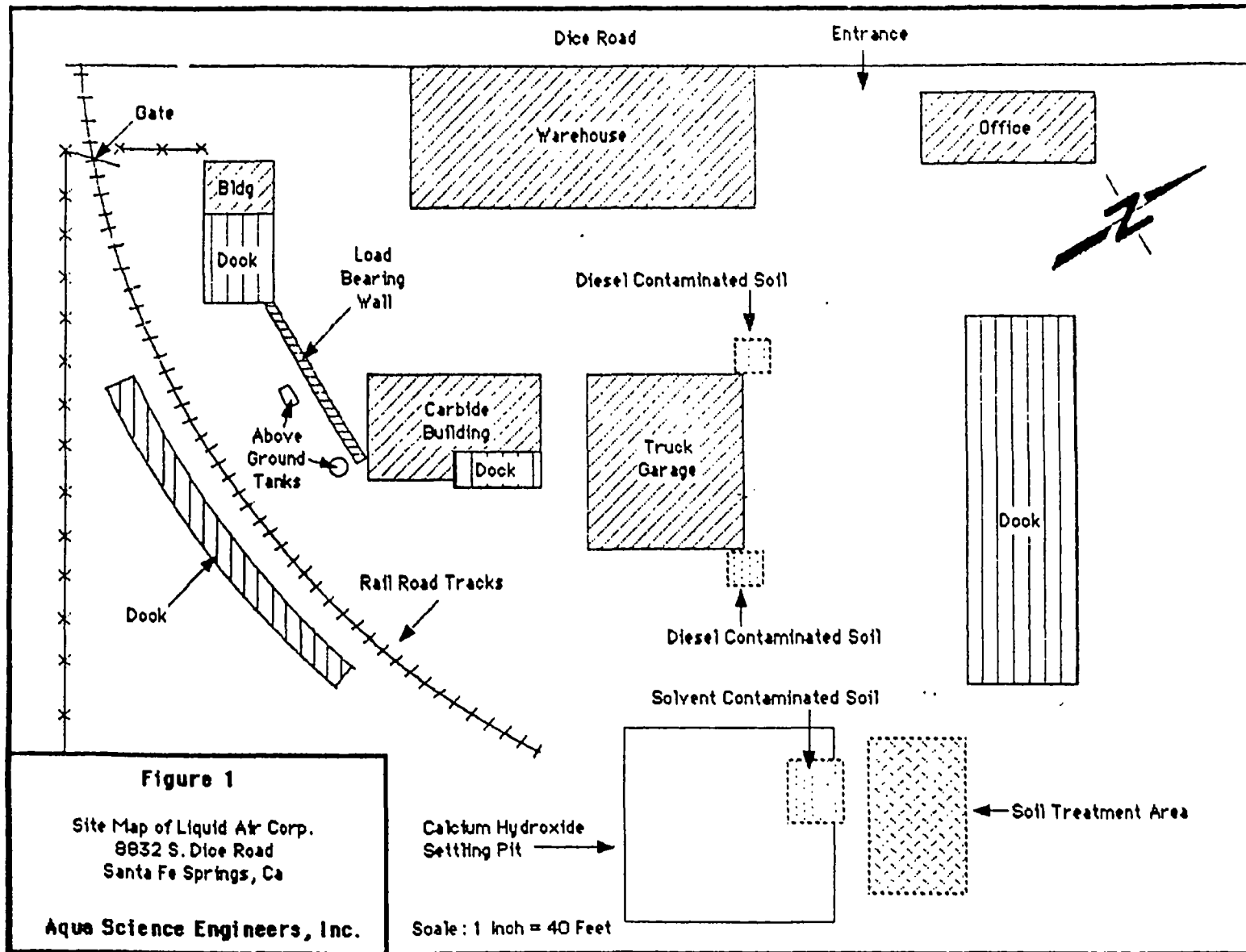


Figure 1
 Site Map of Liquid Air Corp.
 8832 S. Dice Road
 Santa Fe Springs, Ca
 Aqua Science Engineers, Inc.

Calcium Hydroxide
 Settling Pit →
 Scale: 1 inch = 40 Feet

DICE 00557

APPENDIX V

**CHEMICAL ANALYSIS REPORTS FOR SOIL SAMPLES COLLECTED
FROM BELOW DIESEL DISPENSER LOCATIONS AFTER EXCAVATION
AND REMOVAL OF CONTAMINATED MATERIAL**

August 31, 1989

AQUA SCIENCE ENGINEERS
414 31st Street, #A
Newport Beach, CA 92661

Attn: Henry Nakayama

JOB NO. 13569

WCAS

**WEST COAST
ANALYTICAL
SERVICE, INC.**

ANALYTICAL CHEMISTS

LABORATORY REPORT

Samples Received: Twelve (12) soils
Date Received: 8-29-89
Purchase Order No: LA 0249/Liquid Air

The samples were analyzed as follows:

<u>Samples Analyzed</u>	<u>Analysis</u>	<u>Results</u>
Twelve (12) soils	Total Petroleum Hydrocarbons by EPA 418.1	Table I

Page 1 of 2

B. Michael Hovanec

B. Michael Hovanec
Senior Staff Chemist

D.J. Northington

D.J. Northington, Ph.D.
Technical Director

WEST COAST ANALYTICAL SERVICE, INC.

AQUA SCIENCE ENGINEERS
Mr. Henry Nakayama

Job # 13569
August 31, 1989

LABORATORY REPORT

TABLE I

Parts Per Million (mg/Kg)

<u>Sample No.</u>	<u>Total Petroleum Hydrocarbons</u>
LA-1-BA (W)	53
LA-1-BB (E)	33
LA-1-E	ND
LA-1-N	34
LA-1-S	ND
LA-1-W	ND
LA-2-BA (S)	ND
LA-2-BB (N)	920
LA-2-E	3200
LA-2-N	170
LA-2-S	2300
LA-2-W	ND
Detection Limit	10
ND-Not Detected	

Date Analyzed: 8-30-89

LA0249

P.O. Box 535, San Ramon, CA 94583-0535



(415) 820-9391

Project Name: Liquid Air Site: Santa Fe Springs Date: Aug. 29 Laboratory: WCAS

Sample ID	Sample/Container Type	Analyze/ Hold	Analyze For:	Method - Detection Limit	Notes/Remarks
✓ LA-1-N.	BOE Jars	A	TPH diesel	EPA 418.1	
✓ LA-1-S.	↓	↓	↓	↓	
✓ LA-1-E.	↓	↓	↓	↓	
✓ LA-1-W.	↓	↓	↓	↓	
✓ LA-1-BA(W)	↓	↓	↓	↓	
✓ LA-1-BB(E)	↓	↓	↓	↓	
✓ LA-2-N.	2" rings	↓	↓	↓	
✓ LA-2-S.	↓	↓	↓	↓	
✓ LA-2-E.	↓	↓	↓	↓	
✓ LA-2-W.	↓	↓	↓	↓	
✓ LA-2-BA(S)	BOE Jars	↓	↓	↓	
✓ LA-2-BB(W)	↓	↓	↓	↓	

S = Soil W = Water O = Other
 G = Glass BT = Brass Tube P = Plastic V = Vial Q = Other

Chain of Custody

1. Sampled by: Henry Makgana Received by Lab: April Richards
 2. Courier: _____ Date: 8/29/89 Time: 3:15 pm
 3. Received in Office: Date: _____

- Collate all samples for single analysis.
- Collate and analyze two top samples and if clean, do not analyze other sample.
- Call ASE for instructions.
- See attached protocol.

DICE 00561

Enseco - CRL / South Coast

7440 Lincoln Way • Garden Grove, CA 92641
(714) 898-6370 • (213) 598-0458 • (800) LAB-1-CRL
FAX: (714) 891-5917

Laboratory Report

AQUA SCIENCE ENGINEERS, INC.
17895 SKYPARK CIRCLE, SUITE E
IRVINE, CA 92714
ATTN: MR. MIKE MARELLO

Analysis No.: G-8931123-007/012
Date Sampled: 6-NOV-1989
Date Sample Rec'd: 7-NOV-1989
Date Analyzed: 13-NOV-1989
Sample Type: SOLID

Project: LIQUID AIR - SANTA FE SPRINGS

Sample ID	TPH Recoverable mg/kg EPA 418.1
LA-2-N2	8.
LA-2-S2	10.
LA-2-E2	7.
LA-2-BB (N-2)	8.
TD-1,2 COMPOSITE	280.
TD-3,4 COMPOSITE	870.
Blank	ND(1)

Enseco - CRL / South Coast

7440 Lincoln Way • Garden Grove, CA 92641
 (714) 898-6370 • (213) 598-0458 • (800) LAB-1-CRL
 FAX: (714) 891-5917

Laboratory Report

AQUA SCIENCE ENGINEERS, INC.
 17895 SKYPARK CIRCLE, SUITE E
 IRVINE, CA 92714
 ATTN: MR. MIKE MARELLO

Analysis No.: G-8931123-001
 Date Sampled: 6-NOV-1989
 Date Sample Rec'd: 7-NOV-1989
 Date Analyzed: 14-NOV-1989
 Sample Type: SOLID

Project: LIQUID AIR - SANTA FE SPRINGS
 Sample ID: LE-1

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	380.	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	25.	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	7.	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

LA0275

DICE 00564

17895 Sky Park Circle Suite E
Irvine CA 92626



(714) 833-3667

Project Name: Liquid Air Site: San Jose, CA Date Sampled: 11-7-89 Laboratory: Environmental Lab.

Sample ID	Sample/Container Type	Analyze/hold	Analyze For:	Method - Detection Limit	Notes/Remarks
TL-1	Lime/Tube	↓			Composite TL-1
TL-2	↓	↓		624	
TL-3	↓	↓			
TL-4	↓	↓		624	Composite TL-4
TL-5	↓	↓			
TL-6	↓	↓		624	Composite TL-6
TL-7	↓	↓			
LA-1 (S)	Soil/Tube	↓		110.1	
LA-2 (S)	↓	↓		110.1	
LA-3 (S)	↓	↓		110.1	
LA-4 (S) (N-2)	↓	↓		110.1	

S = Soil W = Water O = Other
G = Glass BI = Brass Tube P = Plastic Y = Vial D = Other

Chain of Custody

1. Sampled by: [Signature]
 2. Courier: [Signature] 5:00
 3. Received by Lab: [Signature]
 Date: 11-7-89 Time: 1435
 4. Received in Office: Date: _____

- Collate all samples for single analysis.
- Collate and analyze two top samples and if clean, do not analyze other sample.
- Call ASE for instructions.
- See attached protocol.

56027

[Signature]

Enseco - CRL / South Coast

7440 Lincoln Way • Garden Grove, CA 92641
(714) 898-6370 • (213) 598-0458 • (800) LAB-1-CRL
FAX: (714) 891-5917

November 17, 1989

AQUA SCIENCE ENGINEERS
17895 SKYPARK CIRCLE, SUITE E
IRVINE, CA 92714
ATTN: MR. MIKE MARELLO

Analysis No.: G-8931123-001/016
Date Sampled: 6-NOV-1989
Date Sample Rec'd: 7-NOV-1989
Project: LIQUID AIR-SANTA FE SPRINGS


Enclosed with this letter is the report on the chemical and physical analyses on the samples from ANALYSIS NO: G-8931123-001/016 shown above.

The samples were received by CRL in a chilled state, intact and with the chain-of-custody record attached.

Please note that ND() means not detected at the detection limit expressed within the parentheses.

Solid samples are reported on "as received" basis.


Reviewed


Approved

APPENDIX VI

CHEMICAL ANALYSIS REPORT FOR LIME SAMPLES COLLECTED
FROM THE NORTHWEST CORNER OF THE LIME PIT AFTER
EXCAVATION AND REMOVAL OF CONTAMINATED MATERIAL

Enseco - CRL / South Coast

7440 Lincoln Way • Garden Grove, CA 92641
 (714) 898-6370 • (213) 598-0458 • (800) LAB-1-CRL
 FAX: (714) 891-5917

Laboratory Report

AQUA SCIENCE ENGINEERS, INC.
 17895 SKYPARK CIRCLE, SUITE E
 IRVINE, CA 92714
 ATTN: MR. MIKE MARELLO

Analysis No.: G-8931123-002
 Date Sampled: 6-NOV-1989
 Date Sample Rec'd: 7-NOV-1989
 Date Analyzed: 14-NOV-1989
 Sample Type: SOLID

Project: LIQUID AIR - SANTA FE SPRINGS
 Sample ID: LE-2

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	130.	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	11.	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	5.	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

Enseco - CRL / South Coast

7440 Lincoln Way • Garden Grove, CA 92641
 (714) 896-6370 • (213) 593-0458 • (800) LAB-1-CRL
 FAX: (714) 891-5917

Laboratory Report

AQUA SCIENCE ENGINEERS, INC.
 17895 SKYPARK CIRCLE, SUITE E
 IRVINE, CA 92714
 ATTN: MR. MIKE MARELLO

Analysis No.: G-8931123-003
 Date Sampled: 6-NOV-1989
 Date Sample Rec'd: 7-NOV-1989
 Date Analyzed: 14-NOV-1989
 Sample Type: SOLID

Project: LIQUID AIR - SANTA FE SPRINGS
 Sample ID: LE-3

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	25.*	ND	5
Acetone	76.	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	24.	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	15.	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

*The analytical results for Methylene Chloride should not be considered reliable unless the concentration in the sample exceeds five times the detection limit.

Enseco - CRL / South Coast

7440 Lincoln Way • Garden Grove, CA 92641
 (714) 898-6370 • (213) 598-0456 • (800) LAB-1-CRL
 FAX: (714) 891-5917

Laboratory Report

AQUA SCIENCE ENGINEERS, INC.
 17895 SKYPARK CIRCLE, SUITE E
 IRVINE, CA 92714
 ATTN: MR. MIKE MARELLO

Analysis No.: G-8931123-004
 Date Sampled: 6-NOV-1989
 Date Sample Rec'd: 7-NOV-1989
 Date Analyzed: 14-NOV-1989
 Sample Type: SOLID

Project: LIQUID AIR - SANTA FE SPRINGS
 Sample ID: LE-4

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	39.*	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	11.	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

*The analytical results for Acetone should not be considered reliable unless the concentration in the sample exceeds five times the detection limit

Enseco - CRL / South Coast

7440 Lincoln Way • Garden Grove, CA 92641
 (714) 898-6370 • (213) 598-0458 • (800) LAB-1-CRL
 FAX: (714) 891-5917

Laboratory Report

AQUA SCIENCE ENGINEERS, INC.
 17895 SKYPARK CIRCLE, SUITE E
 IRVINE, CA 92714
 ATTN: MR. MIKE MARELLO

Analysis No.: G-8931123-005
 Date Sampled: 6-NOV-1989
 Date Sample Rec'd: 7-NOV-1989
 Date Analyzed: 16-NOV-1989
 Sample Type: SOLID

Project: LIQUID AIR - SANTA FE SPRINGS
 Sample ID: LE-5

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit**
Chloromethane	ND	ND	50
Bromomethane	ND	ND	50
Vinyl Chloride	ND	ND	50
Chloroethane	ND	ND	50
Methylene Chloride	ND	ND	20
Acetone	100.*	ND	50
Carbon Disulfide	ND	ND	20
1,1-Dichloroethene	ND	ND	20
1,1-Dichloroethane	ND	ND	20
trans-1,2-Dichloroethene	ND	ND	20
Chloroform	ND	ND	20
1,2-Dichloroethane	ND	ND	20
2-Butanone	53.	ND	50
1,1,1-Trichloroethane	ND	ND	20
Carbon Tetrachloride	ND	ND	20
Vinyl Acetate	ND	ND	50
Bromodichloromethane	ND	ND	20
1,2-Dichloropropane	ND	ND	20
trans-1,3-Dichloropropene	ND	ND	20
Trichloroethene	ND	ND	20
Dibromochloromethane	ND	ND	20
1,1,2-Trichloroethane	ND	ND	20
Benzene	ND	ND	20
cis-1,3-Dichloropropene	ND	ND	20
2-Chloroethylvinyl ether	ND	ND	50
Bromoform	ND	ND	20
4-Methyl-2-pentanone	ND	ND	50
2-Hexanone	ND	ND	50
Tetrachloroethene	ND	ND	20
1,1,2,2-Tetrachloroethane	ND	ND	20
Toluene	ND	ND	20
Chlorobenzene	ND	ND	20
Ethylbenzene	ND	ND	20
Styrene	ND	ND	20
Xylenes, Total	ND	ND	20

*The analytical results for Acetone should not be considered reliable unless the concentration in the sample exceeds five times the detection limit.

**Higher detection limits due to sample matrix.

Enseco - CRL / South Coast

7440 Lincoln Way • Garden Grove, CA 92641
 (714) 898-6370 • (213) 595-0458 • (500) LAB-1-CRL
 FAX: (714) 891-5917

Laboratory Report

AQUA SCIENCE ENGINEERS, INC.
 17895 SKYPARK CIRCLE, SUITE E
 IRVINE, CA 92714
 ATTN: MR. MIKE MARELLO

Analysis No.: G-8931123-006
 Date Sampled: 6-NOV-1989
 Date Sample Rec'd: 7-NOV-1989
 Date Analyzed: 14-NOV-1989
 Sample Type: SOLID

Project: LIQUID AIR - SANTA FE SPRINGS
 Sample ID: LE-6

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	100.	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	24.	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	7.	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

4/21/89

LA0274

DICE 00572

17895 Sky Park Circle Suite E
Irvine CA 92626



(714) 833-3667

Project Name: Industrial Area Site: Industrial Area Date Sampled 11-6-89 Laboratory: Environ/CAL

Sample ID	Sample/Container Type	Analyze/hold	Analyze For:	Method - Detection Limit	Notes/Remarks
TL-1	Soil Tube	↓		624 (10) <u>per Mike Marchio 1/2/89</u>	
TL-2	↓	↓		↓	
TL-3	↓	↓		↓	
TL-4	↓	↓		↓	
TL-1	Soil Tube		TL-1 →	624	Composite TL-1, 2, 3, 4
TL-2	↓				
TL-3	↓		TL-3 →	624	Composite TL-2, 3, 4
TL-4	↓				
TL-1	Soil Tube				Composite TL-1, 2, 3, 4
TL-2	↓				
TL-3	↓				
TL-4	↓				

S • Soil W • Water O • Other
G • Glass BI • Brass Tube P • Plastic Y • Vial D • Other

Chain of Custody

1. Sampled by: Mike Marchio
 2. Courier: Mike 5:00
 3. Received by Lab: Mike Marchio
 Date: 11-7-89 Time: 4:35
 4. Received in Office: Date: _____

- Collate all samples for single analysis.
- Collate and analyze two top samples and if clean, do not analyze other sample.
- Call ASE for instructions.
- See attached protocol.

APPENDIX VII
CHEMICAL ANALYSIS REPORTS FOR TREATED DIESEL
CONTAMINATED SOIL

Enseco - CRL

7440 Lincoln Way • Garden Grove, CA 92641
(714) 898-6370 • (213) 598-0458 • (800) LAB-1-CRL
FAX: (714) 891-5917

January 19, 1990

AQUASCIENCE ENGINEERS, INC.
17895 SKYPARK CIRCLE, SUITE E
IRVINE, CA 92626
ATTN: MR. MIKE MARELLO

Analysis No.: G-9001203-001/004
Date Sampled: 11-JAN-1990
Date Sample Rec'd: 12-JAN-1990
Project: (LA0298) LIQUID AIR-SFS

Enclosed with this letter is the report on the chemical and physical analyses on the samples from ANALYSIS NO: G-9001203-001/004 shown above.

The samples were received by CRL in a chilled state, intact and with the chain-of-custody record attached. Sample seals were intact.

Please note that ND() means not detected at the detection limit expressed within the parentheses.

Solid sample is reported on "as received" basis.

Preliminary data were provided on January 18, 1990 at 4:55 P.M.

Lynda Dechambault
Reviewed

Paul Christ
Approved

DICE 00574

The Report Cover Letter is an integral part of this report.

This report pertains only to the samples investigated and does not necessarily apply to other apparently identical or similar materials. This report is submitted for the exclusive use of the client to whom it is addressed. Any reproduction of this report or use of the Corporation's name for advertising or publicity purposes without authorization is prohibited.

Enseco - CRL

7440 Lincoln Way • Garden Grove, CA 92641
(714) 898-6370 • (213) 598-0458 • (800) LAB-1-CRL
FAX: (714) 891-5917

Laboratory Report

AQUA SCIENCE ENGINEERS, INC.
17895 SKYPARK CIRCLE, SUITE E
IRVINE, CA 92626
ATTN: MR. MIKE MARELLO

Analysis No.: G-9001203-001/004
Date Sampled: 11-JAN-1990
Date Sample Rec'd: 12-JAN-1990
Date Analyzed: 18-JAN-1990
Sample Type: SOLID

Project: (LA0298) LIQUID AIR - SFS

Sample ID	TPH Recoverable mg/kg EPA 418.1
TD-1B	2,000
TD-2B	170
TD-3B	1,500
TD-4B	580
Blank	ND(1.0)

DICE 00575

The Report Cover Letter is an integral part of this report.

This report pertains only to the samples investigated and does not necessarily apply to other apparently identical or similar materials. This report is submitted for the exclusive use of the client to whom it is addressed. Any reproduction of this report or use of this Laboratory's name for advertising or publicity purposes without authorization is prohibited.

Enseco - CRL

7440 Lincoln Way • Garden Grove, CA 92641
 (714) 898-6370 • (213) 598-0458 • (800) LAB-1-CRL
 FAX: (714) 891-5917

Laboratory Report

AQUA SCIENCE ENGINEERS, INC.
 17895 SKYPARK CIRCLE, SUITE E
 IRVINE, CA 92626
 ATTN: MR. MIKE MARELLO
 Project: (LA0298) LIQUID AIR - SFS

Analysis No.: G-9001203-001/004
 Date Sampled: 11-JAN-1990
 Date Sample Rec'd: 12-JAN-1990
 Sample Type: SOLID

QA/QC Summary

Date	Parameter (Method)	QC Type	Average Spike Recovery	Acceptable Range	Relative Percent Difference	Acceptable Range
18-JAN-1990	TPH RECOVERABLE (EPA 418.1)	L	97	70-117	6.	15

M - Matrix Spike
 L - Laboratory Control Sample Spike

DICE 00576

The Report Cover Letter is an integral part of this report.

This report pertains only to the samples investigated and does not necessarily apply to other apparently identical or similar materials. This report is submitted for the exclusive use of the client to whom it is addressed. Any reproduction of this report or use of this Laboratory's name for advertising or publicity purposes without authorization is prohibited.

4001203

L10298

17895 Sky Park Circle Suite E
Irvine CA 92626



(714) 833-3667

Project Name: Liquid Air Site: SFS Date Sampled: 1-11-90 Laboratory: Enscow

Sample ID	Sample/Container Type	Analyze/ Hold	Analyze For:	Method - Detection Limit	Notes/Remarks
ID-1B	Soil Tube	^	T.P.M.	14.18.1	Normal Analysis Time
ID-2B	↓	↓	↓	↓	
ID-3B	↓	↓	↓	↓	
D-4B	↓	↓	↓	↓	

• Soil W • Water O • Other
G • Glass DI • Brass Tube P • Plastic Y • Vial Q • Other

Chain of Custody

1. Sampled by: M. Smith
 2. Courier: M. Smith
 3. Received by Lab: M. Smith
 Date: 1-12-90 Time: 1:42pm
 4. Received in Office: Date: _____

- Collate all samples for single analysis.
- Collate and analyze two top samples and if clean, do not analyze other sample.
- Call ASE for instructions.
- See attached protocol.

DICE 00577



Enseco - CRL

7440 Lincoln Way • Garden Grove, CA 92641
(714) 898-6370 • (213) 598-0458 • (800) LAB-1-CRL
FAX: (714) 891-5917

March 12, 1990

AQUA SCIENCE ENGINEERS, INC
17895 SKYPARK CIRCLE, SUITE E
IRVINE, CA 92714
ATTN: MR. MIKE MARELLO

Analysis No.: G-9005904-001/004
Date Sampled: 27-FEB-1990
Date Sample Rec'd: 28-FEB-1990
Project: (LA0308) LIQUID AIR

Enclosed with this letter is the report on the chemical and physical analyses on the samples from ANALYSIS NO: G-9005904-001/004 shown above.

The samples were received by CRL in a chilled state, intact and with the chain-of-custody record attached.

Please note that ND() means not detected at the detection limit expressed within the parentheses.

Solid samples are reported on "as received" basis.

reliminary data were provided on March 8, 1990 at 4:15 P.M.


Reviewed


Approved

The Report Cover Letter is an integral part of this report.

This report pertains only to the samples investigated and does not necessarily apply to other apparently identical or similar materials. This report is submitted for the exclusive use of the client to whom it is addressed. Any reproduction of this report or use of this Laboratory's name for advertising or publicity purposes without authorization is prohibited.

Enseco - CRL

7440 Lincoln Way • Garden Grove, CA 92641
(714) 898-6370 • (213) 598-0458 • (800) LAB-1-CRL
FAX: (714) 891-5917

Laboratory Report

AQUA SCIENCE ENGINEERS, INC.
17895 SKYPARK CIRCLE, SUITE E
IRVINE, CA 92714
ATTN: MR. MIKE MARELLO

Analysis No.: G-9005904-001/004
Date Sampled: 27-FEB-1990
Date Sample Rec'd: 28-FEB-1990
Date Analyzed: 8-MAR-1990
Sample Type: SOLID

Project: (LA0308) LIQUID AIR

Sample ID	TPH Recoverable mg/kg EPA 418.1
TD-1b	500
TD-2b	960
TD-3b	940
TD-4b	750
Blank	ND(1)

The Report Cover Letter is an integral part of this report.

This report pertains only to the samples investigated and does not necessarily apply to other apparently identical or similar materials. This report is submitted for the exclusive use of the client to whom it is addressed. Any reproduction of this report or use of this Laboratory's name for advertising or publicity purposes without authorization is prohibited.

Enseco - CRL

7440 Lincoln Way • Garden Grove, CA 92641
(714) 898-6370 • (213) 598-0458 • (800) LAB-1-CRL
FAX: (714) 891-5917

Laboratory Report

AQUA SCIENCE ENGINEERS, INC.
17895 SKYPARK CIRCLE, SUITE E
IRVINE, CA 92714
ATTN: MR. MIKE MARELLO
Project: (LA0308) LIQUID AIR

Analysis No.: G-9005904-001/004
Date Sampled: 27-FEB-1990
Date Sample Rec'd: 28-FEB-1990
Sample Type: SOLID

QA/QC Summary

Date	Parameter (Method)	QC Type	Average Spike Recovery	Acceptable Range	Relative Percent Difference	Acceptable Range
8-MAR-1990	TPH RECOVERABLE (EPA 418.1)	L	86	70-117	6.	15

M - Matrix Spike

L - Laboratory Control Sample Spike

The Report Cover Letter is an integral part of this report.

This report pertains only to the samples investigated and does not necessarily apply to other apparently identical or similar materials. This report is submitted for the exclusive use of the client to whom it is addressed. Any reproduction of this report or use of this Laboratory's name for advertising or publicity purposes without authorization is prohibited.

DICE 00580

005904-001/004

LAD303

17895 Sky Park Circle Suite E
Irvine CA 92626

 aqua science
engineers inc.

(714) 833-3667

Project Name: Liquid Air Site: Santa Fe Springs Date Sampled 2/27/90 Laboratory: Enviro

Sample ID	Sample/Container Type	Analyze/ Hold	Analyze For:	Method - Detection Limit	Notes/Remarks
TD-1b	Soil Tube	A	Diocel (TPH)	418.1	normal Analysis Time
TD-2b	↓	↓	↓	↓	
TD-3b	↓	↓	↓	↓	
TD-4b	↓	↓	↓	↓	

S - Soil W - Water O - Other
G - Glass BI - Brass Tube P - Plastic Y - Vial Q - Other

Chain of Custody

1. Sampled by: [Signature]
2. Courier: [Signature]
3. Received by Lab: [Signature]
Date: 2/28/90 Time: 5:25 PM
4. Received in Office: Date: _____

- Collate all samples for single analysis.
- Collate and analyze two top samples and if clean, do not analyze other sample.
- Call ASE for instructions.
- See attached protocol.

DICE 00581



Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas
Irvine, California

30 Hughes, Suite 206 □ Irvine, CA 92718 □ Phone (714) 380-9559 □ FAX (714) 380-9832

April 5, 1990

Mr. Mike Mareello
Aquascience Engineers, Inc.
17895 Sky Circle # E
Irvine, CA 92626

RE: Liquid Air

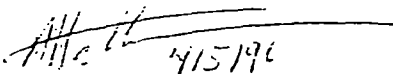
Dear Mr. Mareello:

Enclosed is the report of laboratory analyses for samples received April 3, 1990.

The remaining samples will be returned to you within 30 days of analyses completion date.

If you have any questions concerning this report, please feel free to contact us.

Sincerely,


Wasfi Y. Attalla, Ph.D.
Regional Director

Enclosures



REPORT OF LABORATORY ANALYSIS

Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas
Irvine, California

TOTAL PETROLEUM HYDROCARBONS
418.1 METHOD

DATE : 4/05/1990 CLIENT NAME: Aquascience Eng., Inc.
PACE PROJECT # : 700403.500 ADDRESS : 17895 Sky Circle # E
DATE SAMPLE RECEIVED: 4/03/1990 Irvine, CA 92626
MATRIX : Soil TELEPHONE : (714)833-3667
PROJECT NAME : Liquid Air ATTENTION : Mike Marello

Table with 5 columns: PARAMETER NAME, SAMPLE NUMBER (66104, 66105, 66106), and MDL/mg/Kg. Row 1: Total Petroleum Hydrocarbons, 59.6, 46.6, 60.8, 10.

Table with 4 columns: PARAMETER NAME, SAMPLE NUMBER (66107, 66108, 66109), and MDL/mg/Kg. Row 1: Total Petroleum Hydrocarbons, 46.0, 10.

MDL: Method Detection Limit

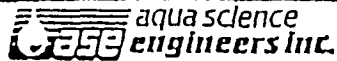
The data contained in this report were obtained using EPA or other approved methodologies. All analyses were performed by me or under my direct supervision.

DATA REVIEWED BY

Signature: WASFI Y. ATTALLA, Ph.D. Regional Director

LA0323

17895 Sky Park Circle Suite E
Irvine CA 92626



(714) 833-3667

Project Name: Liquid Air Site: Santa Fe Cor Date Sampled: 4-3-90 Laboratory: Pace

Sample ID	Sample/Container Type	Analyze/ Hold	Analyze For:	Method - Detection Limit	Notes/Remarks
TD-1	Soil-Glass	A	TPH	418.1	Normal Analysis Time
TD-2	↓	↓	↓	418.1	
TD-2	↓	↓	↓	418.1	
TD-3	↓	↓	↓	418.1	
TD-4	↓	↓	↓	418.1	

S - Soil W - Water O - Other
G - Glass BI - Brass Tube P - Plastic Y - Ytal O - Other

1. Sampled by: Mick M... ..
2. Courier: Mick M... ..

3. Received by Lab: Madeline E.
Date: 4/3/90 Time: 4:30

4. Received in Office: Date: _____

Chain of Custody

- Collate all samples for single analysis.
- Collate and analyze two top samples and if clean, do not analyze other sample.
- Call ASE for instructions.
- See attached protocol.

DICE 00584

APPENDIX VIII
CHEMICAL ANALYSIS REPORT FOR TREATED PAINT
CONTAMINATED LIME SAMPLES

Enseco - CRL / South Coast

7440 Lincoln Way • Garden Grove, CA 92641
(714) 898-6370 • (213) 598-0458 • (800) LAB-1-CRL
FAX: (714) 891-5917

November 17, 1989

AQUA SCIENCE ENGINEERS
17895 SKYPARK CIRCLE, SUITE E
IRVINE, CA 92714
ATTN: MR. MIKE MARELLO

Analysis No.: G-8931123-001/016
Date Sampled: 6-NOV-1989
Date Sample Rec'd: 7-NOV-1989
Project: LIQUID AIR-SANTA FE SPRINGS

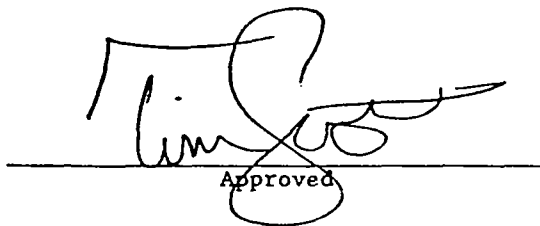
Enclosed with this letter is the report on the chemical and physical analyses on the samples from ANALYSIS NO: G-8931123-001/016 shown above.

The samples were received by CRL in a chilled state, intact and with the chain-of-custody record attached.

Please note that ND() means not detected at the detection limit expressed within the parentheses.

Solid samples are reported on "as received" basis.


Reviewed


Approved

DICE 00586

Enseco - CRL / South Coast

7440 Lincoln Way • Garden Grove, CA 92641
 (714) 898-6370 • (213) 598-0458 • (800) LAB-1-CRL
 FAX: (714) 891-5917

Laboratory Report

AQUA SCIENCE ENGINEERS, INC.
 17895 SKYPARK CIRCLE, SUITE E
 IRVINE, CA 92714
 ATTN: MR. MIKE MARELLO

Analysis No.: G-8931123-013
 Date Sampled: 6-NOV-1989
 Date Sample Rec'd: 7-NOV-1989
 Date Analyzed: 14-NOV-1989
 Sample Type: SOLID

Project: LIQUID AIR - SANTA FE SPRINGS
 Sample ID: TL-1,2,3 COMPOSITE

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	ND	ND	10
Carbon Disulfide	26.	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	24.	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	7.	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

DICE 00587

Enseco - CRL / South Coast

7440 Lincoln Way • Garden Grove, CA 92641
 (714) 898-6370 • (213) 598-0458 • (800) LAB-I-CRL
 FAX: (714) 891-5917

Laboratory Report

AQUA SCIENCE ENGINEERS, INC.
 17895 SKYPARK CIRCLE, SUITE E
 IRVINE, CA 92714
 ATTN: MR. MIKE MARELLO

Analysis No.: G-8931123-014
 Date Sampled: 6-NOV-1989
 Date Sample Rec'd: 7-NOV-1989
 Date Analyzed: 14-NOV-1989
 Sample Type: SOLID

Project: LIQUID AIR - SANTA FE SPRINGS
 Sample ID: TL-4,5,6 COMPOSITE

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	29.*	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	16.	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	6.	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

*The analytical results for Acetone should not be considered reliable unless the concentration in the sample exceeds five times the detection limit

DICE 00588

Enseco - CRL / South Coast

7440 Lincoln Way • Garden Grove, CA 92641
(714) 898-6370 • (213) 598-0458 • (800) LAB-1-CRL
FAX: (714) 891-5917

Laboratory Report

AQUA SCIENCE ENGINEERS, INC.
17895 SKYPARK CIRCLE, SUITE E
IRVINE, CA 92714
ATTN: MR. MIKE MARELLO

Analysis No.: G-8931123-015
Date Sampled: 6-NOV-1989
Date Sample Rec'd: 7-NOV-1989
Date Analyzed: 14-NOV-1989
Sample Type: SOLID

Project: LIQUID AIR - SANTA FE SPRINGS
Sample ID: TL-7,8 COMPOSITE

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	6.*	ND	5
Acetone	54.	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	32.	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	18.	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

*The analytical results for Methylene Chloride should not be considered reliable unless the concentration in the sample exceeds five times the detection limit.

DICE 00589

Enseco - CRL / South Coast

7440 Lincoln Way • Garden Grove, CA 92641
 (714) 898-6370 • (213) 598-0458 • (800) LAB-1-CRL
 FAX: (714) 891-5917

Laboratory Report

AQUA SCIENCE ENGINEERS, INC.
 17895 SKYPARK CIRCLE, SUITE E
 IRVINE, CA 92714
 ATTN: MR. MIKE MARELLO

Analysis No.: G-8931123-016
 Date Sampled: 6-NOV-1989
 Date Sample Rec'd: 7-NOV-1989
 Date Analyzed: 14-NOV-1989
 Sample Type: SOLID

Project: LIQUID AIR - SANTA FE SPRINGS
 Sample ID: TL-9,10 COMPOSITE

Purgeable Organics, EPA 8240

Units: ug/kg

Parameter	Result	Blank	Detection Limit
Chloromethane	ND	ND	10
Bromomethane	ND	ND	10
Vinyl Chloride	ND	ND	10
Chloroethane	ND	ND	10
Methylene Chloride	ND	ND	5
Acetone	27.*	ND	10
Carbon Disulfide	ND	ND	5
1,1-Dichloroethene	ND	ND	5
1,1-Dichloroethane	ND	ND	5
trans-1,2-Dichloroethene	ND	ND	5
Chloroform	ND	ND	5
1,2-Dichloroethane	ND	ND	5
2-Butanone	15.	ND	10
1,1,1-Trichloroethane	ND	ND	5
Carbon Tetrachloride	ND	ND	5
Vinyl Acetate	ND	ND	10
Bromodichloromethane	ND	ND	5
1,2-Dichloropropane	ND	ND	5
trans-1,3-Dichloropropene	ND	ND	5
Trichloroethene	ND	ND	5
Dibromochloromethane	ND	ND	5
1,1,2-Trichloroethane	ND	ND	5
Benzene	ND	ND	5
cis-1,3-Dichloropropene	ND	ND	5
2-Chloroethylvinyl ether	ND	ND	10
Bromoform	ND	ND	5
4-Methyl-2-pentanone	ND	ND	10
2-Hexanone	ND	ND	10
Tetrachloroethene	ND	ND	5
1,1,2,2-Tetrachloroethane	ND	ND	5
Toluene	ND	ND	5
Chlorobenzene	ND	ND	5
Ethylbenzene	ND	ND	5
Styrene	ND	ND	5
Xylenes, Total	ND	ND	5

*The analytical results for Acetone should not be considered reliable unless the concentration in the sample exceeds five times the detection limit

DICE 00590

Enseco - CRL / South Coast

7440 Lincoln Way • Garden Grove, CA 92641
 (714) 898-6370 • (213) 598-0458 • (800) LAB-1-CRL
 FAX: (714) 891-5917

Laboratory Report

AQUA SCIENCE ENGINEERS, INC.
 17895 SKYPARK CIRCLE, SUITE E
 IRVINE, CA 92714
 ATTN: MR. MIKE MARELLO

Analysis No.: G-8931123-001/016
 Date Sampled: 6-NOV-1989
 Date Sample Rec'd: 7-NOV-1989
 Sample Type: SOLID

Project: LIQUID AIR - SANTA FE SPRINGS

QA/QC Summary

Date	Parameter (Method)	QC Type	Average Spike Recovery	Acceptable Range	Relative Percent Difference	Acceptable Range
13-NOV-1989	TPH RECOVERABLE (EPA 418.1)	L	108	70-117	0.	15
14-NOV-1989	1,1-DICHLOROETHENE (EPA 8240)	L	87	54-134	4.	25
13-NOV-1989	1,1-DICHLOROETHENE (EPA 8240)	L	97	54-134	6.	25
14-NOV-1989	TRICHLOROETHENE (EPA 8240)	L	97	67-124	2.	21
13-NOV-1989	TRICHLOROETHENE (EPA 8240)	L	101	67-124	2.	21
14-NOV-1989	BENZENE (EPA 8240)	L	95	62-126	4.	24
13-NOV-1989	BENZENE (EPA 8240)	L	101	62-126	2.	24
14-NOV-1989	TOLUENE (EPA 8240)	L	95	66-126	1.	22
13-NOV-1989	TOLUENE (EPA 8240)	L	100	66-126	4.	22
14-NOV-1989	CHLOROBENZENE (EPA 8240)	L	104	67-124	2.	22
13-NOV-1989	CHLOROBENZENE (EPA 8240)	L	104	67-124	4.	22

M - Matrix Spike

L - Laboratory Control Sample Spike

DICE 00591

9/21/09

LA0274

17895 Sky Park Circle Suite E
Irvine CA 92626



(714) 833-3667

Project Name: Wastewater Site: ... Date Sampled 11-1-09 Laboratory: Fusion/CAL

Sample ID	Sample/Container Type	Analyze/hold	Analyze For:	Method - Detection Limit	Notes/Remarks
LE-1	Line Tube	↓		624 (10) Mike Marchio per 11/08/09	
LE-2	↓	↓		↓	
LE-3	↓	↓		↓	
LE-4	↓	↓		↓	
LE-5	↓	↓		↓	
LE-6	↓	↓		↓	
TD-1	Soil Tube		TEU →	624	Composite TD-1, 2
TD-2	↓				
TD-3	↓		TEU →	624	Composite TD-2, 3
TD-4	↓				
TL-1	Line Tube				
TL-2	↓				
TL-3	↓			624	Composite TL-1, 2, 3

S = Soil W = Water O = Other
G = Glass DI = Brass Tube P = Plastic V = Vial Q = Other

Chain of Custody

1. Sampled by: [Signature]
 2. Courier: [Signature] 500
 3. Received by Lab: [Signature]
 Date: 11-4-09 Time: 4:35
 4. Received in Office: Date: _____

- Collate all samples for single analysis.
- Collate and analyze two top samples and if clean, do not analyze other sample.
- Call ASE for instructions.
- See attached protocol.

DICE 00592

LA0275

17895 Sky Park Circle Suite E
Irvine CA 92626



(714) 833-3667

Project Name: Liquid Air Site: San Jo. Fe. San. Date Sampled 11-6-89 Laboratory: Enseco/CRL

Sample ID	Sample/Container Type	Analyze/hold	Analyze For:	Method - Detection Limit	Notes/Remarks
TL-4	Lime/Tube	A			Composite TL-4
TL-5				624	
TL-6					
TL-6					
TL-7				624	Composite TL-7
TL-8					
TL-9				624	Composite TL-9
TL-10					
LA-3-N1	Soil/Tube	A			
LA-3-S1					
LA-3-E1					
LA-3-B1 (N-2)					

S = Soil W = Water O = Other
G = Glass BT = Brass Tube P = Plastic V = Vial D = Other

Chain of Custody

1. Sampled by: [Signature]
 2. Courier: [Signature] 5:00
 3. Received by Lab: [Signature]
 Date: 11-7-89 Time: 4:35
 4. Received in Office: Date: _____

- Collate all samples for single analysis.
- Collate and analyze two top samples and if clean, do not analyze other sample.
- Call ASE for instructions.
- See attached protocol.

DICE 00593

52007

1 hr



17895 Sky Park Circle, Suite E Irvine, CA 92714
Tel 714/833-3667 • Fax 714 833-3468

September 21, 1990

Ms. Nicole Long
County of Los Angeles Department of Public Works
Waste Management Division
UST Pilot Program - Annex Building
P.O. Box 1460
Alhambra, CA 91802-1460

RE: ONSITE REMEDIATION OF SOIL IMPACTED WITH DIESEL FUEL

SITE: Liquid Air Corporation
8832 Dice Road
Santa Fe Springs, CA

PROPERTY OWNERS: Liquid Air Corporation
2121 North California Boulevard
Walnut Creek, CA 94596

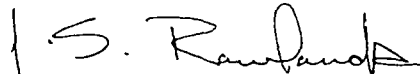
Dear Ms. Long:

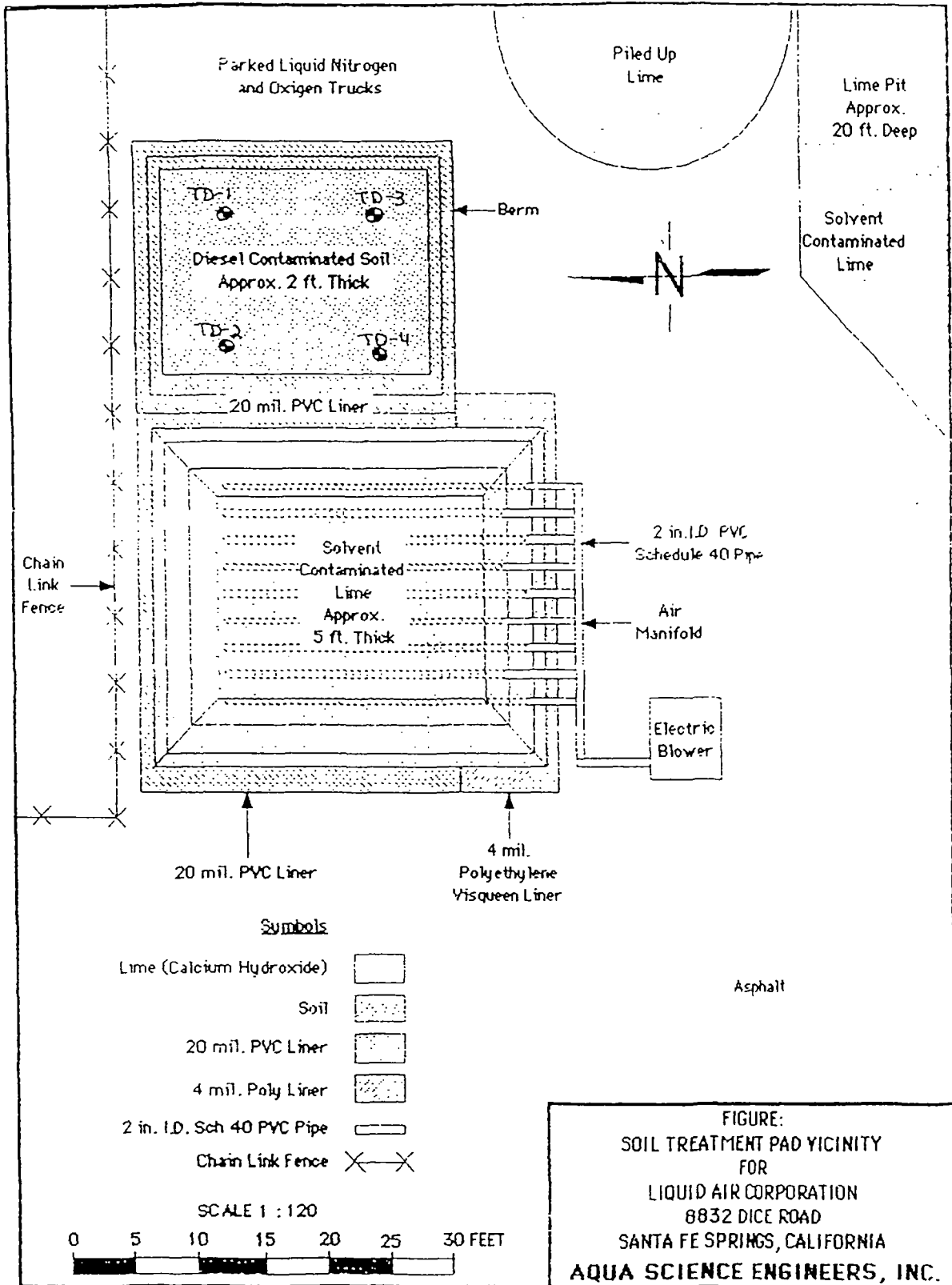
Enclosed with this letter is the information you requested regarding the remediation of hydrocarbon contaminated soil at the Liquid Air facility located at 8832 Dice Road in Santa Fe Springs. Attached to this letter is the hazardous waste manifest for the removed tanks, a plot plan showing final sample locations for the diesel fuel contaminated soils remediation project, and laboratory reports for the final samples.

The information enclosed with this letter is a supplement to the Aqua Science Engineers, Inc. report for the remediation of hydrocarbon contaminated soil and hydrated lime for Liquid Air Corporation dated April 23, 1990. Please contact me at (714) 833-3667 if you have any questions or comments regarding this project.

Sincerely,

Aqua Science Engineers, Inc.


J.S. Rowlands
Geological Operations





Offices:
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas
Irvine, California

30 Hughes, Suite 206 ☐ Irvine, CA 92718 ☐ Phone (714) 380-9559 ☐ FAX (714) 380-9832

April 5, 1990

Mr. Mike Mareello
Aquascience Engineers, Inc.
17895 Sky Circle # E
Irvine, CA 92626

RE: Liquid Air

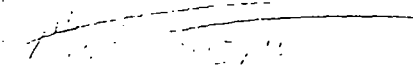
Dear Mr. Mareello:

Enclosed is the report of laboratory analyses for samples received April 3, 1990.

The remaining samples will be returned to you within 30 days of analyses completion date.

If you have any questions concerning this report, please feel free to contact us.

Sincerely,


Wasfi Y. Attalla, Ph.D.
Regional Director

Enclosures

an equal opportunity employer

DICE 00596



REPORT OF LABORATORY ANALYSIS

Offices
Minneapolis, Minnesota
Tampa, Florida
Coralville, Iowa
Novato, California
Leawood, Kansas
Irvine, California

TOTAL PETROLEUM HYDROCARBONS
418.1 METHOD

DATE : 4/05/1990 CLIENT NAME: Aquascience Eng., Inc.
PACE PROJECT # : 700403.500 ADDRESS : 17895 Sky Circle # E
DATE SAMPLE RECEIVED: 4/03/1990 Irvine, CA 92626
MATRIX : Soil TELEPHONE : (714)833-3667
PROJECT NAME : Liquid Air ATTENTION : Mike Marelo

PARAMETER NAME	SAMPLE NUMBER			MDL/mg/Kg
	# 66104 # TD-1	# 66105 # TD-2	# 66106 # TD-3	
Total Petroleum Hydrocarbons	59.6	46.6	60.8	10

PARAMETER NAME	SAMPLE NUMBER			MDL/mg/Kg
	# 66107 # TD-4	#	#	
Total Petroleum Hydrocarbons	46.0			10

MDL: Method Detection Limit


The data contained in this report were obtained using EPA or other approved methodologies. All analyses were performed by me or under my direct supervision.

DATA REVIEWED BY

W. Attalla
WASFI Y. ATTALLA, Ph.D.
Regional Director

LAO300

17895 Sky Park Circle Suite E
Irvine CA 92626

 aqua science
engineers Inc.

(714) 833-3667

Project Name: Liquid Air

Site: Santa Fe Spr

Date Sampled 4-3-90

Laboratory: Pace

Sample ID	Sample/Container type	Analyte/ Hold	Analyte for	Method - Detection Limit	Notes/Remarks
TD-1	SOIL-Glass	A	TDS	418.1	Normal Analysis Time
TD-2	|	|	|	418.1	
TD-2	|	|	|	EXACTLY	
TD-3	|	|	|	418.1	
TD-4	|	|	|	418.1	

S • Soil W • Water O • Other
G • Glass D1 • Brass Tube P • Plastic Y • Yial O • Other

Chain of Custody

1. Sampled by: Mel Marshall
2. Counter: Mel Marshall

3. Received by Lab: Mel Marshall
Date: 4/3/90 Time: 4:30

4. Received in Office: Date: _____

- Collate all samples for single analysis
- Collate and analyze two top samples and if clean, do not analyze other sample.
- Call ASE for instructions.
- See attached protocol.

DICE 00598



So. California Field Office, 1666 Newport Blvd., #116, Costa Mesa, CA 92626
Tel 714-675-5754 • Fax 714-675-5943

September 2, 1988

RECEIVED
MAR 19 1990
SAFETY DEPARTMENT

PROJECT REPORT

SITE INVESTIGATION FOR ACETONE CONTAMINATION IN SOIL

AT:

LIQUID AIR CORPORATION
8832 DICE ROAD
SANTA FE SPRINGS, CA

Prepared For:

Liquid Air Corporation
8832 Dice Road
Santa Fe Springs, CA

Prepared By:

Aqua Science Engineers, Inc.
So. California Field Office
1666 Newport Blvd. #116
Costa Mesa, CA 92626

DICE 00600



So. California Field Office, 1666 Newport Blvd., #116, Costa Mesa, CA 92626
Tel 714-675-5754 • Fax 714-675-5943

September 2, 1988

PROJECT REPORT

SITE INVESTIGATION FOR ACETONE CONTAMINATION IN SOIL

AT:

LIQUID AIR CORPORATION
8832 DICE ROAD
SANTA FE SPRINGS, CA

Prepared For:

Liquid Air Corporation
8832 Dice Road
Sante Fe Springs, CA



Michael Marelllo

Michael Marelllo
Geological Operations

David M. Schultz

David M. Schultz
Vice President
Field Operations

DICE 00601

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INTRODUCTION

The following is a report on the methods and findings of the soil contamination investigation project conducted by Aqua Science Engineers at Liquid Air Corporation, 8832 Dice Road, Santa Fe Springs, CA. On August 16, 1988, Aqua Science Engineers drilled two soil borings around the perimeter of a 6,200-gallon underground acetone storage tank located at the above site (Figure 1). The borings were drilled to 40 feet below the ground surface.

Soil samples were collected during drilling and subsequently submitted to a California State Certified Laboratory for chemical analysis. The samples were analyzed for acetone using EPA method 8240 (GC/MS). The results of the analysis indicate acetone concentrations in the soil samples are insignificant. The acetone storage tank is scheduled for removal.

SOIL BORING METHODS

The drilling phase was done with a Mobil Drill B53 truck mounted hydraulic rotary drill. Hollow stem eight-inch O.D. auger was used for the test borings. Two borings were drilled to 40 feet below the ground surface on opposite sides of the major and minor axes of the tank (Figure 1). Groundwater was not encountered during drilling. The borings were backfilled with the drill cuttings after soil sample collection.

GEOLOGY AND HYDROGEOLOGY

An examination of the bore hole logs (Figures 2 and 3) shows that the soils beneath the site consist of silt, sandy-clayey silt, and well-graded sand. The soil types encountered were classified using the Unified Soil Classification System (Appendix I).

The nearest LACFD test well to the site is well no. 1623L. The depth to groundwater as measured in November 1987 was 58.2 feet below the ground surface. The estimated direction of groundwater flow is southwest.

SOIL SAMPLING

Soil samples were collected in the borings using a California split spoon sampler at 5, 10, 15, 20, 30 and 40 feet. The California split spoon sampler and all drilling equipment was steam cleaned before use. The split spoon sampler was washed with a TSP and water solution between samplings.

The soil samples were collected in pre-cleaned, aluminum liner tubes and secured with aluminum foil and plastic end caps. The samples were placed in an ice chest with ice, and transported to EMSI Laboratories in Camarillo, California for analysis. A Chain-of-Custody form

accompanied the samples to the laboratory (Appendix II).

CHEMICAL ANALYSIS

EMSI Laboratories conducted the chemical analysis using the methods indicated in Appendix III. The samples were composited as indicated in Table I. The composite samples were analyzed for acetone content using EPA method 8240 (GC/MS). Concentration values are given in ug/Kg (ppb).

Chemical analysis of soil samples indicate acetone concentrations are below detectable levels in all composite samples except for the 30 and 40-foot composite sample from boring B-2. Concentrations in this sample ranged to 6.8 parts per billion (ppb).

CONCLUSIONS

Based on the laboratory results of the soil samples collected during the soils boring project, it is the opinion of Aqua Science Engineers that no gross amounts of acetone contamination exist in the soil in the immediate area of the underground acetone storage tank at this site. However, there is no assurance that significant contamination will not be discovered during excavation and removal of the tank.

Acetone is listed on the California Hazardous Substance List (HSL), however, it is not listed as a Priority Pollutant. There are no established maximum concentration values for acetone in soil or water. The 6.8 ppb acetone concentration discovered in the 30 and 40-foot composite sample from boring B-2 is considered insignificant.

TABLE I

Boring Designation	Sample Designation	EPA Analysis
B-1	Composite	LA 1-5'
		LA 1-10'
		LA 1-15'
		LA 1-20'
B-1	Composite	LA 1-30'
		LA 1-40'
B-2	Composite	LA 2-5'
		LA 2-10'
		LA 2-15'
		LA 2-20'
B-2	Composite	LA 2-30'
		LA 2-40'

** Detection limit for EPA method 8240 is 2 ppb

DICE 00606

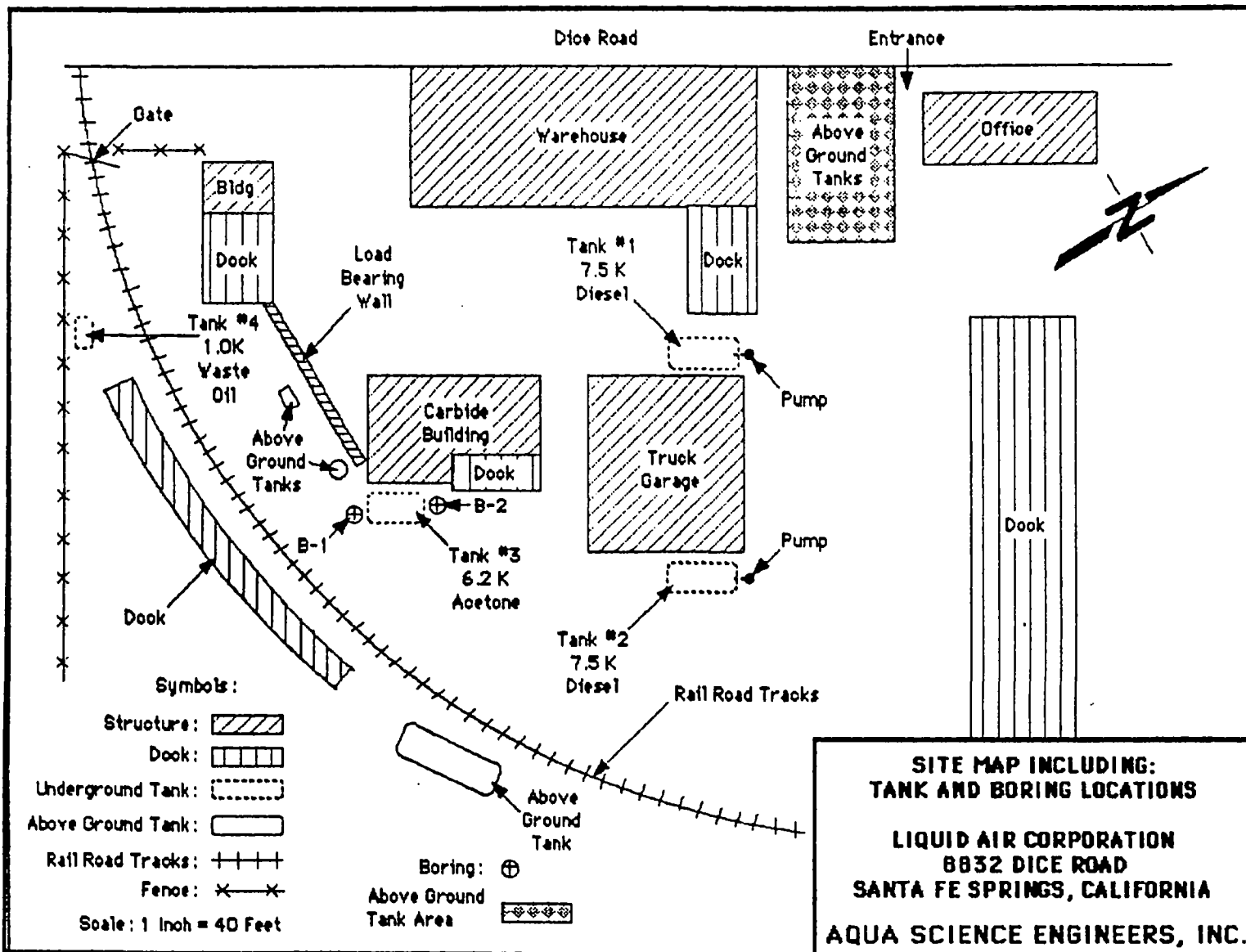
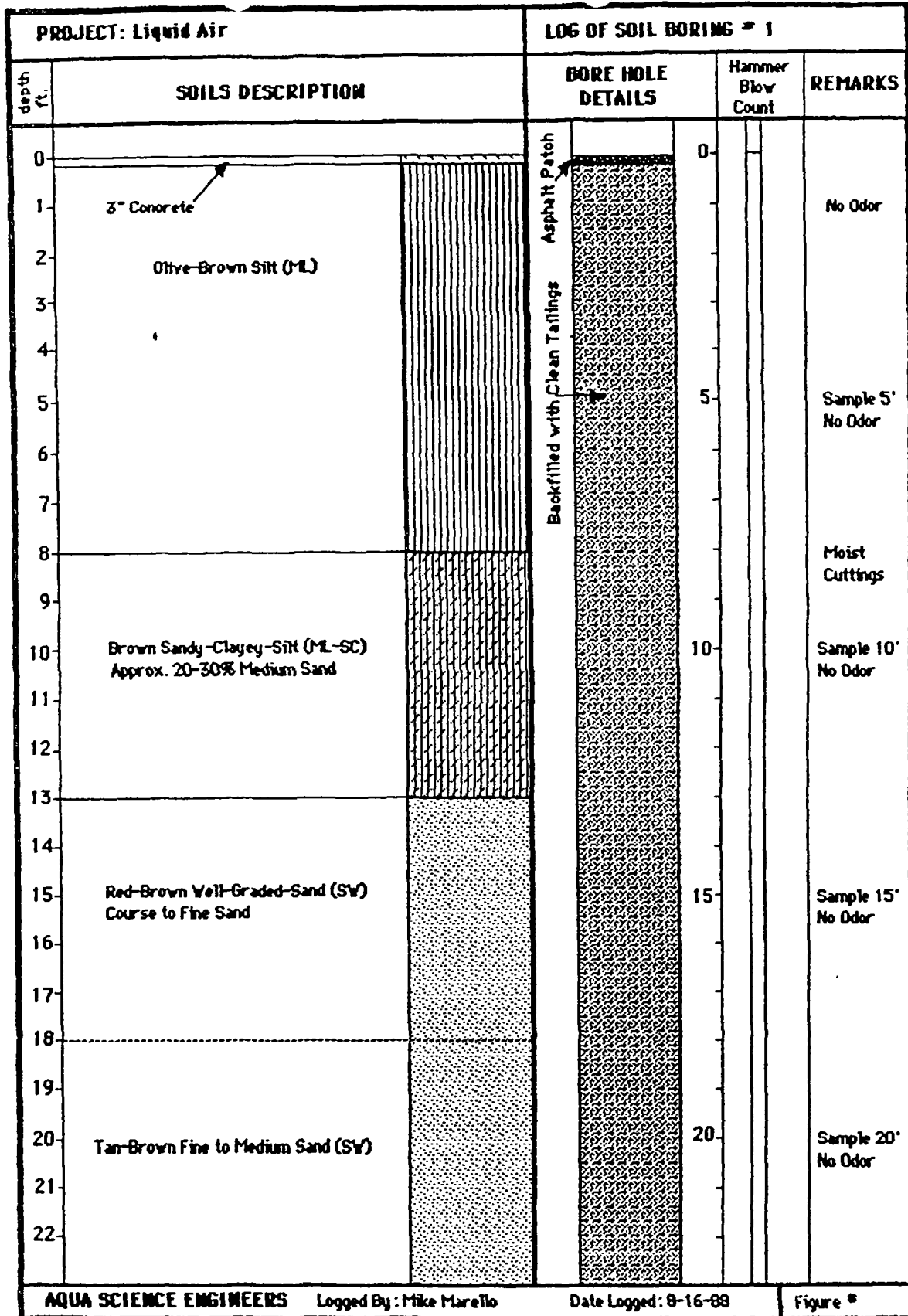


Figure 1

Figure 2



AQUA SCIENCE ENGINEERS

Logged By: Mike Marella

Date Logged: 8-16-88

Figure #

PROJECT: Liquid Air		LOG OF SOIL BORING # 1		
depth	SOILS DESCRIPTION	BORE HOLE DETAILS	Hammer Blow Count	REMARKS
23	Tan-Brown Fine to Medium Sand (SW)	Backfilled with Clean Tailings		
24				
25				
26				
27				
28	Olive-Gray Silt (ML) Minor Sand			Sample 30' No Odor
29				
30				
31				
32				
33				
34				
35				
36				
37				
38				
39				
40	E.O.H.			Sample 40' No Odor
41				
42				
43				
44				
45				

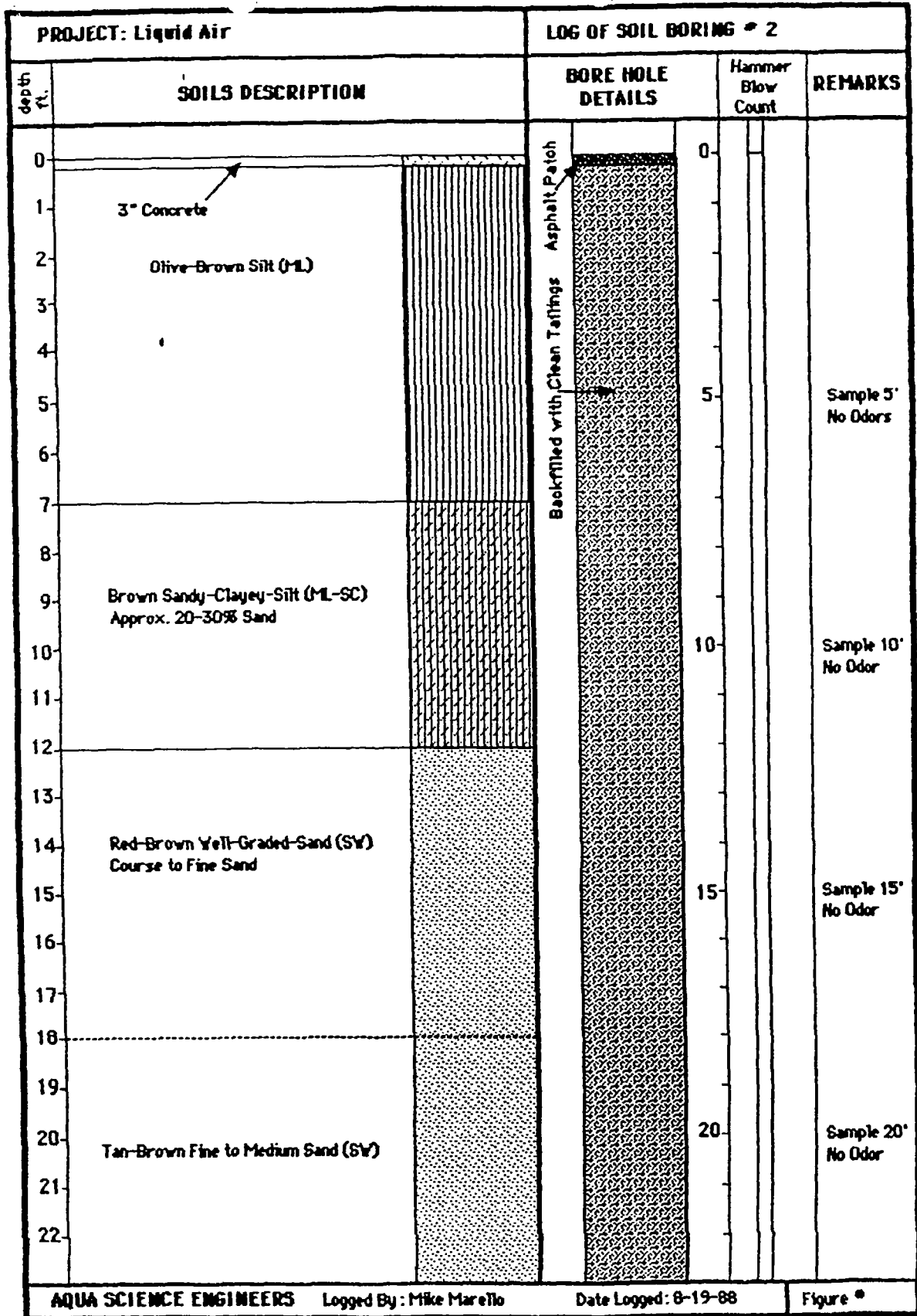
AQUA SCIENCE ENGINEERS

Logged By: Mike Marella

Date Logged: 8-19-88

Figure #

Figure 3



AQUA SCIENCE ENGINEERS

Logged By: Mike Marella

Date Logged: 8-19-88

Figure #

PROJECT: Liquid Air		LOG OF SOIL BORING # 2		
depth ft	SOILS DESCRIPTION	BORE HOLE DETAILS	Hammer Blow Count	REMARKS
23	Tan-Brown Fine to Medium Sand (SW)	Backfilled with Clean Tailings	23	
24				
25				
26				
27				
28				
29			Olive-Gray Silt (ML) Minor Sand		Backfilled with Clean Tailings	28	Sample 30' No Odor
30				
31				
32				
33				
34				
35				
36				
37				
38				
39				
40	E.O.H.		40	Sample 40' No Odor
41				
42				
43			43	
44				
45				

AQUA SCIENCE ENGINEERS

Logged By: Mike Marella

Date Logged: 8-19-88

Figure #

SOIL CLASSIFICATION SYSTEM						
MAJOR DIVISIONS			TYPICAL NAMES			
COARSE GRAINED SOILS MORE THAN HALF IS LARGER THAN #200 SIEVE	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE SIZE	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW		WELL GRADED GRAVELS, GRAVEL - SAND MIXTURES	
			GP		POORLY GRADED GRAVELS, GRAVEL, GRAVEL - SAND MIXTURES	
		GRAVELS WITH OVER 12% FINES	GM		SILTY GRAVELS, POORLY GRADED GRAVEL - SAND - SILT MIXTURES	
			GC		CLAYEY GRAVELS, POORLY GRADED GRAVEL - SAND - CLAY MIXTURES	
	SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	CLEAN SANDS WITH LITTLE OR NO FINES	SW		WELL GRADED SANDS, GRAVELLY SANDS	
			SP		POORLY GRADED SANDS, GRAVELLY SANDS	
		SANDS WITH OVER 12% FINES	SM		SILTY SANDS, POORLY GRADED SAND - SILT MIXTURES	
			SC		CLAYEY SANDS, POORLY GRADED SAND - CLAY MIXTURES	
			SILTS AND CLAYS LIQUID LIMIT LESS THAN 50	ML		INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR, CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL		INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50	OL		ORGANIC CLAYS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY			
	MH		INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS			
	CH		INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS			
HIGHLY ORGANIC SOILS	OH		OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS		
			PT		PEAT AND OTHER HIGHLY ORGANIC SOILS	

LA0428

P.O. Box 535, San Ramon, CA 94583-0535



(415) 820-9391

Project Name: Liquid Air Site: Santa Fe Springs Date: 8-19-88 Laboratory: EMSI

Sample ID	Sample/Container Type	Analyze/ Hold	Analyze For:	Method - Detection Limit	Notes/Remarks
LA 1-5'	Soil / Al Tube	A	Acetone		} collate 1-5' → 1-20'
1-10'					
1-15'					
1-20'					
1-30'					} collate 1-30' → 1-40'
1-40'					
LA 2-5'					} collate 2-5' → 2-20'
2-10'					
2-15'					
2-20'					
2-30'					} collate 2-30' → 2-40'
2-40'					

S = Soil W = Water O = Other
 G = Glass BT = Brass Tube P = Plastic V = Vial O = Other

Chain of Custody

1. Sampled by: Michael M. Muelke
 2. Courier: _____
 3. Received by Lab: Lina Savage
 Date: 8/22/88 Time: 10:00 am
 4. Received in Office: Date: _____

- Collate all samples for single analysis.
- Collate and analyze two top samples and if clean, do not analyze other sample.
- Call ASE for instructions.
- See attached protocol.

Appendix II

DICE 00612

COMBUSTION ENGINEERING

September 6, 1988

In reply refer to 88-1423

Mike Morello
Aqua Science
414 31st Street
Newport Beach, CA 92661

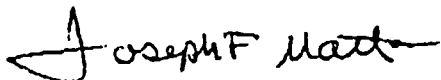
Dear Mr. Morello:

Enclosed are the results for the analysis of four (4) soil samples (Project: Liquid Air LA 0128) that were submitted to our laboratory on August 22, 1988 for Acetone.

Aliquots of samples were composited and analyzed for Acetone by EPA Method 8240, Combined Gas Chromatography/Mass Spectrometry.

The analytical results are listed on the following page. If you have any questions, or if I may be of any further service, please do not hesitate to call.

Sincerely,



Joseph F. Matta
Analytical Services Representative

JFM:tmh

Enclosures

File: 51501-0324

ENVIRONMENTAL MONITORING AND SERVICES, INC.
Analytical Results Summary for AQUA SCIENCE
G.O. # 51501-0342
Received on 22-AUG-88
Liquid Air LA 0128

Date Analyzed: 25-AUG-88

EPA METHOD 8240

<u>Sample ID</u>	<u>Customer ID</u>	<u>Acetone ug/kg (ppb)</u>
CCD-880578	LA 1-5,10,15,20	ND<2
CCD-880579	LA 1-30&40	ND<2
CCD-880580	LA 2-5,10,15,20	ND<2
CCD-880581	LA 2-30&40	6.8

KennedyJenks Consultants

APPENDIX B

Underground Fuel Storage Tank Closure, 1990; by Aqua Science Engineers, Inc.

DICE 00615



COPY

January 22, 1990

PROJECT REPORT

UNDERGROUND FUEL STORAGE TANK CLOSURE AT:

8832 Dice Road
Santa Fe Springs, CA 90670

Closure Permit No. 6555B

Prepared for:

Liquid Air Corporation
8832 Dice Road
Santa Fe Springs, CA 90607

Submitted by:

AQUA SCIENCE ENGINEERS, INC.
1666 Newport Blvd #116
Costa Mesa, CA 92626

DICE 00616



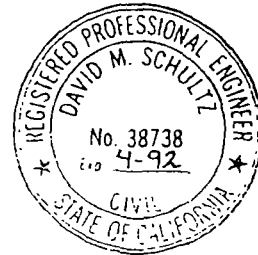
January 22, 1990

PROJECT REPORT

UNDERGROUND FUEL STORAGE TANK CLOSURE AT:

8832 Dice Road
Santa Fe Springs, CA 90670

For Aqua Science Engineers, Inc.:



Mark T. Fator

Mark T. Fator
Project Manager

David M. Schultz

David M. Schultz, P.E.
Vice President
Field Operations

DICE 00617

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INTRODUCTION

The following is a report on methods and findings of the concrete clarifier removal project conducted by Aqua Science Engineers at 8832 Dice Road, Santa Fe Springs, California. On December 27, 1989, a 2,000-gallon concrete clarifier used to store waste oil was cleaned and removed from the above location (removed on 1-3-90). The location of the clarifier, and plumbing is shown on the site plan (Figure 1). The type of product stored in the clarifier is also indicated on the site plan. A clarifier removal permit was secured with the Los Angeles County Department of Public Works and Santa Fe Springs Department Building and Safety prior to the clarifier removal (Appendix I & II).

The nearest Los Angeles County groundwater test well (#1623L) is located at the corner of Norwalk Blvd. and Perkins Ave.. It was last sampled on May 2, 1989. Depth to groundwater at this location was measured at 54.8 feet below grade.

CLARIFIER CLEANING AND REMOVAL

On December 27, 1989, a 2,000-gallon concrete clarifier was exposed for cleaning at this site. The tank was then cleaned using a high-pressure water jet. Approximately 1375 gallons of tank rinsate was removed by vacuum tanker truck, manifested and disposed of as hazardous waste by Roadwest Oil and Vacuum Co., Inc. (CAT080029770). The disposal site was DeMenno / Kerdoon, Compton, California (CAT080013352). The Uniform Hazardous Waste Manifest appears in Appendix III.

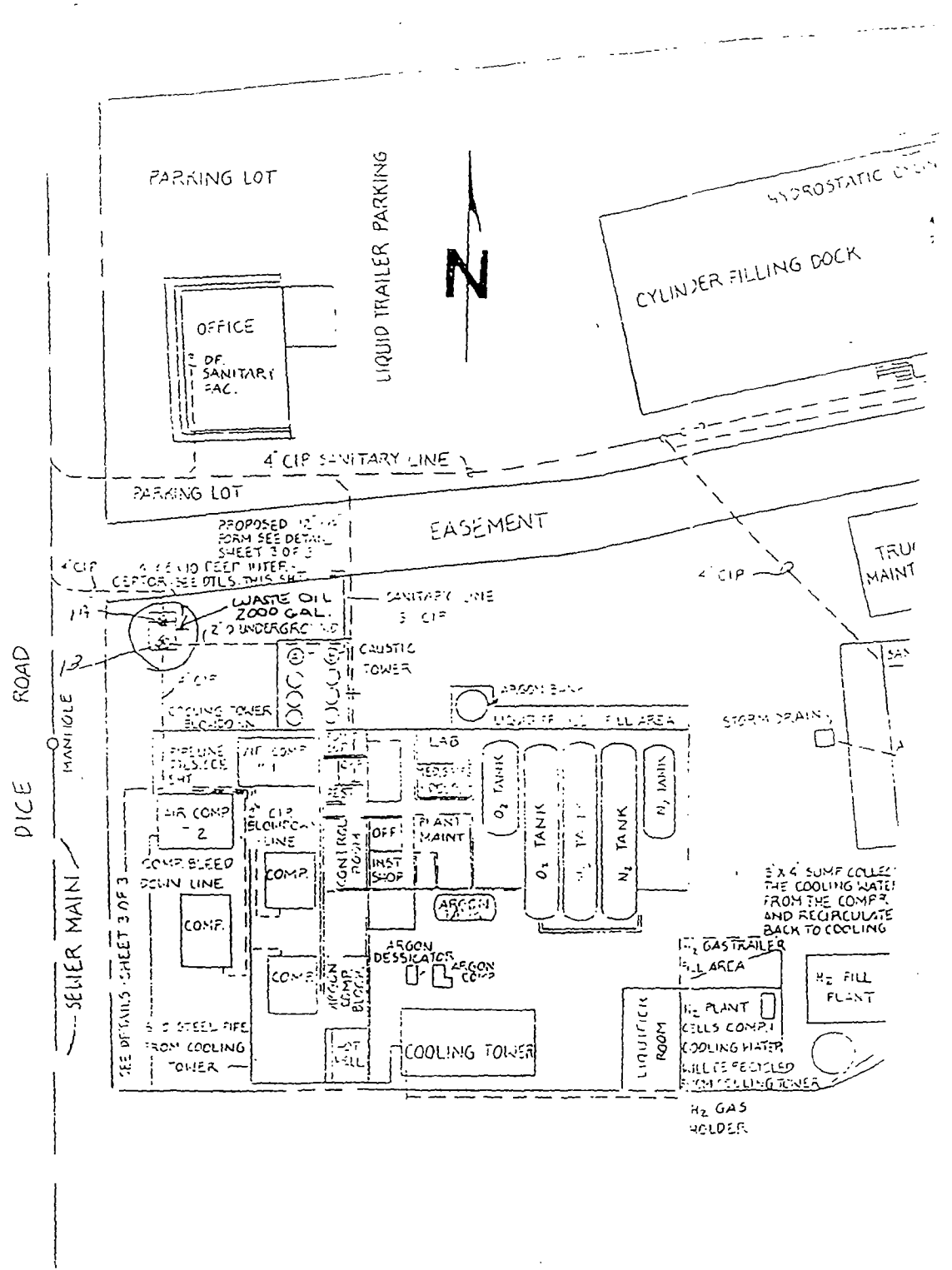
The concrete clarifier was then carefully broken up using a backhoe. The concrete was then subsequently transported to a concrete disposal site and was used for road base material.

No petroleum odors were noted during the course of the excavation. Backfill soils around the clarifier was observed to be clean and dry. No odors or discoloration were noted in the soil from beneath the concrete clarifier.

SOIL SAMPLE COLLECTION

Immediately following clarifier removal, two soil samples were collected from the native soil beneath the 2,000-gallon concrete clarifier. The sample from beneath the clarifier was collected with a backhoe, approximately two-foot below the ends of the clarifier, two feet in native soil and 12 feet below grade. The sample was then packed into a brass tube, tightly sealed and chilled immediately (1:00 PM, January 3, 1990).

The soil sample was immediately packed in ice and transported to Enseco-CRL, Garden Grove, California. A Chain-of-Custody document



FLOOR PLAN

SCALE 1" = 30'-0"

accompanied the sample submitted and appears as Appendix IV.

Soil sample was taken by a representative of Aqua Science Engineers trained and experienced in soil sampling protocol under the direct supervision of a registered civil engineer.

SOIL CLASSIFICATION / BACKFILLING

Backfill soil was classified as a light brown silty sand with little cohesion. The excavation was backfilled and compacted to approximately 90% of the maximum density. The excavation was backfilled and compacted after the soil samples were collected.

Native material around the tank pit to a depth of 10 feet below grade was classified as a light brown silty sand with a moderate amount of coarse, medium and fine gravel. Permeability of the soil is qualitatively estimated to be relatively high. Groundwater was not encountered during the excavation.

CHEMICAL ANALYSIS

The soil samples were analyzed using EPA test method 418.1 for detection of waste oil as total petroleum hydrocarbons (TPH) and EPA test 8020 for volatile aromatics.

The laboratory results indicate slightly detectable levels of petroleum hydrocarbons (Sample: 1A-6ppm, 1B-5ppm), and nondetectable levels of volatile aromatics in soil sample for modified EPA test method 8015 and 8020. The limit of detection for this test is 1ppm. Results of the test appear as Appendix V.

REMARKS / RECOMMENDATIONS

The total petroleum hydrocarbon and volatile aromatics concentrations discovered in all soil samples were basically nondetectable. This excavation was found to be clean of contamination by the standards set fourth by the Los Angeles County Department of Public Works.

Appendix I
LACDPW Clarifier Closure Permit

APPLICATION FOR CLOSURE
 HAZARDOUS MATERIALS UNDERGROUND STORAGE
 COUNTY OF LOS ANGELES-DEPARTMENT OF PUBLIC WORKS
 WASTE MANAGEMENT DIVISION
 100 S. FREMONT AVENUE
 ALHAMBRA, CALIFORNIA 91803-1331

Permit 2-1-5 B
 File R/C
 Fee \$
 Check Cash

OWNER: Name LIQUID AIR CORPORATION Phone (213) 945-1383
 Mailing Address 8832 DICE RD. City SANTA FE SPRINGS State CA Zip 906

FACILITY:
 Occupant Name LIQUID AIR CORPORATION Phone (213) 945-1383
 Site Address 8832 DICE RD. City SANTA FE SPRINGS Zip 906
 Mailing Address " City " State " Zip "
 Contact Person TOM BARBER Title MANAGER

CONTRACTOR , complete below: OWNER/OPERATOR AS CONTRACTOR
 Name ADA SCIENCE ENG Phone (714) 833-3667
 State License No. 487000 Class A

CLOSURE REQUESTED:
 PERMANENT, TANK REMOVAL (See Conditions A and C Attached)
 How many underground tanks will remain after this closure? 0
 PERMANENT, CLOSURE IN PLACE (See Conditions A and D Attached)
 TEMPORARY (See Conditions A and B Attached)

TANK DESCRIPTION:	PLOT PLAN ATTACHED <input type="checkbox"/>			EXISTING HMUSP NO. <u> </u>
Tank No.	Tank Mat'l	Age	Capacity	Materials Stored (Past/Present)
<u>1</u>	<u>CONCRETE</u>	<u>7</u>	<u>2000</u>	<u>OIL (WASTE OIL)</u>

COMPLETE THE FOLLOWING:

	YES	NO
Has an unauthorized release ever occurred at this site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Have structural repairs ever been made to these tanks?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Will new underground tanks be installed after closure?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Will any wells, including monitoring wells, be abandoned?	<input checked="" type="checkbox"/>	<input type="checkbox"/>

NOTICE: CONTAMINATED TANKS AND RESIDUES THAT MAY BE LEFT IN TANKS TO BE CLOSURED MAY BE A HAZARDOUS WASTE WHICH MUST BE TRANSPORTED AND DISPOSED OF PURSUANT TO CHAPTER 6.5, CALIFORNIA HEALTH & SAFETY CODE. FAILURE TO COMPLY MAY BE PROSECUTED AS A FELONY VIOLATION.

By signature below the applicant certifies that all statements and disclosures above are true and correct and that they have read and agree to abide by this permit and all conditions and limitations attached.

Applicant's Signature David M. Schultz Date 12-20-86
 (Print Name) DAVID M. SCHULTZ Phone (714) 642-6666
 Owner Operator Contractor

TO BE COMPLETED BY THE DEPARTMENT OF PUBLIC WORKS
 PURSUANT TO SECTION 11.80.070B, LOS ANGELES COUNTY CODE, PERMISSION IS HEREBY GRANTED TO PROCEED WITH THE CLOSURE DESCRIBED ABOVE SUBJECT TO THE ATTACHED CONDITIONS AND LIMITATIONS . THIS PERMIT EXPIRES 180 DAYS FROM THE DATE BELOW.

T.A. TIDEMANSON
 Director of Public Works

Appendix II
Santa Fe Springs Building and Safety

WORKERS' COMPENSATION DECLARATION

I hereby affirm that I have a certificate of consent to self insure, or a certificate of Workers' Compensation Insurance, or certified copy thereof (Sec. 3800, Lab. C.) (attach) Policy No. _____ Company _____

Certified copy is hereby furnished.
 Certified copy is filed with the county building inspection department.

CERTIFICATE OF EXEMPTION FROM WORKERS' COMPENSATION INSURANCE

This location need not be completed if the work involved (the permit is for one hundred dollars (\$100) or less.) is not to become subject to the Workers' Compensation Laws. I certify that in the performance of the work for which this permit is issued I shall not employ any person in any manner as to become subject to the Workers' Compensation Laws.

12-26-89 Mark J. Fator

NOTICE TO APPLICANT: After making this Certificate of Exemption, you should become subject to the Workers' Compensation provisions of the Labor Code. You must forthwith comply with such provisions. This permit shall be deemed revoked if you employ any person in any manner as to become subject to the Workers' Compensation Laws.

LICENSED CONTRACTORS DECLARATION
 I hereby affirm that I am licensed under provisions of Chapter (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

License Number: 481020 License Class: A

Contractor: Aqua Science Date: 12-26-89

I am exempt from the licensing requirements as I am a licensed architect or a registered professional engineer acting in my professional capacity (Section 7051, Business and Professions Code).

Lic. or Reg. No. _____ Date _____

HOME OWNER-BUILDER DECLARATION

I hereby affirm that I am exempt from the Contractor's License Law for the following reason (Section 7031.5, Business and Professions Code):

I, as owner of the property, will do the work and the structure is not intended or offered for sale (Section 7044, Business and Professions Code).

CONSTRUCTION LENDING AGENCY

I hereby affirm that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ. C.)

Lender's Name _____

Lender's Address _____

I certify that I have read this application and state that the above information is correct. I agree to comply with all County ordinances and State laws regulating Plumbing and Sewers, and hereby authorize representatives of this County to enter the premises for inspection purposes.

2D
 CE 808 (2-80)

APPLICATION FOR PERMIT
 SEWER-SEWAGE DISPOSAL

COUNTY OF LOS ANGELES

BUILDING AND SAFETY

FOR APPLICANT TO FILL IN		MANNHOLE CONNECTION DATA	
BUILDING ADDRESS: 8832 DICE RD.	LOCALITY: SANTA FE SPRINGS	STATION	DEPTH
NEAREST CROSS ST: TELEGRAPH RD	OWNER: LIQUID AIR CORPORATION	MANNHOLE REFERENCE (UPPER LOWER)	TYPE OF CONNECTION
MAIL ADDRESS: 8832 DICE RD.	CITY: SANTA FE TEL. NO. (213) 915-1383	TRUNK PERMIT NO.	LENGTH FROM
LEGAL DESCRIPTION	LOT NO.	APPROVAL W/AVENUE EASEMENT RECORD INSTR. NO. DATE	CO. IMP. NO.
BLOCK	TRACT	STATE ENCROACHMENT PERMIT NO.	
SIZE OF LOT	NO. OF BLDGS. NOW ON LOT	CHARGES	
USE OF BUILDINGS: INDUSTRIAL CHEMICALS	CONTRACTOR: AQUA SCIENCE ENGS.	CONNECTION CHARGE FEE	
ADDRESS: 8817015 SKY PARK CR.	CITY: IRVINE TEL. NO. (714) 833-3667	REIMBURSEMENT FEE	
STATE LICENSE NO. 487000 LIC. CLASS A	NO. DESCRIPTION OF WORK FEE	DISTRICT NO. GROUP	MAP
1 HOUSE SEWER CONNECTING TO PUBLIC SEWER		4.05	APPROVED BY: [Signature]
SEPTIC TANK, SEEPAGE PIT OR PITS AND/OR DRAINFIELD		VALIDATION	
HOUSE SEWER CONNECTING TO PRIVATE DISPOSAL SYSTEM		FINAL DATE	FINAL BY
CONNECT ADDITIONAL BLOC. OR WORK TO HOUSE SEWER		SPECIAL INFORMATION ON REVERSE SIDE	
OVERFLOW SEEPAGE PIT, DRAINFIELD BATH, CESSPOOL, DRYWELL, MANNHOLE		OWNER'S AUTHORIZATION: Permit Issuance 13.00, TOTAL FEE 27.00	
ALTER, REPAIR OR ABANDON HOUSE SEWER OR DISPOSAL SYSTEM	14.00	SIGNED THIS 26 DAY OF DEC 1989	
		OWNER OR OWNERS AGENT: Mark J. Fator	
		ADDRESS:	

PERMITTEE COPY

DICE 00625

Appendix III
Uniform Hazardous Waste Manifest

GENERATOR
 IN CASE OF AN EMERGENCY OR SPILL, CALL THE NATIONAL HAZARDOUS WASTE RESPONSE CENTER 1-800-424-9302, MINN CA 1-800-755-0750

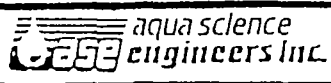
UNIFORM HAZARDOUS WASTE MANIFEST		Manifest Document No. 700701015112	
3 Generator's Name and Mailing Address Liquid Air Corporation 8832 Dice Road, Santa Fe Springs, Ca 90670		A State Manifest Document Number 89809508	
4 Generator's Phone (213) 945-1383		B State Generator's ID NO STATE ID#	
5 Transporter 1 Company Name Roadwest Oil & Vacuum Co., Inc.		C State Transporter's ID 916548	
6 US EPA ID Number 10181001219171710		D Transporter's Phone 713-693-0881	
7 Transporter 2 Company Name		E State Transporter's ID	
8 US EPA ID Number		F Transporter's Phone	
9 Designated Facility Name and Site Address Gibson Oil & Refining 3121 Standard Street Bakersfield, Ca. 93381		G State Facility's ID 905-227-0413	
10 US EPA ID Number		H Facility's Phone	
11 US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)		12 Containers No. Type	13 Total Quantity Unit: WT/VOL
a. California Regulated Waste Only		0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	21 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
b. DOT-E 7476		State Waste No. 223	
c.		EPA/Other None	
d.		State	
J Additional Descriptions for Materials Listed Above 10% to 30% oil 20% to 40% solids Residual emul		K. Handling Codes for Wastes Listed Above a. 01 b. c. d.	
15 Special Handling Instructions and Additional Information Gloves & Goggles			
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.			
Printed/Typed Name MARK FATOR		Signature <i>Mark Fator</i> Month Day 11/2/77	
17 Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name Fred J. Schaefer, Jr.		Signature <i>Fred J. Schaefer, Jr.</i> Month Day 11/2/77	
18 Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name		Signature Month Day	
19. Discrepancy Indication Space			
20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in item 19. Printed/Typed Name Signature Month Day			

DICE 00627

Appendix IV
Soil Sample Chain of Custody Document

LA0295

17895 Sky Park Circle Suite E
Irvine CA 92626



(714) 833-3667

Project Name: LIQUID AIR Site: SANTA FE SPRINGS Date Sampled: 1-3-90 Laboratory: ENSECO-CRL

Sample ID	Sample/Container Type	Analyze/ Hold	Analyze For	Method - Detection Limit	Notes/Remarks
<u>IA</u>	<u>S/T</u>	<u>A</u>	<u>TPH + BTXE</u>	<u>418.1 + 8020</u>	<u>WASTE OIL</u>
<u>IB</u>	<u>S/T</u>	<u>A</u>	<u>" "</u>	<u>" "</u>	<u>" "</u>

S - Soil W - Water U - Other
G - Glass BI - Brass Tube P - Plastic Y - Yial O - Other

Chain of Custody

1. Sampled by: Mark Jaton
 2. Courier: Mark Jaton
 3. Received by Lab: Julian Galidraw
 Date: 1/4/90 Time: 9:02 am
 4. Received in Office: Date: _____

- Collate all samples for single analysis.
- Collate and analyze two top samples and if clean, do not analyze other sample.
- Call ASE for instructions.
- See attached protocol.

DICE 00629

Appendix V
Laboratory Analysis Sheets

Enseco -

Enseco - CRL

7440 Lincoln Way • Garden Grove, CA 92641
(714) 898-6370 • (213) 598-0458 • (800) LAB-1-CRL
FAX: (714) 591-3917

January 16, 1990

AQUA SCIENCE ENGINEERS, INC.
17895 SKYPARK CIRCLE, SUITE E
IRVINE, CA 92626
ATTN: MR. MARK FATOR

Analysis No.: G-9000403-001/002
Date Sampled: 3-JAN-1990
Date Sample Rec'd: 4-JAN-1990
Project: (LA0295) LIQUID AIR

Enclosed with this letter is the report on the chemical and physical analyses on the samples from ANALYSIS NO: G-9000403-001/002 shown above.

The samples were received by CRL in a chilled state, intact and with the chain-of-custody record attached

Please note that ND() means not detected at the detection limit expressed within the parentheses.

Solid samples are reported on "as received" basis.

Preliminary data were provided on January 15, 1990 at 10:10 A.M.



Reviewed



Approved

The Report Cover Letter is an integral part of this report.

DICE 00631

Enseco - CRL

7420 Lincoln Way • Garden Grove, CA 92641
(714) 898-6370 • (214) 595-0458 • (800) LAB-I-CRL
FAX (714) 891-5917

Laboratory Report

AQUA SCIENCE ENGINEERS, INC.
17895 SKYPARK CIRCLE, SUITE E
IRVINE, CA 92626
ATTN: MR. MARK FATOR

Analysis No.: G-9000403-001/002
Date Sampled: 3-JAN-1990
Date Sample Rec'd: 4-JAN-1990
Date Analyzed: 10-JAN-1990
12-JAN-1990
Sample Type: SOLID

Project: (LA0295) LIQUID AIR

Sample ID	TPH	Benzene	Toluene	Ethylbenzene	Xylenes,
	Recoverable				Total
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
	EPA 418.1	EPA 8020	EPA 8020	EPA 8020	EPA 8020
1A	6	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
1B	5	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)
Blank	ND(1)	ND(0.1)	ND(0.1)	ND(0.1)	ND(0.1)

The Report Cover Letter is an integral part of this report.

This report is submitted for the exclusive use of the client and does not necessarily apply to other apparently identical or similar materials. This report is submitted for the exclusive use of the client.

Enseco - CRL

7440 Lincoln Way • Garden Grove, CA 92641
(714) 898-6370 • (213) 598-0458 • (800) LAB-1-CRL
FAX: (714) 891-5917

Laboratory Report

AQUA SCIENCE ENGINEERS, INC.
17895 SKYPARK CIRCLE, SUITE E
IRVINE, CA 92626
ATTN: MR. MARK FATOR
Project: (LA0295) LIQUID AIR

Analysis No.: G-9000403-001/002
Date Sampled: 3-JAN-1990
Date Sample Rec'd: 4-JAN-1990
Sample Type: SOLID

Laboratory Control Sample Report

Date	Parameter (Method)	Average Spike Recovery	Acceptable Range	Relative Percent Difference	Acceptable Range
10-JAN-1990	TPH RECOVERABLE (EPA 418.1)	104	70-117	5.	15
12-JAN-1990	TOLUENE (EPA 8020)	71	60-120	11.	40
12-JAN-1990	ETHYLBENZENE (EPA 8020)	70	60-120	10.	40
12-JAN-1990	XYLENES, TOTAL (EPA 8020)	65	60-120	11.	40

The Report Cover Letter is an integral part of this report

...and does not necessarily apply to other apparently identical or similar materials. This report is compiled for the exclusive use of the client.

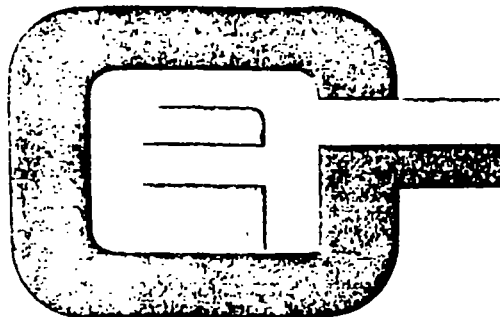
APPENDIX C

- Carbide Lime, Its Value and Its Uses; 1970 by Compressed Gas Associates, Inc.
- Excerpts - Foundation Engineering Handbook, edited by Hans Winterkorn and Hsai-Yang Fang, Van Nostrand Reinold Co., 1975.
- Excerpts - State-of-the-Art Report, Session 12, Tenth International Conference on Soil Mechanics and Foundation Engineering, Stockholm, Sweden, June 15-19, 1981 by James K. Mitchell.
- Standard Specifications, Section 24, Lime Stabilization, 1992, Caltrans.

**CARBIDE LIME
ITS VALUE
AND ITS USES**

*By-Product Calcium Hydrate from
Acetylene Generation
a Source of High Calcium Lime*

**COMPRESSED GAS
ASSOCIATION, INC.
NEW YORK, NEW YORK**



CONTENTS

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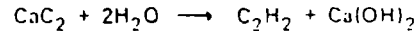
INTRODUCTION

Genesis of Carbide Lime - The Calcium Carbide-Acetylene Process

Carbide lime is a by-product obtained in the generation of acetylene from calcium carbide. It is variously referred to as carbide sludge, generator slurry, lime sludge, lime hydrate, and other such designations. Carbide lime is better described as, by-product calcium hydrate from acetylene generation, or simply, carbide lime.

By-product calcium hydrate is found wherever acetylene is produced from calcium carbide. The calcium carbide employed for the generation of acetylene is manufactured by the reduction of high quality lime by the carbon of selected coxes in the high temperatures of the carbide electric furnacing process. Production of acetylene (C₂H₂) is accomplished by the reaction of calcium carbide with water (H₂O) in properly designed acetylene generating equipment. In this process acetylene of the

highest purity is produced from the carbon (C) of the carbide and the hydrogen (H) of the water. The process also produces the subject carbide lime or by-product calcium hydrate (Ca(OH)₂), the latter obtaining its calcium from the carbide and its hydroxide radical from the oxygen and hydrogen of the water. The chemical equation for this reaction is:



Carbide lime is a potential top grade hydrated lime because of the high quality of the original raw materials of the process, and because of the very nature of the electric furnacing and acetylene generation steps through which the lime must pass.

By-product calcium hydrate from acetylene generation is a source of high calcium lime. Its economic and chemical usefulness is potentially comparable to that of commercial lime and hydrated lime in all fields of agriculture and farming, in building and construction, in industrial and chemical processes, and for numerous incidental purposes.

PART I

TABLE OF POTENTIAL USES

Lime and hydrated lime find use in many processes. In many instances carbide lime, or by-product hydrated lime, may be employed. The following table is suggestive of potential use or application. More detailed treatment of these applications is given in the text that follows:

FIELDS OF USES	FIELDS OF USES	FIELDS OF USES	FIELDS OF USES
Farming Soil-Conditioning Insecticide Fungicide Disinfectant	Paper Waste Treatment Sulphite Process Sulphate Process Soda Process Rag Stock Strawboard De-inking Bleaching	Textile Wool Degreasing Waste Treatment Bleaching Rayon Acid Waste	Meat Waste Treatment
Chemical Waste Treatment Pharmaceuticals Strychnine Quinine Organic Processes Lactic Acid Citric Acid Ethylene Oxide Ethylene Glycol Inorganic Processes Caustic Soda Calcium Salts Chlorinated-Hydrocarbons Trichloroethylene Perchloroethylene Bleaches	Ferrous Metals Waste Treatment Manganese Concentration Wire Mill Cleaner Casting Mold Liner Ore Reduction	Soap Waste Treatment Calcium Stearate Glycerine Fatty Acids Sewage Waste Treatment Water Softening Lime Soda Process Lime Process	Canning Waste Treatment Citric Acid Recovery
Building Road Stabilization Sand-Lime Bricks Refractory Bricks Lime Mortar Lime Cement Concrete Waterproofing	Non-Ferrous Metals Waste Treatment Magnesium Production Aluminum Production Cadmium Production Flotation Process Coating Cinder Pots	Plastics Waste Treatment Coal & Coke Mine Waste Treatment Ammonia Recovery Gas Purification Ammonia Still	Sugar Waste Treatment Cane Refinery Beet Refinery
	Petroleum Waste Treatment Emulsion Breaking Heavy Greases Catalytic Cracking Washing Gases	Paints Water Paints Whitewash Varnish Casein Paints Linseed Oil	Distilling Waste Treatment Tartrate Recovery Yeast Production
			Tanning Waste Treatment Hide Soaking Glue Gelatine
			Glass Sand Washing Lime Glass
			Dairy Waste Treatment

PART II
CARBIDE LIME TECHNICAL DATA
AND AVAILABILITY

Utility of Carbide Lime. One of the highest authorities on the subject of lime and its uses set forth the following observations on the subject, all of which has equal applicability to the utility of carbide lime:

"The great utility of lime has not been generally known, and the general impression prevails that lime is merely a cheap building material that may be used in a few technical processes. It would lead to important economic betterments if the scientific, industrial, and business world realized that of all the nation's raw materials and manufactured products, none is more richly endowed than is lime with intrinsic merits and capacities for broad application to our industrial and farm life.

"Lime is much more than a building material. It is a chemical and a most versatile one. It is distinguished first of all by the large number of different functions that it will perform. In its construction uses, it performs at least nineteen different functions. In its chemical uses, the number is much larger, and there remain many others that may reasonably be expected to result from the systematic research and experimental work now being carried on in the matter of lime and its properties."

Solids Content and Drying. The generation of acetylene from calcium carbide, reacted with water in a "wet" generator, produces a slurry of calcium hydroxide (calcium hydrate). The usual solids concentration of the slurry from "wet generation" is from 10 to 12 per cent. It is possible to concentrate this slurry to about 30 or 40 per cent solids by decanting or by the use of a mechanical thickener and to between 45 to 55 per cent solids by prolonged pond settling. Commercial operations have demonstrated that the slurry can be concentrated satisfactorily through a range up to 60 per cent solids in a centrifuge. Experimental tests have indicated that drying of the 60 per cent solids material to a moisture content of from 1 to 3 per cent can be accomplished in a flash drier without excessive carbonate formation. Commercial operation has further demonstrated that 60 per cent solids hydrate can be calcined in a rotary kiln to produce a high quality calcium oxide of unusual reactivity; the product is inherently of extreme fine particle size and may be produced in either agglomerated or briquetted form.

The generation of acetylene from calcium carbide, reacted with limited quantities of water, in a "dry" generator produces a commercially dry calcium hydroxide of extreme fineness, high chemical quality, and essentially free of foreign coarse impurities. Commercially, "dry" generator product is limited as to availability because the production of acetylene and carbide lime is predominately via the "wet" generation process.

Dilute or concentrated slurry can be dried effectively by mixing it with quicklime. The surplus water in the carbide lime slurry slakes the quicklime such that the per cent solids of the resultant mixture is appreciably increased even to the extent of achieving a commercially dry hydrate. This is accomplished in a process consisting essentially of a slurry tank with manually controlled discharge, a quicklime feeder, and a mixing tank or hydrator. The quicklime hydration develops considerable heat which acts to vaporize some of the water and the volatile impurities of the carbide lime. The resultant hydrated lime product is completely free from sulphide and objectionable odors and is amenable to further processing as to improvement or physical sizing, and hence is suitable for various end uses in the chemical, industrial, building, or agricultural fields.

Typical Chemical Composition. The following is a typical chemical analysis of carbide lime as compared to commercial hydrate:

CALCIUM HYDRATE ANALYSES
(Dry Basis)

	Acetylene Generator By-Product Hydrate		Commercial Hydrate	
	From Generator	From Pond	Sample 1	Sample 2
Ca (OH) ₂	96.50	92.22	96.44	92.40
Available CaO	(73.00)	(69.80)	(72.50)	(69.90)
CaCO ₃	1.25	2.82	1.76	3.80
SiO ₂	1.10	1.46	0.81	1.30
R ₂ O ₃ (Al ₂ O ₃ , Fe ₂ O ₃) ...	0.50	2.66	0.38	0.90
Mg (OH) ₂	0.25	0.16	0.57	1.40
S	0.15	0.17	0.03	0.10
P	-	0.01	0.01	0.01
Free Carbon	0.25	0.50	-	-

Color, Odor, and Foreign Materials. It is to be recognized that carbide lime is a "by-product" as produced by the carbide-acetylene process; slight variations in chemical analysis and presence of alien matter will exist depending on local conditions at the point of production.

The by-product hydrate has a grayish color and a characteristic acetylene odor as it comes from the generator; this odor passes away with time, but the grayish color results largely from the very small percentage of combined sulphur contained in the slurry. Also contained in the slurry are small amounts of ferrosilicon and carbon.

Particle Size and Magnesium Content. Carbide lime is extremely fine in particle size, comparable to and usually finer than most commercial hydrated limes. It has a number of advantages, such as:

1st: Complete Hydration: That is, freedom from unslaked lime, because it is made in many times its own weight of water, while ordinary hydrated lime is made with only a fraction of its own weight of water in order to avoid subsequent drying, which is inconvenient and expensive.

2nd: Fine State of Sub-division or Fineness: In a published test of dried carbide lime, 99.9 per cent passed through a 300 mesh sieve; in another series of tests 92 to 98 per cent passed through a 325 mesh screen, while ordinary commercial hydrated lime does not show as good a percentage through a 200 mesh sieve. This extreme fineness is caused by the nature of its formation from calcium carbide. The acetylene on liberation has a tendency to crack or break open ordinary fine grains of lime into still finer particles. The heat and excess water in the generator also present ideal conditions for the production of very fine particles of hydrated lime. Conspicuous advantages of this fine state of sub-division are quicker and more efficient reactivity and the need for a smaller amount of carbide lime than is the case with ordinary hydrated lime. This finer sub-division is particularly valuable when carbide lime is used in the chemical, industrial, and construction fields of usage.

3rd: Low Magnesium Content: There is only a trace of magnesium present, because the lime originally used in making calcium carbide must be extremely low in magnesium. Low magnesium and high calcium are especially necessary in most chemical uses of lime, because the resulting magnesium products dissolve very readily in water, while calcium products are insoluble and can easily be removed by precipitation.

4th: Price: Users of hydrated lime can in many instances effect a saving of one-third to one-half of their present expenditure for lime, by arranging to secure carbide lime from a nearby acetylene generating plant. A very high grade of by-product hydrated lime can be purchased at attractively lower prices.

Bulk Density vs. Per Cent Solids. Following are typical weight ratio and density data of carbide lime at various per cents of solids content based on a specific gravity of solids of 2.14.

Solids Content %	Weight Ratio		Density Lb. per gal.
	Lb. Carbide Lime per	Lb. available CaO	
10	14.4	8.8	
20	7.3	9.3	
30	4.8	9.9	
40	3.6	10.6	
50	2.9	11.4	
60	2.4	12.3	

Per Cent Solids vs. Available CaO. The available calcium oxide content of carbide lime is often the gage by which its value or usefulness is measured. By-product calcium hydrate has a higher available calcium oxide content than many high grade commercial hydrated limes. Following are typical data relating per cent solids of carbide lime per ton of available CaO:

Solids Content %	Gal. Carbide Lime per Ton Available CaO
10	3,300
20	1,560
30	960
40	670
50	510
60	400

Handling and Pumping. Pumping of carbide lime has been demonstrated to be feasible in solids concentrations as high as 40 per cent. Carbide lime with a solids content in the range of 50 to 60 per cent is amenable to digging and truck hauling. Tank truck or car haulage of the lesser solids content slurries has been demonstrated satisfactorily.

Handling and Transportation. Water slurries of carbide lime, containing up to 40 per cent solids by weight, are fluid enough to be pumped satisfactorily with standard type centrifugal pumps. At about 50 per cent or more solids content, the concentration reached by prolonged storage in pits or ponds, the consistency of the carbide lime is that of a fairly firm putty which can be handled effectively by digging with power shovels. Carbide lime in the intermediate 40 to 50 per cent solids content semi-fluid state can either be fluidized for pumping by adding water or be further concentrated to a putty firm enough for shovelling by continued settling and decanting of supernatant clear water.

The consistency of carbide lime can be readily altered to permit efficient handling. If the dilute slurry containing 10 to 12 per cent solids (which is obtained from wet type generators) is too dilute for economical shipment, or for intended end use, it can be thickened by settling and decanting or draining off the surplus water. Generator installations in industrial plants are commonly provided with subsurface settling pits or elevated tanks equipped with clear water decanting facilities to accomplish this thickening. In the case of settled carbide lime, addition of water and positive agitation is required to develop a slurry of uniform density. This agitation can be accomplished with a submerged jet of compressed air, steam or high pressure water applied through pipes or nozzles in fixed position, or by manual application of portable equipment. Mechanical means such

manually operated hoes and power driven rotating paddles can also be used effectively.

Carbide lime, of the plastic putty-like consistency developed after prolonged settling in storage pits or ponds, is firm enough for clean handling by power operated shovels of the clam shell or dipper type, or by scrapers or scoops operated from drag lines. This material can be transported in hopper body trucks which are sufficiently water tight to prevent leakage to the roadway, by river barge, and by rail in hopper cars of the type used for transporting cement in bulk. Rail shipment in open hopper or gondola cars is also feasible if a temporary cover is provided to prevent loss by leakage of slurry which might be developed by exposure to rain or snow in transit.

Fresh generated slurry is most economically utilized closest to the point of production; reduction of moisture content by one of several methods is progressively more essential economically, prior to hauling to points of usage, to reduce the gross volume per unit of solids.

Fineness vs. Settling. In spite of the fineness of carbide lime particle size, the solids of a slurry are generally many times faster settling than the solids of a water-lime mixture made directly from burned lime. This difficulty may be overcome in most cases by utilizing a surge tank with agitator. If this latter method should prove inadequate under certain process conditions the difficulty may be overcome by grinding the wet slurry in a colloid mill. When so treated, it is known that the slurry can be held in tank storage for a week or more without appreciable settling, and in addition is less apt to clog valves or lines of a pumping system.

Processing of Carbide Lime for the Manufacture of Brick and Hydrated Lime. A prominent producer of gas products in Hawaii has reported successful utilization of the by-product carbide lime of his carbide acetylene generation operations. This enterprising producer has equipped his operations with process equipment which enables him to recover approximately one ton of hydrated lime for each ton of calcium carbide consumed by the acetylene generator. With this equipment full utilization of the available by-product carbide lime is accomplished in two different ways; first and oldest, to supply lime for the manufacture of sand-lime brick; second in the manufacture of hydrated lime.

Sludge from the drain pit of the acetylene generator is pumped over a 1/8 in. mesh screen to remove coarse particles and thence runs by gravity to the feed ring of a 15 ft. diameter by 8 ft. deep Dorr thickener. Here it is thickened from an original concentration of about 10 per cent solids to one of 40 per cent solids, the clear overflow going to waste.

For the manufacture of brick, the thickened slurry

is pumped to a 3 ft. by 4 ft. Oliver vacuum filter. The resulting cake contains about 55 per cent solids. The filtrate is returned to the Dorr thickener. It is usually clear, but sometimes an old cloth will develop holes and give a cloudy filtrate. A 1 1/2 in. Oliver diaphragm slurry pump is used to feed the filter. The thickened cake falls near the brick mixing pan and is shoveled into the pan as required.

For the manufacture of hydrated lime, thickened sludge not required for brick manufacture is pumped into a 232 cu. ft. trailer tank and hauled to the lime plant. Here it is pumped into a 9 ft diameter by 8 ft. deep agitated storage tank. A Carter Humdinger plunger pump is used to empty the trailer and also to pump the sludge from storage to the hydrator slurry feed tank. Here it is mixed with water from the hydrator Schneible wet dust collecting system and fed to a Kuntz continuous hydrator. Here it is mixed in proper proportions with crushed quicklime from the lime kilns. The hydration or slaking reaction develops quite a lot of heat, so that it is necessary to supply about twice as much water as is theoretically required. The excess boils off and thus removes the extra heat and the vapor carries with it odorous impurities in the sludge. Hydration temperature should be between 215 and 250 deg. F. for best results. Quicklime is fed by a star feeder and slurry feed is adjusted annually to get the proper operating temperature.

The dry crude hydrate discharged from the hydrator is elevated and dumped into a surge bin. From here it is fed by an automatic load controller to a No. 1 Raymond swing hammer mill with double whizzer separator. The coarse impurities are discharged and conveyed by a vacuum pneumatic conveyor to a storage bin. This product is sold for agricultural lime. The purified hydrate, 99+ per cent through 200 mesh and about 70 per cent CaO, is separated from the mill air stream by a cyclone collector and a set of filter bags. These discharge into the finished lime storage bin. The product is bagged in 50 lb. bags as chemical hydrate lime by a 2-spout Bates packer, or is loaded into bulk shipping tanks for local customers.

While the sludge is rather low in sugar soluble lime, total CaO is quite high. Its use in quantities up to 10 per cent of the product, dry basis, does not seem to impair product quality. No sulphide can be detected in the finished lime, and it does not have any sludge odor, even when it is acidified and boiled.

Availability of Carbide Lime. Carbide lime, a top grade by-product calcium hydrate equivalent in many characteristics to top grade commercial hydrated lime, is available throughout industrial and farming areas — wherever calcium carbide is generated for production of acetylene. Classified sections of local telephone directories generally list producers or sales agents of "Acetylene" who would normally be in a position to advise where carbide lime would be available.



SPECIAL ANALYSIS

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Judging How Best To Budge The Sludge

by Beth L. Starr

Option one — Incineration. Option two — Surface disposal. Option three — Land application. Confusion abounds as thousands of wastewater treatment facilities and sludge handling companies prepare to comply with the extensive requirements of the Environmental Protection Agency's new rule on the use or disposal of sewage sludge via these three alternatives. The 267-page rule (with preamble) is one of the most comprehensive multi-media packages of national standards, contaminant limits, and monitoring, recordkeeping, and management practices ever to be promulgated under the federal Clean Water Act, according to EPA.

The rule, issued on Feb. 19 under 40 CFR Part 503 of the Water Act, regulates by permit the use and disposal of sewage sludge by some 7,500 publicly owned treatment works, 1,700 privately and federally owned treatment works, nearly 6,000 septage haulers, and 200 incinerators.

Although the agency intends to include the requirements of the regulations in sewage sludge permits issued under the Water Act's National Pollutant Discharge Elimination System permitting program, the rule is self-implementing. This means that the regulations can be enforced by EPA or through citizen's lawsuits before sludge use and disposal permits are issued.

Affected parties may either obtain a separate sludge use and disposal permit or have the sludge requirements incorporated into their overall NPDES permit. Sludge contaminant limits are set in the rule, but certain facilities, such as incinerators or some types of surface disposal facilities, may be required to have site-specific limits developed by the permitting authority. For now, permits will be issued in phases by EPA through its regional offices, but the ultimate goal is to have states develop and operate their own federally approved sludge permitting programs as part of their larger NPDES permitting authority. For more informa-

Ms. Starr is senior editor of BNA's *Water Pollution Control*.

tion on the sludge rule, see *Water Pollution Control*, Tab Section 901.

The rule does not apply to the use or disposal of sludge generated at industrial facilities during the treatment of industrial wastewater. Sewage sludge and other wastewater solids disposed of in bulk in municipal solid waste landfills or used as landfill cover material is regulated separately by solid waste landfill regulations (40 CFR Part 258) that were issued jointly under the Water Act and the Resource Conservation and Recovery Act.

Robert Bastian, an official in EPA's Office of Wastewater Enforcement and Compliance, told BNA that the sludge regulations will affect generators, processors, users, transporters, and disposers of sewage sludge or products derived from sewage sludge. It's a common-sense regulation, Bastian said: if you generate sludge or change the nature of the sludge in any way, you need a permit. However, formal permit application forms do not exist yet. EPA currently is developing a generic federal application form.

The new rule is generating a lot of questions from the regulated community, according to several state sludge program coordinators and EPA regional officials interviewed by BNA. "A lot of the questions have to do with pathogen reduction and [compliance] deadlines," Michael Stevens of the Georgia Department of Natural Resources told BNA. The regulations are quite complex, Stevens continued, and at first glance, it is not clear to the regulated community that there are a number of sludge use and disposal options available. (See Box on p. 3 for a summary of pathogen treatment processes required under the rule).

Al Keller, state sludge program coordinator for the Illinois Environmental Protection Agency, added that the regulated community "must fully understand the definition of who is a preparer/applier [of sludge]," to be able to comply with the regulations. In addition, applicants "need a better understanding of pathogen and vector control [to deter-

mine] whether they are in compliance with the requirements of those sections of the rule," he continued. (See Box on p. 4 for a summary of the rule's vector attraction reduction requirements).

What Permittees Need To Know

The first sludge rule provision to become effective is the monitoring and recordkeeping requirement, Rod Geisler of the Kansas Department of Health and Environment told BNA. Affected parties must begin monitoring and recording pathogen and pollutant levels in sludge under the new rule by July 20. Geisler said this "may be the hardest thing to do because some people may be used to just hauling the sludge and spreading it out" without having to keep any records or monitoring information.

Bastian concurred, "The first thing that's enforceable [under the sludge rule] is the recordkeeping and monitoring requirement." The regulated community must get ready to comply with the immediate deadline at hand and should be aware of subsequent deadlines falling over the next year or so, he continued. The rule says that compliance with all Part 503 standards is required within 12 months of its publication. This means that by Feb. 20, 1994, compliance must be achieved for all other activities involving land application, surface disposal, or incineration of sewage sludge. However, Bastian added, if construction of new pollution control facilities is needed to achieve compliance, then compliance is not required until Feb. 19, 1995.

All treatment works treating domestic sewage, including non-dischargers and sludge-only facilities, must apply for a permit, he continued. The definition of "TWTDS" includes facilities that generate, process, or otherwise control the quality of sewage sludge or the manner in which it is used or disposed, Bastian explained. However, commercial handlers that only distribute or land-apply the sewage sludge without changing its quality are not automatically considered TWTDSs. They are not required to submit permit applications unless specifically requested to do so by the permitting authority, which for the time being is EPA.

TWTDSs include disposal facilities such as sewage sludge incinerators, monofills, and other surface disposal sites, Bastian said. Land where sewage sludge is beneficially used, such as farmland and home gardens, generally is not considered a TWTDS, he noted.

EPA Region 8's Bob Brobst told BNA that he is telling facilities not to wait until July 20 to begin monitoring. "Analyze all the [designated] metals before that date," he said. "The ultimate loss [to someone who did not comply with the recordkeep-

ing and monitoring requirements for a particular site] is that EPA could eliminate that site so that sludge could no longer be applied," Brobst said.

Pathogen reduction seems to be the hardest part of the regulation to get across to people, Brobst continued. The requirement is simple: "Thou shalt not be above a certain limit," he said, but it's the concept of pathogen destruction that seems to be a big issue.

Brobst said he also anticipates some problems regarding the public's perception of septage haulers. "Septage haulers are chronic complaint-getters," he noted. EPA is going to see citizens' groups try to use the sludge regulations "to [take care of] things not addressed in the rule, such as odors and land-use issues," he predicted. To be better prepared for such actions, Brobst suggested that septage haulers "do a three-part bill" for recordkeeping purposes. One part should be filed in the hauler's environmental records, the second part should be sent to the hauler's accountant, and the third part should be sent to the customer, he said.

Need-To-Know Deadlines

The following deadlines become effective under the sewage sludge use and disposal regulations:

► **July 20** — Begin monitoring for pollutants (except total hydrocarbon emissions) and keep records that include how various requirements were met.

► **August 18** — For facilities seeking site-specific permit limitations and all sewage sludge incinerators, submit a sludge use and disposal permit application to EPA. Owners of surface disposal facilities also may request site-specific permit limitations at this time. In the future, proposed new facilities affected by the rule must apply for a permit 180 days before beginning operation.

► **Feb. 19, 1994** — Comply with all land surface disposal, incineration, and land application requirements. Sludge-only TWTDSs that do not have NPDES permits (and that are not required to have site-specific limits) must submit with their sludge use and disposal permit application certain limited data. Required information includes the activities conducted by the applicant; the name, mailing address, and location of the TWTDS; the operator's name, address, telephone number, ownership status, and status as federal, state, private, public, or other entity; and any sludge monitoring data the applicant may have, including available groundwater monitoring data.

► **At least 180 days before an NPDES permit expires** — Submit permit applications according to NPDES permit renewal procedures and including provisions addressing sludge rule requirements.

**TABLE 1: PATHOGEN TREATMENT PROCESSES
PROCESSES TO SIGNIFICANTLY REDUCE PATHOGENS (PSRP)**

For the purposes of pathogen control, sewage sludge is classified into two categories, Class A and Class B. All sewage sludges that are to be sold or given away in a bag or other container, or applied to lawns or home gardens must meet Class A pathogen requirements. All sewage sludge intended for land application must meet at least the Class B pathogen requirements.

The following processes may be used to significantly reduce pathogens in sludge (these help meet Class B requirements):

- ▶ **Aerobic Digestion** — Sewage sludge is agitated with air or oxygen to maintain aerobic conditions for a mean cell residence time and temperature of between 40 days at 20 degrees Celsius and 60 days at 15° C.
- ▶ **Air Drying** — Sewage sludge is dried on sand beds or on paved or unpaved basins for a minimum of three months. During two of the three months, the ambient average daily temperature is above 0° C.
- ▶ **Anaerobic Digestion** — Sewage sludge is treated in the absence of air for a mean cell residence time and temperature of between 15 days at 35° C to 55° C and 60 days at 20° C.
- ▶ **Composting** — Using either the within-vessel, static aerated pile, or windrow composting methods, the temperature of the sewage sludge is raised to 40° C or higher for five days. For four hours during the five days, the temperature in the compost pile exceeds 55° C.
- ▶ **Lime Stabilization** — Sufficient lime is added to the sewage sludge to raise the pH of the sewage sludge to 12 after two hours of contact.

PROCESSES TO FURTHER REDUCE PATHOGENS

The following methods may be used to further reduce pathogen content in sludge (these help meet Class A requirements):

- ▶ **Composting** — Using either within-vessel or static aerated pile composting, the temperature of the sewage sludge is maintained at 55° C or higher for three days. Using windrow composting, the temperature of the sewage sludge is maintained at 55° C or higher for 15 days or longer. During this period, a minimum of five windrow turnings are required.
- ▶ **Heat Drying** — Sewage sludge is dried by direct or indirect contact with hot gases to reduce the moisture content of the sewage sludge to 10 percent or lower. Either the temperature of the gas in contact with the sewage sludge exceeds 80° C or the wet bulb temperature of the gas in contact with the sewage sludge as the sewage sludge leaves the dryer exceeds 80° C.
- ▶ **Heat Treatment** — Liquid sewage sludge is heated to a temperature of 180° C or higher for 30 minutes.
- ▶ **Thermophilic Aerobic Digestion** — Liquid dewatered sewage sludge is agitated with air or oxygen to maintain aerobic conditions and the mean cell residence time for the sewage sludge is 10 days at 55° C to 60° C.
- ▶ **Beta Ray Irradiation** — Sewage sludge is irradiated with beta rays from an accelerator at dosages of at least 1.0 megarad at room temperature.
- ▶ **Gamma Ray Irradiation** — Sewage sludge is irradiated with gamma rays from certain isotopes such as ⁶⁰Co and ¹³⁷Ce, at dosages of least 1.0 megarad at room temperature.
- ▶ **Pasteurization** — The temperature of the sewage sludge is maintained at 70° C or higher for at least 30 minutes.

Applicants may be required to submit permit applications earlier than the times noted above. In this case, permit applications are due within 180 days of the request.

Annual reporting of monitoring data is required of all Class I sewage sludge management facilities (i.e., the 1,600 pretreatment POTWs and 400 other "designated" TWTDSs). Annual reporting also is required of other "major" POTWs — those with a design flow of 1 million gallons per day or more, or serving a population of 10,000 people or more.

Suggestions From The Pros

As for enforcement of the sludge rule, EPA's Bastian said, "A lot of what is going to be considered noncompliance is still unknown." He advised affected parties to keep asking themselves what they have to do to stay out of trouble.

Several of those interviewed by BNA had other

suggestions that they said could help permittees maintain compliance.

Brobst of EPA Region 8 said, "Don't be afraid to ask questions." Claiming not to know the regulation will not be a defense, he said.

Kansas' Geisler advised owners and operators of affected facilities and businesses to attend seminars and workshops, and to hire consultants if needed. "When you get to a certain point, or when it comes down to the nitty gritty," get outside help, he said. Also, Geisler suggested that affected parties get into the routine of keeping records — immediately.

Prepare for extra expenses associated with compliance, Illinois EPA's Keller noted.

Finally, John Dunn of EPA Region 7 urged permittees to remember that nitrogen is a pollutant of concern and is likely to draw a lot of attention in the sludge rule permitting program. Use good farming methods to "keep sludge where you put it."

TABLE 2: VECTOR ATTRACTION REDUCTION REQUIREMENTS

Vector attraction reduction decreases the potential for spreading of infectious disease agents by insects, rodents, and birds. The following methods can be used to meet the sludge rule vector reduction requirement:

(1) *Aerobic or Anaerobic Digestion* — The mass of volatile solids (VS) is reduced by 38 percent or more. VS reduction is measured by comparing the raw sewage sludge mass prior to stabilization with the sewage sludge mass ready for use or disposal. This criterion should be readily met using properly designed and operated anaerobic digesters, but not as readily with typical aerobic digesters. POTWs with aerobic digesters may have to use alternatives three or four below to meet vector attraction reduction requirements.

(2) *Anaerobic Digestion* — If 38 percent VS cannot be achieved, vector attraction reduction can be demonstrated by further digesting a portion of the digested sewage sludge in a bench scale unit for an additional 40 days at 30° C to 37° C or higher and achieving a further VS reduction of less than 17 percent. If the volatiles in the extracted portion cannot be further reduced by 17 percent or less, a stable material has been shown to exist in the digester.

(3) *Aerobic Digestion* — If 38 percent VS cannot be achieved, vector attraction reduction can be demonstrated by further digesting a portion of the digested sewage sludge with a solids content of 2 percent or less in a bench scale unit for an additional 30 days at 20° C. and achieving a further VS reduction of less than 15 percent. If the volatiles in the extracted portion cannot be further reduced by 15 percent or less, a stable material has been shown to exist in the digester.

(4) *Aerobic Digestion* — Specific oxygen uptake rate (SOUR) is less than or equal to 1.5 milligrams O₂/hr-gram of total solids at 20° C. If unable to meet the SOUR criteria, POTWs may be able to meet the vector reduction requirements using alternative three.

(5) *Aerobic Processes* — (e.g., composting) Temperature is kept at greater than 40° C for at least 14 days and the average temperature during this period is greater than 45° C.

(6) *Alkaline Stabilization* — pH is raised to at least 12 by alkali addition and, without the addition of more alkali, remains at 12 or higher for two hours and then at 11.5 or higher for an additional 22 hours.

(7/8) *Drying* — Total solids is at least 75 percent when the sewage sludge does not contain unstabilized primary solids and at least 90 percent when unstabilized primary solids are included. Blending with other materials is not allowed to achieve the total solids percent.

(9) *Injection* — Liquid sewage sludge (or domestic septage) is injected beneath the land surface with no significant amount of sewage sludge present on the surface after one hour. Sewage sludges that are considered Class A for pathogen reduction must be injected within eight hours of discharge from the pathogen reduction process. This alternative may be used for bulk sewage sludge that is land applied to agricultural land, forest, public contact sites, or reclamation sites; domestic septage that is land applied to agricultural land, forest, or reclamation sites; and sewage sludge or domestic septage placed in a surface disposal site.

(10) *Incorporation* — Sewage sludge (or domestic septage) that is land applied or placed in a surface disposal site is incorporated into the soil within six hours of application. Sewage sludge that is Class A for pathogen reduction which is land applied must be incorporated within eight hours of discharge from the pathogen reduction process. This alternative is applicable to bulk sewage sludge land applied to agricultural land, forest, public contact sites, or reclamation sites; domestic septage that is applied to agricultural land, forest, or reclamation sites; and sewage sludge or domestic septage placed in a surface disposal site.

(11) *Surface Disposal Daily Cover* — Sewage sludge or domestic septage placed in a surface disposal site is covered with soil or other material at the end of each operating day.

(12) *Domestic Septage Treatment* — The pH of domestic septage is raised to 12 or higher by alkali addition, and without the addition of more alkali, remains at 12 or higher for 30 minutes. This alternative is applicable to domestic septage applied to agricultural land, forest, or reclamation sites, or placed in a surface disposal site.

One of the vector attraction reduction alternatives 1-10 must be used when bulk sewage sludge is applied to agricultural land, forest, public contact areas, or reclamation sites. One of the alternatives 1-8 must be used when bulk sewage sludge is applied to lawns or home gardens or sewage sludge is sold or given away in a bag or other container for land application. One of the alternatives 1-11 must be met when sewage sludge is placed in a surface disposal site. Although domestic septage also can be treated the same as sewage sludge, when it is handled as "domestic septage" rather than sewage sludge, one of alternatives 9, 10, or 12 must be met when it is applied to agricultural land, forest or reclamation sites, and one of alternatives 9-12 must be met when it is placed in a surface disposal site.

trated by liquid water. They can, however, be penetrated by water vapor. This takes place slowly in actual field installations and, more rapidly, in the thawing phase of the freeze-thaw test when water vapor from the surrounding warmer atmosphere will move into and condense in the cold core of the test specimen. With soil materials of the indicated character, freeze-thaw tests should be conducted even for construction in areas where freezing does not normally occur. In these cases, the real function of the test is to "pump" water vapor into the specimen in a similar manner as would occur over a longer time period under natural conditions beneath a pavement. Without such consideration of the dimensions and rates of transportation and reactions involved in the standard testing of normal materials and of the need for changes in testing necessitated by abnormal system properties that are produced by chemical additives, it is impossible to judge the beneficial or adverse effect of an additive. The scientific basis for accurate judgment in such cases has been laid in the fundamental investigation by Winterkorn, Gibbs, and Fehrman (1942). Much of the published work on the alleged "beneficial" effect of alkaline admixtures on the quality of soil-cement is irrelevant or misleading (Winterkorn, 1964).

Equipment Requirements Depending on the size, importance, and circumstances of the job, soil stabilization with portland cement, or any other stabilizer, may be achieved with means that range from the most primitive handtools for comminution, mixing, and densification, to very sophisticated "single pass" machines. Best usage of the various types of currently available construction equipment is described and illustrated in the *Soil-Cement Construction Handbook* (PCA, 1956).

Sealing and Protective Surface As soon as possible after compaction, the soil-cement should be protected against loss of moisture which is needed for the hydration and hardening of the portland cement. In recent years most soil-cement has been cured with bituminous material, but other materials, such as waterproof paper, or moist straw or dirt, are entirely satisfactory. The types of bituminous materials most commonly used are RC-2, MC-3, RT-5, and asphaltic emulsions. Rate of application varies from 0.15 to 0.30 gallons per square yard. When the surface is to be used immediately, the bituminous material should be blotted with sand (NLA, 1972).

2. Soil Stabilization with Lime

Introduction. The Place of Portland Cement Among other Hydraulic Bonding Agents Hydraulic cements are mineral powders of such composition that they react with water to form strongly cemented systems. The common hydraulic cements are mixtures of calcium silicates and aluminates and include the portland-, natural-, slag-, and alumina cements. The ranges in primary chemical composition (SiO_2 ; CaO ; $\text{Al}_2\text{O}_3 + \text{Fe}_2\text{O}_3$) of these cements is shown in Fig. 8.11, which also shows the compositional ranges of quick lime, hydraulic lime, and puzzolan cement. From the location of their respective compositional ranges one could conclude that it is possible to make a portland cement out of a mixture of hydraulic lime and puzzolan. Here it must be remembered that portland cement is legally defined, not only by its elementary composition, but also by the formation of definite Ca-silicate and aluminate compounds at curing temperatures, and by pulverization of the hard clinker to a certain particle size range. Within this compositional definition of portland cement fall several types of

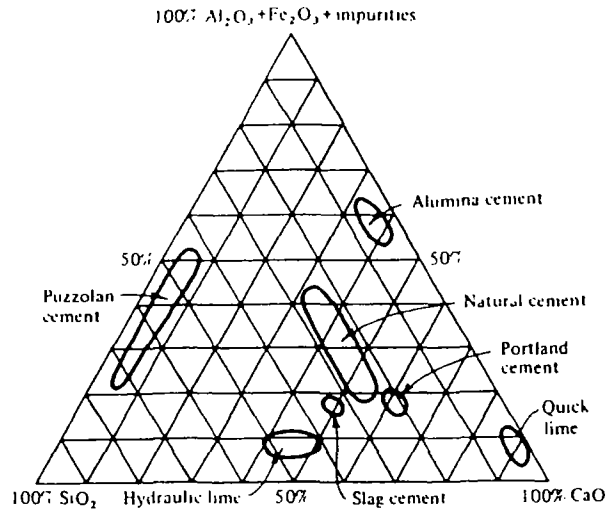


Fig. 8.11 Composition of cements by weight. (After Murphy, 1957.)

cement that are used for particular purposes. These are shown in Fig. 8.12 (Murphy, 1957).

We may now stipulate that:

- (1) The portland cement compositional range gives the most desirable end product in reaction with water;
- (2) The legally defined portland cement, containing the right chemical components and the standardized particle size range, will attain the desired strength and durability properties within a few days, or at most weeks;
- (3) According to thermodynamics, the ultimate equilibrium products depend only on the composition, including the respective concentrations, and the temperature and pressure conditions of the system, but the times required for reaching equilibrium may vary tremendously depending upon the particular components that make up the initial system.

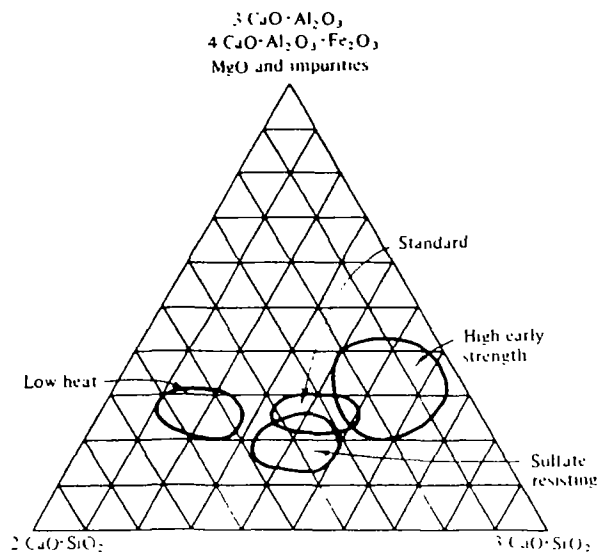


Fig. 8.12 Composition of special and standard portland cements by weight. (After Murphy, 1957)

Reference: Foundation Engineering Handbook, edited by Hans Winterborn and Hsai-Yang Fang, van Nostrand Reinhold Co., 1975

Therefore, given sufficient time, the hydration products of portland cement may be duplicated by combining, at normal environmental temperature, two or more of the primary components, i.e., calcium oxides (CaO), SiO_2 , and $\text{Al}_2\text{O}_3(\text{Fe}_2\text{O}_3)$ in the right proportions in an aqueous system. Since most soils contain silica and aluminosilicates, simple addition of quick or hydrated lime and water may suffice to establish the desired composition. The critical question is, will the rate of reaction be large enough that the final cementing compounds will be formed within a reasonable period of time? Experience has answered this question in the affirmative for mixtures of certain clay soils with quick or hydrated lime in the presence of water, and has thus laid the foundation for lime stabilization of clay soils with or without admixture of reactive siliceous compounds such as puzzolans, infusorial earth and certain fly ashes.

Types and Grades of Lime The construction trade recognizes the following types of lime materials:

Type	Formula
Calcia (high-calcium quicklime)	CaO
Hydrated high-calcium lime	Ca(OH)_2
Dolomitic lime	$\text{CaO} + \text{MgO}$
Normal hydrated or monohydrated dolomitic lime	$\text{Ca(OH)}_2 + \text{MgO}$
Pressure hydrated or dihydrated dolomitic lime	$\text{Ca(OH)}_2 + \text{Mg(OH)}_2$

The higher the magnesium content of the quick or hydrated lime, the less is the water affinity and the heat developed in mixing with water. The quick as well as the hydrated limes eagerly absorb and react with carbon dioxide from the air and form CaCO_3 . This is no longer useful either for the making of common mortar or for alkaline reaction with finely divided silica to produce hydraulic cements.

The Importance of Particle Size and Surface-to-Volume Ratio Atoms, ions, and molecules can react with each other if they can touch, i.e., if they are accessible. For this reason, solid particles can react only on their surfaces and their respective reaction rates are proportional to their surface/volume ratios. This ratio is inversely proportional to the linear particle size. Under corresponding conditions, the rate of reaction, e.g., the amount of CaSiO_3 formed per unit of time and volume, will be proportional to the percentage of the smallest size siliceous components of the soil, i.e., the clay content or clay-size SiO_2 particles. Also, the higher the proportion of silica and the smaller that of aluminum and iron sesquioxides in the smallest size fractions, the greater is their reactivity with Ca(OH)_2 .

Solubility of Calcium Hydroxide Because the rate of reactions is a function of the concentration of the components and since the reaction under consideration occurs in an aqueous medium, the solubility of Ca(OH)_2 in water is important. This solubility is relatively small: about 1.65 grams of Ca(OH)_2 per liter at normal temperature. In a normal clay soil this amount of Ca(OH)_2 in solution would be very soon exhausted for the satisfaction of the cation exchange capacity of the clay fraction if there were not some excess solid Ca(OH)_2 stored in the system which continuously makes up for that taken out of the solution by the siliceous surfaces. To assure the greatest possible rate of solution of the solid Ca(OH)_2 , it should be in a colloidal dispersed state.

With regard to the amount of hydrated lime required for the stabilization of clay soils, there seem to exist specific threshold or minimum amounts below which there is little, if any, real stabilization, and also high amounts above which increase in amount of stabilizer does not produce a significant increase in the quality of the system. The threshold values usually lie between 1 percent and 2 percent of Ca(OH)_2 based on the weight of the dry clay soil. Several authors have attempted to connect the threshold values with the base exchange capacities of the particular soils or with their "lime retention points." For an excellent review regarding this question, as well as others related to the physicochemical mechanisms involved in lime stabilization, see the paper by Diamond and Kinter (1965). There exists another valid consideration regarding this threshold value in the case of stabilization involving mixing. It is very difficult to admix uniformly less than 2 percent of a powder to a material like soil. The occurrence of similar threshold values of about 2 percent for portland cement and other types of stabilization suggests that the mixing factor is indeed significant. At any rate, it is hardly ever justified to add less than 2 percent of an inorganic cementing agent to a soil and expect from it a uniform and enduring effect.

The Effect of Temperature on the Reaction The rate of a reaction depends not only on the effective concentration of the reactants, but also on the temperature of the system. The solubility of Ca(OH)_2 decreases with increasing temperature while that of silicon dioxide increases. The overall rate of reaction is more influenced by the effective concentration of the silica than by that of the Ca(OH)_2 . This is exemplified in the related field of the manufacture of sand-lime bricks in which 4 percent to 10 percent of Ca(OH)_2 are mixed with quartz sand and reacted at a steam pressure of 150 psi, which denotes a temperature of about 366°F or 185.5°C . Only a few hours of such treatment at elevated temperature are required to produce bricks of strength on the order of 4000 psi. Even higher strengths were obtained by Pollet (1970) by autoclaving a moist compacted mixture of 15 percent clay, 30 percent silt, 20 percent fine sand, and 26 percent hydrated lime a few hours at 200°C with subsequent heat treatment at 350°C . Especially important in this connection is the work of Mateos (1964b), who studied the effect of temperature on the rate of hardening and final compressive strength of specimens made of 6 percent lime, 17.5 percent fly ash, and 76.5 percent sandy soil, employing curing temperatures of 10, 22, 40, 60 and 120°C and times of 3, 7, and 28 days, respectively. While specimens made with high calcium lime and a competent fly ash failed upon immersion in water if cured at 10°C (50°F), if cured at 120°C (248°F) they showed compressive strengths of about 2400, 2300, and 1900 psi, respectively, for curing times of 28, 7, and 3 days. These results show the feasibility of developing accelerated autoclave curing methods, and also the desirability of performing lime stabilization as early as possible in the season to ensure sufficient strength development before the start of cold weather.

Providing Reactants for Proper Balance If a soil does not possess finely subdivided, highly siliceous minerals that are capable of reacting with lime, then such material can be added in the form of volcanic ashes (puzzolan, santorin), defatted diatomaceous earth, highly siliceous fly ashes, etc. Assuming that the end product of the reaction is tobermorite, $3\text{Ca(OH)}_2 \cdot 2\text{SiO}_2$, the ratio of Ca(OH)_2 /reactive silica is 1.82:1. In practice ratios of fly ashes to lime run from 3:1 to 5:1, indicating that the major part of the fly ash acts

as an inert filler. Taking into account the great differences in composition of locally available fly ashes and limes it is obvious that optimum ratios as well as absolute quantities must be determined by test with the soil to be treated.

Effectiveness of Lime Treatment Treatment with quicklime or hydrated lime is especially effective in improving the engineering properties of heavy clay soils or of granular soils which, because of high water affinity in their silt-clay fraction, fall short of having a dependable granular skeleton. In accordance with U.S. experience treatment with lime is most effective for:

- (1) Stabilization of clay-gravel materials to serve as bases for pavements. Two to four percent of $\text{Ca}(\text{OH})_2$, by weight of soil, is used for this purpose.
- (2) Stabilization of heavy clay soils to serve as bases (5-10 percent of lime) or as subbases (1-3 percent) for pavements.

Lime treatment has been found less effective for silt-loam soils and is not recommended for sandy soils except in combination with added clay, fly ashes, or other pozzolanic constituents, which serve as both hydraulically reactive ingredients and filler to improve the gradation and reactivity of the soil. Lime treatment (especially with quicklime) may serve as an important construction aid for treatment of access roads to construction sites and of construction sites themselves if they have become impassable due to excess precipitation.

Physical Changes Summarized According to the ARBA (1959) *Construction Manual on Lime Stabilization* the physical changes effected by lime treatment of clay soils may be summarized as follows:

- (1) The plasticity index drops sharply by a factor of 3 or more in some instances.
- (2) The plastic limit generally increases, and the liquid limit decreases.
- (3) The soil binder content decreases substantially.
- (4) The lineal shrinkage and swell decrease markedly.
- (5) Lime and water accelerate disintegration of clay clods during pulverization. Soils become friable and can be worked easily.
- (6) Unconfined compressive strength increases considerably (in varying amounts but as much as 60 times).
- (7) Load-bearing values increase substantially.
- (8) In swampy areas, or soils with over-optimum moisture content, the application of lime facilitates drying of the soil.
- (9) Lime stabilized bases or subbases form a water-resistant barrier by stopping penetration of gravity water and by rapid evaporation of existing moisture. The stabilized clay sheds water readily during rain, thereby minimizing construction delays.

Areas of Application The pertinent subcommittee of the Highway Research Board of the German Federal Republic defines soil stabilization with lime as:

The incorporation of lime into soil material and densification at optimum moisture content for the construction of bases and subbases, or as pretreatment for subsequent stabilization with Portland cement or bituminous materials.

Soil stabilization with lime should be considered:

- (1) As a preparative measure for subsequent stabilization of clay soils with cement or bituminous binders and

waterproofing agents. After pretreatment with lime, normally highly water-affine and plastic soils can often be stabilized with inorganic or organic cementing and waterproofing materials. Also, such pretreatment makes it possible more easily to comminute and mix the heavy soils with the respective stabilizing agents.

- (2) As an additional improving measure in granular soil stabilization by controlling the plasticity of the binder material and increasing its cementing power.
- (3) For improvement of subbases. In addition to the increase in bearing capacity, lime stabilized subsoil will interrupt the capillary water movement and thereby prevent the furnishing of capillary water into the soil layers lying immediately beneath the pavement. Lime-stabilized soil layers may also serve as a working surface in connection with road construction, making it less weather dependent and accelerating its progress.
- (4) As stabilized bases underneath all types of pavements.
- (5) As independent pavements for secondary and tertiary roads. However, because of the relatively small resistance to abrasion, surface treatment with bituminous materials is recommended in all such cases. Especially important is the use of lime for transport roads to construction jobs, particularly in moist areas, and also the improvement of silt-clay soils in dam construction. For this purpose often small amounts (i.e., 1-3 percent by weight of dry soil) are necessary. In the case of construction transport roads, the lime-stabilized layer can be used immediately and no surface treatment with bitumen is necessary.

Table 8.6 shows the general stabilizing effect of lime on different soil types and Fig. 8.13 gives recommended amounts of lime for the stabilization of subgrades and bases (NLA, 1972).

Recommendations Because of the complexity of soil-lime systems and the almost completely empirical nature of our present knowledge, trial mixes must be made before an actual field job is undertaken in areas where no field experience is available. However, even before making a trial mix, it is important that the engineer in charge acquaint himself with pertinent field experience even if this has been obtained in different regions with different soils and climate conditions. The largest amount of field experience in soil-lime proper has been developed by the State Highway Department of Texas, under the leadership of Mr. McDowell. A considerable amount of experience with lime stabilization in combination with fly ashes and other pozzolanic admixtures has been developed by the workers at Iowa State College. Recommended approaches to the making and testing of trial mixes are described in the respective section of the *Highway Engineering Handbook* (Woods, 1960).

In the lime stabilization of sandy soils, admixtures of relatively large amounts of pozzolanic constituents (15-20 percent) are normally used. Obviously, their effect on the granulometry of the system and on the granulometry-dependent engineering properties of the system should be taken into account.

In addition to the areas in which lime stabilization has already proven itself of major importance, significant further developments are possible in the case of combination of lime with other types of stabilizing treatment for base construction and also in the use of lime for the stabilization of deeper foundation layers by "lime piles" or injection of

TABLE 8.6 APPROXIMATE COMPARISON OF STABILITY TEST DATA, WITH AND WITHOUT LIME.

(With kind permission of the National Lime Association.)

Type of Soil	Untreated					Lime Treated*				
	Tri-axial	CBR	R-Value	k-Value	Cohesiometer	Tri-axial	CBR	R-Value	k-Value	Cohesiometer
Heavy Clay	5.5	2	20	100	—	3.2-3.5	15-30	55-69	250-350	350-850
Light Clay	4.5	5	35	150	—	2.9-3.4	20-40	60-75	300-400	450-700
Sandy Clay	3.7	12	50	200	—	2.4-3.0	35-60	65-80	400-500	550-850
Granular Soil										
PI-8+	3.2	30	65	250	—	1.5-2.7	50-75	70-80+	450+	650+
Clay Gravel										
PI-6 to 10	2.6	50	75	400	—	1.0-1.6	70-100+	80+	500+	800+

*Based on use of 4-6 percent lime for clay soils and 2-4 percent for granular and clay-gravel types. Triaxial and Cohesimeter values are based on approximately 18 days of laboratory curing, CBR on 4 days curing (soaked), and R-Value on about 2 days curing. The stability values of lime-treated specimens increase markedly with longer or accelerated curing, e.g., curing CBR specimens for 2 days at 120°F prior to soaking will nearly double the CBR values. This accelerated curing would correspond approximately to 30 to 45 days of summer field curing.

lime suspensions. The time also seems to have come for a thorough theoretical analysis of the physicochemical and chemical aspects involved in all construction uses of lime. Combined lime and portland cement stabilization has been studied especially by the Vicksburg Waterways Experiment Station. A considerable amount of work on combined limeta stabilization has been performed in the U.S. and Germany; combined lime-asphalt stabilization has yielded excellent results in the U.S. and abroad (Hollon and Marks, 1952; Brand, 1962, 1963; Kozan and Fenwick, 1965; Wes,

1965; Shoemaker, 1966; Wang and Handy, 1966; Ruff and Ho, 1966; Thompson, 1967).

Significance of Laboratory Tests on Lime and Portland Cement-Stabilized Soils that also Contain Alkaline, Saline and other Additives For economic reasons it is customary to test ideas regarding new stabilizers or improvement of old ones first on small specimens in the laboratory before proceeding to intermediary and large-scale field testing. In doing so one commonly employs testing procedures that

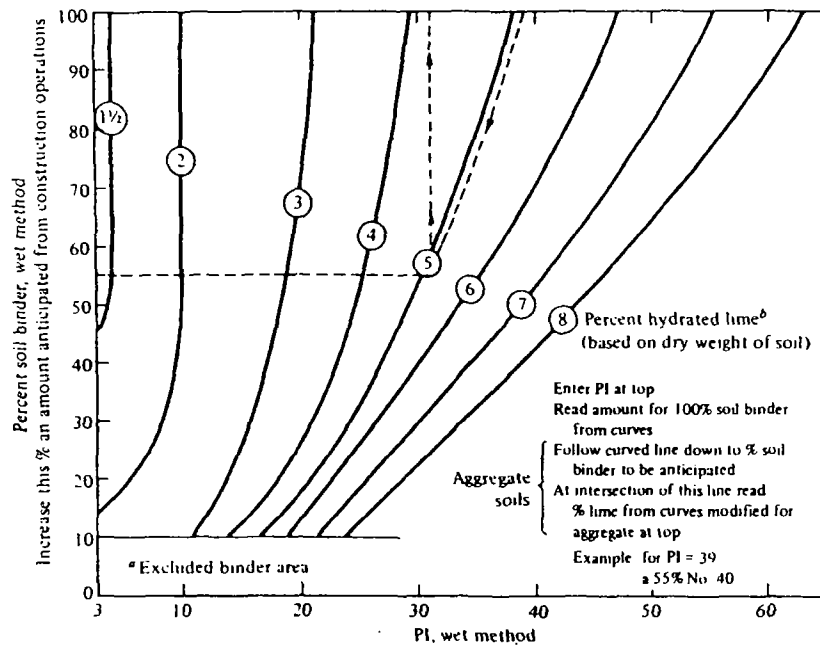


Fig. 8.13 Recommended amounts of lime for stabilization of subgrades and bases (NLA, 1972); these percentages should be substantiated by approved testing methods on any particular soil material. (With permission of the National Lime Association.) Notes: *Exclude use of chart for materials with less than 10% No. 40 and cohesionless materials (P.I. less than 3). ^bPercent of relatively pure lime usually 90% or more Ca and/or Mg hydroxides and 85% or more passing the No. 200 sieve. Percentages shown are for stabilizing subgrades and base courses where lasting effects are desired. Satisfactory temporary results are sometimes obtained by the use of as little as 1/2 above percentages. Reference to cementing strength is implied when such terms as "lasting effects" and "temporary results" are used.

have previously been developed and correlated with field behavior for the same general type of stabilizer. This may be a dangerous practice if the new stabilizer, or the additive which is supposed to beneficiate an old stabilizer, radically changes a rate controlling process such as greatly decreasing the permeability of a system without allowing additional exposure time to counteract this effect in testing. A great deal of mischief and waste has resulted from this usage in the case of saline and alkaline additives in soil-cement and soil-lime stabilization (Winterkorn, 1964).

It can be stipulated that the primary role of saline and alkaline additives to soil-lime and soil-cement is as catalysts to increase the rates of the various cementing reactions involved. This is quite worthwhile if the final quality of the system is not unduly decreased. The danger of this exists in all systems that contain alkali ions and reactive silica in an alkaline medium. This is well known from concrete technology as is also the fact that, at normal temperature conditions, it may take years before the damage becomes evident. It is also well known from concrete technology that various types of additives have their place in construction practice. For this reason, the use of additives is not generally condemned here; neither can it be advocated without more convincing job evidence than available at the present time.

Laboratory Testing of Lime-Stabilized Soil Specimens
Recommended percentages of lime for laboratory testing and for construction vary from 2 percent to 10 percent. They are 2, 3, and 5 percent for coarse soils (clay-gravels, caliche, sandy soils) having less than 50 percent silt-clay fraction, and 5, 7, and 10 percent for soils with more than 50 percent silt-clay. For intermediate soils 3, 5, and 7 percent of lime are indicated. Where severe freezing and thaw conditions prevail, lime percentages of 8 to 12 percent are recommended. In combination with fly ashes, 3, 5, and 7 percent of lime are used with fly ash contents that normally range from 10 to 20 percent.

While there exists no fundamental reason why the test and evaluation methods developed for soil-cement should not be applicable to soil-lime (perhaps with accelerated autoclave curing at a standardized elevated temperature), other methods have come into practical use, e.g., the triaxial compression method (Texas Highway Department,

1952), the CBR, and the Hveem stabilometer method. Their advantages are their direct correlation with pavement thickness design. For the present purpose it suffices to give the essentials of the Texas method, which is probably the most widely used.

After determination of the optimum moisture content and maximum density of soil-lime mixtures at lime contents indicated by previous experience, six cylindrical specimens 6" in diameter and 8" high are molded at optimum moisture content to maximum density. The specimens are stored in a moist room for 7 days. Subsequently, they are air dried for 8 hours at a temperature of 140°F, then they are cooled for at least 8 hours and submitted to a capillary absorption test lasting 10 days. After this, the specimens are subjected to triaxial testing. All the steps to and including the triaxial testing are thoroughly standardized and carefully controlled. The results of the latter are plotted as shown in Fig. 8.14. The resulting plot permits the classification of the treated soil with regard to its quality as a subgrade or base material (NLA, 1954). No triaxial testing is considered necessary if the specimen has a compressive strength above 100 psi (NLA, 1954, 1972).

3. Bituminous Soil Stabilization

Introduction According to the Highway Research Board (HRB, 1946) bituminous soil stabilization is the name given to those methods of construction in which bituminous materials are incorporated into a soil or soil-aggregate mixture to provide base courses—and occasionally surface courses—which can carry the applied traffic loads under all normal conditions of moisture and traffic.

Cohesive soils usually have satisfactory bearing capacity at low moisture contents. The purpose of incorporating bitumen into such soils is to waterproof them as a means to maintain them at low moisture contents and high bearing capacities. In the case of noncohesive granular soil materials, bitumen serves as a bonding or cementing agent. Depending upon the granulometric composition and physical properties of the available soil materials and the function of the bitumen incorporated, there are four types of soil-bitumen in common use in highway engineering.

(1) Soil-bitumen (proper). A waterproofed cohesive soil system. Best results have been obtained with soils falling

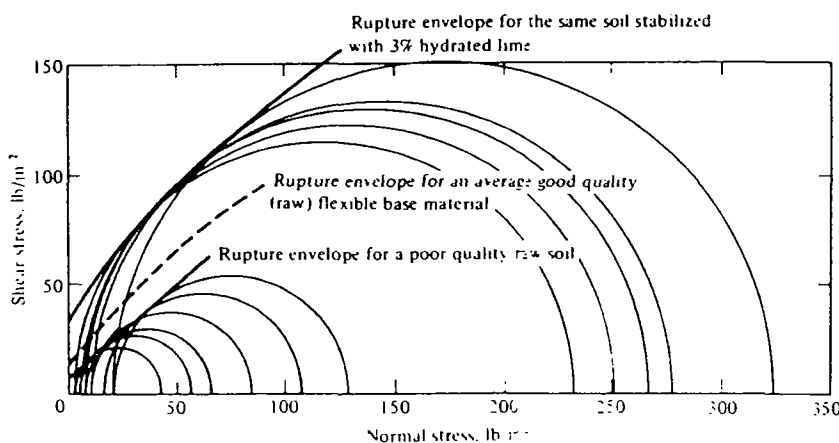


Fig. 8.14 A Mohr's diagram of stress plotted for a poor-quality raw soil and the same soil treated with 3% hydrated lime. The dashed line represents the rupture envelope for a good flexible base material. The criterion of a satisfactory soil-lime mixture is whether its rupture envelope is above the dashed line as indicated in the example. Test specimen: sand-clay soil, L.L. = 30; P.I. = 9; compactive effort—13.26 ft-lb/in³ of specimen volume

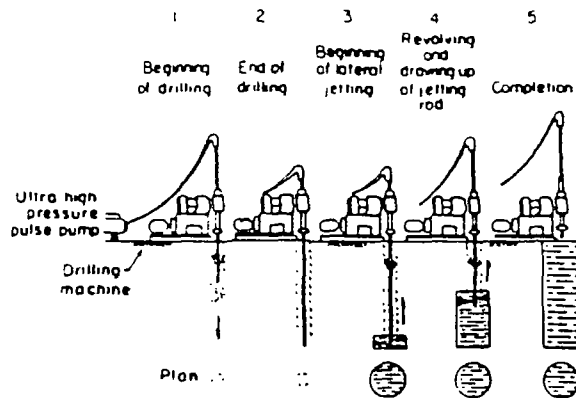


Fig. 28 Mixed-in-Place Columns Made by Jet Grouting

recovered samples. Among the tests that have been used to evaluate grouting done for ground strengthening purposes are the cone penetration test, the standard penetration test, the pressuremeter test, plate load tests, and compression and shear wave velocity tests. Acoustic emission monitoring during grouting has been used recently as a means for detection of hydraulic fracturing and location of grout flow.

From the test program at Locks and Dam No. 26 reported by Perez et al. (1981), the maximum levels of property improvement obtained using the most effective grouting procedure (multiple stage sleeve pipe) and a high strength silicate grout are listed in Table 5. The ungrouted sand was fine-to-medium-grained with less than 5 percent fines. It was medium dense and cohesionless with a coefficient of permeability of 5×10^{-3} to 3×10^{-2} cm/sec. These levels of improvement are probably the maximum that can be expected using current materials and technology.

TABLE V

Maximum Property Values for Silicate Grouted Sand
(Data from Perez et al., 1981; see text for details)

Property	Ungrouded Sand	Grouted Sand
SPT - N value (blows/0.3 m)	20	100+
CPT - q_c (kg/cm ²)	125	500+
Shear wave velocity (m/sec)	200	1000
Coeff. of Earth Pressure at Rest, K_0	0.45	3.3
Unc. Comp. Strength (kPa)	--	1500
Cohesion (kPa)	0	580
Friction angle (°)	39.5	39.5
Plate Load Test Modulus (MPa)	14	1000
Pressuremeter Modulus (MPa)	13	150
Ultimate Stress, Plate Load Test (kPa)	500	>1800
Pressuremeter Limit Pressure (MPa)	2.5	10+
Coefficient of Permeability (cm/sec)	2.0×10^{-3}	8.0×10^{-5}

ADMIXTURE STABILIZATION

Introduction

Of the many methods of ground improvement, the use of admixtures of various types is the oldest and most widespread. Chemical admixtures, most commonly lime and cement, have been used to improve the properties of soils, by ion exchange

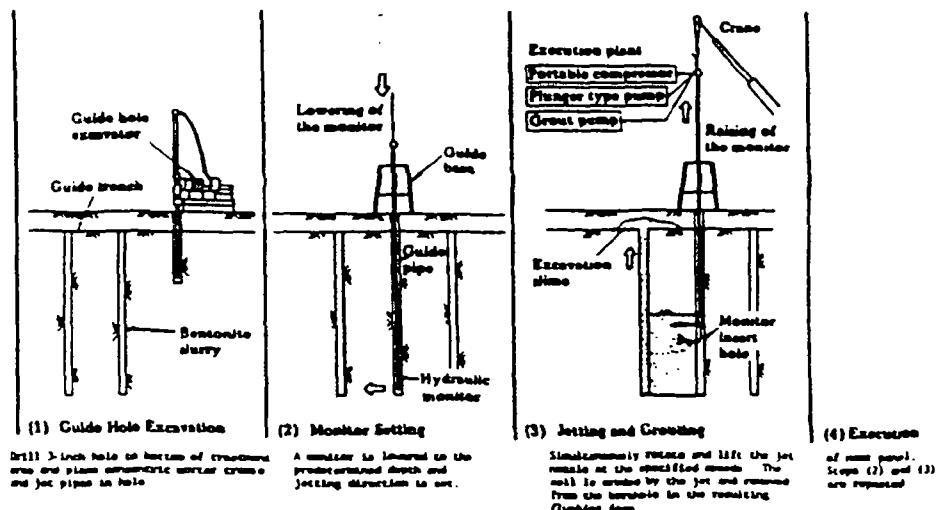


Fig. 29 Cut-off Wall Construction by Jet Grouting

Reference: State-of-the-Art Report, Session 12, Tenth International Conference on Soil Mechanics and Foundation Engineering, Stockholm, Sweden, June 15-19, 1981 by James K. Mitchell.

and cementation reactions, for use in pavement structures for centuries. There is a vast body of literature concerned with classical "soil stabilization;" i.e., the improvement of sub-grade and base course materials. Because of the ready availability of this information, it will not be summarized in this review. Among the comprehensive recent references are Ingles and Metcalf (1973), Yamanouchi (1975), Winterkorn (1975), Transportation Research Board (1975, 1976, 1977), Mitchell (1976), Terrei et al. (1979).

During the 1960's soil-cement became widely used in hydraulic structures, especially for the upstream slope protection of earth dams (Nussbaum and Colley, 1971; Holtz and Hansen, 1976). Soil-cement has been used for pond linings and dikes, and studies have been made concerning the construction of complete dams of soil-cement (Raphael, 1976, Robertson and Blight, 1978). Advances in the 1970's in soil improvement using admixtures have included both the development of new materials and extended applications of conventional materials, most notably the utilization of lime and cement in structural fills and with deep mixing methods.

Principles of Admixture Stabilization

The general objectives of mixing chemical additives with soil are to improve or control volume stability, strength and stress-strain properties, permeability, and durability. Volume stability (control of swelling and shrinkage) can be improved by replacement of high hydration cations such as sodium by low hydration cations such as calcium, magnesium, aluminum, or iron; by cementation; and by waterproofing chemicals. The development and maintenance of high strength and stiffness is achieved by elimination of large pores, by bonding particles and aggregates together, by maintenance of flocculent particle arrangements, and by prevention of swelling. The permeability is altered by modification of pore size and pore size distribution.

The actions of organic and inorganic stabilizers are generally quite different. The organics are characterized by a rapid strength gain, then constant properties with time. Of the many organic materials that have been proposed for use as admixtures; e.g., acrylamides, resins, polyurethanes, polyesters, only asphalt has had consistent use in large quantities. Except for special applications such as grouting, cost has limited the use of the others.

The stabilization mechanisms of lime and portland cement, the two most commonly used inorganic admixture stabilizers, are similar. End products are a series of calcium silicate hydrates (CSH). Lime acquires silica from clays or other pozzolans in the soil to form CSH gel. Cement contains silica initially. Short term reactions with cement and lime include replacement of monovalent adsorbed cations by Ca^{++} , adsorption of $\text{Ca}(\text{OH})_2$ by particles, cementation at interparticle contacts, and establishment of a high pH (12.4) environment. In the long term the pH causes a breakdown of the crystal lattice of clay and formation of cementitious products. These reactions can continue for years.

Lime and cement are effective in a wide range of soil types. Some organic compounds, however, can

retard or inhibit reactions. In addition, it is useful to keep in mind that the presence of free sulfates in clay soils can be detrimental. As first demonstrated by Sherwood (1962) and reiterated by Ingles and Metcalf (1973), initial stabilization may be satisfactory, but subsequent wetting can lead to expansion and breakdown of the cemented structure.

Attainment of good mixing of stabilizers with soil is the most important factor affecting the quality of results. Both subdivision of the soil and distribution of the additive are important. Much of the success of the new deep mixing methods discussed later must be attributed to the development of equipment capable of mixing admixtures with soft, heavy clays to a reasonable degree of uniformity.

Properties of Lime-and Cement-Treated Soils

The specific values of any property of an admixture-stabilized soil can fall within a wide range depending on soil type, stabilizer type and amount, curing conditions, and other factors. The unconfined compressive strength is an easily-measured property that can often be used as a basis for estimates of other properties. Lime treatment levels of 3 percent to 8 percent by weight of dry soil are typical for improvement of plastic and expansive fine-grained soils. Approximate values for mechanical properties of well-mixed lime-treated soil are given in Table VI. Portland cement at treatment levels of 3 to 10 percent by dry weight is particularly well-suited for low plasticity soils and sandy soils. Ranges of properties for granular and fine-grained cement-treated soils are listed in Table VII. The values in Tables VI and VII are for well-mixed treatments and compaction at water contents near optimum. They may be representative for admixture-stabilized soils used as structural fills. They will be substantially in excess of what can be expected for in-place treatments by deep mixing, because (1) the water contents in this case will be much higher and (2) the mixing will not be as good.

New Stabilizer Materials

Among the recently developed admixtures for soil improvement two deserve particular comment because of their uniqueness and potential. Ingles and Lim (1980) describe a new approach to clay stabilization involving the use of iron oxide. The process involves heating a fine-grained soil to a temperature high enough to destroy its water sensitivity, adding finely divided iron oxide, and introducing a sodium silicate solution. After compaction the mixture sets into a hard, durable material.

Research in Japan (Ariizumi et al.) has led to development of a material suitable for strengthening and detoxification of high water content wastes such as dredged material and sludge. A product termed cement bacillus ($3\text{CAO} \cdot \text{Al}_2\text{O}_3 \cdot 3\text{CaSO}_4 \cdot 32\text{H}_2\text{O}$) is formed by adding alumina, lime, and gypsum. These additions may themselves be wastes from a variety of sources. For example, the materials used in one case were 40 kg paper slag, 30 kg slaked lime, and 30 kg flue gas desulfurization per l m^3 dredged "ooze." Compressive strengths of the order of 100 kPa developed after 28 days. The fixation of a large amount of water as water of crystallization is

TABLE VI

Properties of Compacted Lime-Stabilized Soil

q_u = UNCONFINED COMPRESSIVE STRENGTH, kPa

COHESION (c , kPa): $c = 60 + 0.29 q_u$

ANGLE OF INTERNAL FRICTION (ϕ): $25^\circ < \phi < 35^\circ$

COMPRESSIVE MODULUS (E_c , MPa AT 100 kPa
CONFINING PRESSURE)

$$E_c = 70 + 0.124 q_u$$

FLEXURAL MODULUS (E_f , MPa)

$$E_f = 4.6 f_b - 950$$

MODULUS OF RUPTURE (f_b , kPa):

$$f_b = 0.25 q_u$$

SPLIT TENSILE STRENGTH (S_T , kPa):

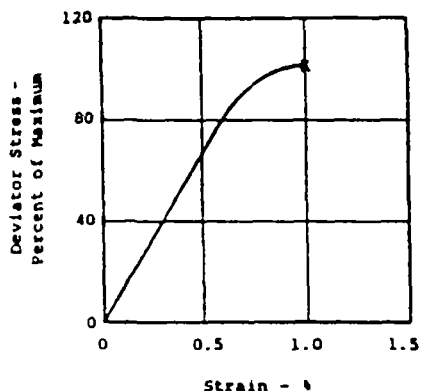
$$S_T = 0.13 q_u$$

POISSON'S RATIO (ν): $\nu = 0.1$

FOR LIME MODIFIED SOILS ($q_u < 70$ kPa):

$$CBR = (0.2 \text{ to } 0.25) q_u$$

GENERALIZED STRESS-STRAIN CURVE:



an important feature. Leaching tests have established that heavy metals become tied up by the cement bacillus, thus making possible safe disposal of potentially toxic wastes as fill materials. The results of similar studies are reported by Kuroda et al.

Structural Fills

Virtually any inorganic soil can be processed and treated to form an acceptable structural fill material. Increasing use is being made of such materials for embankments and support of structures. Several cases are described by the Committee on Placement and Improvement of Soils (1978). Blight et al. (1977) describe the use of cemented tailings for the backfilling of mine excavations.

At the Canton, Illinois Power Plant in the U.S.A. a loess soil was stabilized using 3 percent hydrated lime and 2-5 percent fly ash to form stabilized layers up to 7.6 m in thickness. Conventional stabilization equipment was used, and careful pulverization, mixing, and compaction controls were implemented. Unconfined compressive strengths of 1.0 to 1.4 MPa were developed after 4 days curing at 38°C. A soil-cement mat 3.66 m thick was used to support a 38-story office building in Tampa, Florida in lieu of pile foundations, the more usual foundation type for that area. Sand and clay were excavated to expose a layer of cavernous limestone which was filled with lean cement and covered by the soil-cement.

A remove and replace option was used to eliminate a liquefaction danger in the sands underlying the Koeberg Nuclear Power Plant in South Africa. An 8 m thick layer of potentially liquefiable sand was removed and treated with 5 percent sulfate resistant cement in a central mixing plant and recompacted in lifts using conventional equipment. The total volume of treated material was 200,000 m³. A great deal of dynamic testing was undertaken in connection with this project, and a summary of the dynamic properties of sand-cement has been presented by Dupas and Pecker (1979).

Soil-cement cushions are widely used in Bulgaria for the support of structures on collapsible loess deposits. The loess is treated with about 5 percent cement and compacted in layers to form mats up to several meters thick. It has been found that the seismic stability of structures founded on these cushions is greatly improved (Minkov et al., 1980). Loess-cement cushions have been used also in conjunction with heavy tamping. The system adopted for a 180 m high TV tower foundation exerting a bearing pressure of 230 kPa is shown in Fig. 30.

Deep Mixing Methods

The in-situ mixing of admixtures, usually lime or portland cement, with soft, fine-grained soils to form columns, piers, and walls has been studied and applied extensively in engineering practice in the last several years (Broms and Bowman, 1976, 1979a, 1979b; Sokolovic et al., 1976; Okumura and Terashi, 1975; Pilot, 1977; Terashi et al., 1979). Although different names are used by different organizations; e.g., DCM, DCCM, Demic, POCOM in Japan and lime columns in Sweden, the concepts, procedures and applications are generally similar.

Columns are produced by feeding a metered quantity of stabilizer into a soft clay mass through a rotary drill equipped with a special auger bit to both advance to the desired depth and to mix the soil and admixture thoroughly during withdrawal. Fig. 31 is a schematic diagram of the process as used for construction of a lime column. The mixing bits used in Japan are usually somewhat larger and more complex, as shown by the photograph in Fig. 32, in comparison to the "egg beater" mixing tool used in Sweden, Fig. 31. The ability of the equipment to distribute the admixture thoroughly for the full required depth and to mix it uniformly across the column is crucial to success.

TABLE VII
Properties of Compacted Cement-Stabilized Soil

PROPERTY	GRANULAR SOILS	FINE-GRAINED SOILS	NOTES
Density	1.6 - 2.2 t/m ³	1.4 - 2.0 t/m ³	May be higher or lower than untreated soil. Delay between mixing and compaction causes density and strength reductions.
Unconfined Compressive Strength	UC = (500 to 1000) C $(UC)_d = (UC)_{d_0} + K \log \left(\frac{d}{d_0} \right)$ K = 500 C	UC = (300 to 600) C K = 70 C	C = cement content, %; UC in kPa $(UC)_{d_0}$ = UC strength at age of d_0 days d = age (days) (d > d_0)
Cohesion	To a few thousand kPa $c = 50 + 0.225 (UC) \text{ kN/m}^2$	To a few thousand kPa	Depends on C, d
Friction Angle	40-45°	30-40°	May decrease at high confining pressures
Flexural and Tensile Strength	Flexural Strength = $\left(\frac{1}{5} \text{ to } \frac{1}{3} \right)$ compressive strength		Need 1-3% cement to develop
CBR	CBR = 0.0038 (UC) ^{1.45}		UC in kPa
Modulus Compression	$7 \times 10^3 - 35 \times 10^3 \text{ MPA}$ $E_t = \left[1 - \frac{0.75(1-\sin\phi)(\sigma_1 - \sigma_3)^2}{2c \cos\phi + 2\sigma_3 \sin\phi} \right] E_i$ $E_i = K p_a \left(\frac{\sigma_3}{p_a} \right)^n$	$7 \times 10^3 - 7 \times 10^4 \text{ Mpa}$	Depends on stress level E_i = initial tangent modulus E_t = tangent modulus σ_3 = confining pressure p_a = atmospheric pressure n = 0.1 - 0.5 K = 1000 - 10,000
Modulus-Tension and Flexure	Same order of magnitude as in compression		$E_c \neq E_t$ (usually)
Poisson's Ratio	0.1 - 0.2	0.15 - 0.35	
Shrinkage	A few tenths of one percent	up to 1%	Shrinkage cracks generally inevitable in thin slab construction.
Permeability	$k < 1 \times 10^{-6} \text{ cm/sec}$	$k < 1 \times 10^{-6} \text{ cm/sec}$	k parallel to compaction planes may be up to 20 times greater than normal to them.

A lime column diameter of 0.5 m is standard in Sweden for columns up to 10 m long installed using light, mobile equipment. Diameters up to 1.75 m and depths to 60 m have been used in Japan. In addition to lime and cement, special chemicals are used in Japan to fix pollutants within treated sludges on harbor bottoms. Swedish practice appears thus far to have been limited to inland projects in soft, sensitive clays. Much of the work in Japan has been in waterfront and harbor areas and done using large, barge-mounted plants. Small diameter lime columns (80 to 500 mm) spaced at 0.5 m to 3 m have been used in Austria for slope stabilization as shown in Fig. 33 (Brandtl, 1973).

When quicklime (CaO) is used as the stabilizer the heat of hydration can be substantial, and the drying of the surrounding ground due to this and to the consumption of water by hydration can be significant. Admixture contents are of the same order (5 to 15 percent by dry soil weight) as for more conventional lime and cement stabilization. Because the soils being treated have such high water contents, the final strengths after treatment will be much less than those for lime and cement-treated soils listed in Tables VI and VII. They will, nonetheless, be many times greater than that of the untreated soil. Relationships between unconfined compressive strength and water content for four Japanese

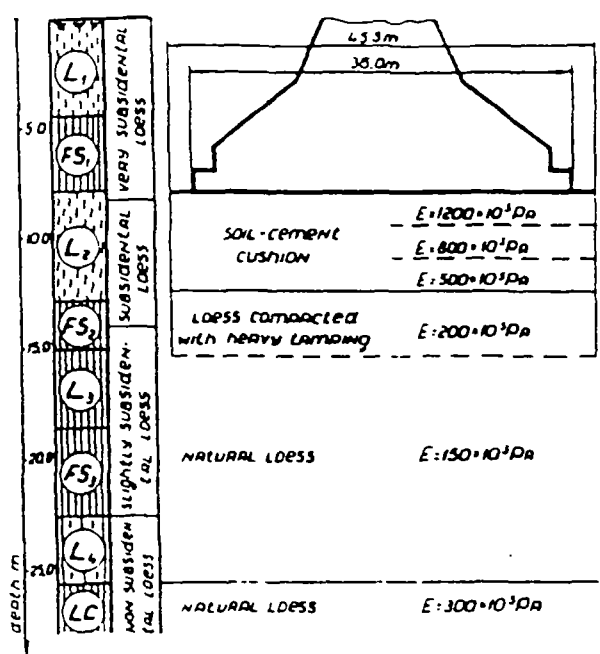


Fig. 30 Improved Foundation Soils for Large TV Tower (Minkov et al., 1980)

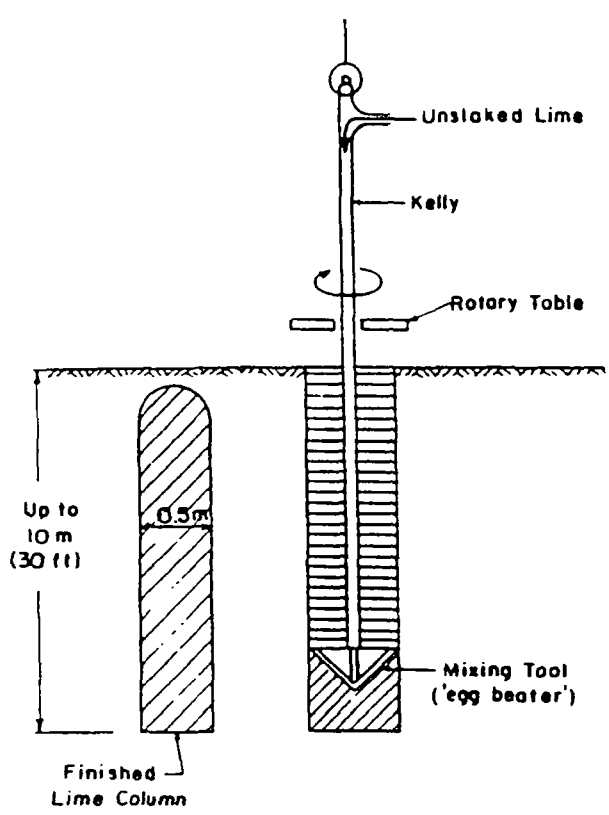


Fig. 31 Manufacture of a Lime Column Using Swedish System

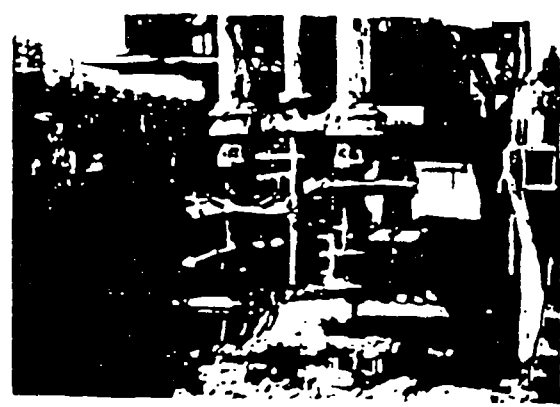


Fig. 32 Example of a Deep Mixing Bit used in Japan

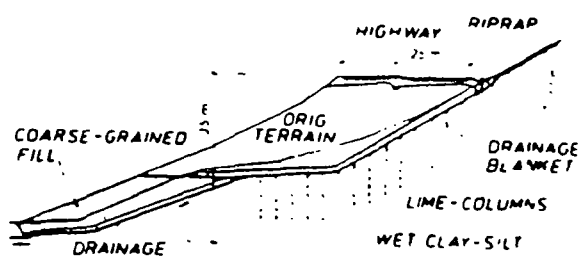


Fig. 33 Slope Stabilization Using Lime Columns and Drainage

soils treated with 10 percent cement are shown in Fig. 34. For a normally consolidated clay from Sweden the strength increased from 2 to 7 times immediately after mixing with 6 and 12 percent quicklime and increased to 13 to 82 times the initial strength of about 10 kPa after 1.3 years. The initial water content was about 60 percent. Strength increases of 10 to 20 times the untreated value are perhaps typical. Compressibility decreases accompany the stabilization. The rate of hardening will be influenced by ground temperature. Broms and Bowman (1979a) note that typically the clay in lime columns is 100 to 1000 times more permeable than in the untreated state. As a consequence the columns can act as vertical drains, thus accelerating settlements.

Methods for design using lime columns have been proposed (Broms and Bowman, 1979a, b) for settlement analysis and bearing capacity of foundations and for the design of deep trenches in improved ground.

THERMAL STABILIZATION

Introduction

Both heating and freezing can be used for soil improvement. Heating fine-grained soils to moderate temperatures; e.g., higher than 100°C,

C. U 1/93

Standard Specifications

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BUSINESS, TRANSPORTATION AND HOUSING AGENCY
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DICE 00655

SECTION 24

LIME STABILIZATION

24-1.01 Description—This work shall consist of mixing lime and water with soil and compacting the mixture to the lines, grades and dimensions shown on the plans and as specified in these specifications and the special provisions.

24-1.02 Materials—Material to be stabilized shall be the native soil or embankment, containing no rocks or solids, other than soil clods, larger than 2 1/2 inches in any dimension. Removing and disposing of said rocks and solids larger than 2 1/2 inches, from native soil or embankment other than imported borrow, will be paid for as extra work as provided in Section 4-1.03D. Removing and disposing of said rocks and solids larger than 2 1/2 inches from imported borrow shall be at the expense of the Contractor.

Lime shall conform to the requirements in ASTM Designation: C 977 with the exception that when a 250 gram test sample of quicklime is dry sieved in a mechanical sieve shaker for 10 minutes \pm 30 seconds it shall conform to the following grading requirements:

Sieve Sizes	Percentage Passing
3/8"	98-100
No. 100	0-25
No. 200	0-15

A Certificate of Compliance in accordance with the provisions in Section 6-1.07, "Certificates of Compliance," shall be furnished with each delivery of lime and shall be submitted to the Engineer with a certified copy of the weight of each delivery.

Water for mixing with soil and lime shall be free from oil and shall contain not more than 650 parts per million of chlorides as Cl, nor more than 1,300 parts per million of sulfates as SO₄. The water shall contain an amount of impurities that will cause a reduction in the strength of the stabilized material.

24-1.03 General—The amount of lime to be added to the material to be stabilized shall be as specified in the special provisions.

All handling, spreading and mixing operations shall be conducted in such a manner that a hazard is not presented to construction personnel or the public. Lime shall be prevented from blowing by suitable means selected by the Contractor.

If lime of more than one type or from more than one source are used on the project, separate application rates will be determined for lime of each source or type. Lime from more than one source or of more than one type shall not be mixed.

The lime shall be protected from exposure to moisture until used and shall be sufficiently dry to flow freely when handled.

Lime shall not be spread while the ambient temperature is below 35° F., nor when the ambient temperature is expected to drop below 35° F. before mixing and compacting are completed.

The in-place moisture of the material to be stabilized shall be maintained above the optimum moisture, as determined by California Test 373, during the mixing operation. During compaction, finish rolling and grading, sufficient water shall be added to the surface of the material to prevent the surface from drying until curing seal is applied.

No traffic other than the equipment performing the work will be allowed to pass over the spread lime, the mixed material or the compacted surface of the lime stabilized material. After application of the curing seal, no traffic will be permitted on the lime stabilized material for a period of 3 days. Damage to curing seal or lime stabilized material shall be repaired promptly by the Contractor at his expense, as directed by the Engineer.

24-1.04 Preparing Material—Unless otherwise ordered or approved by the Engineer, the material to be stabilized shall be placed to the lines, grades and dimensions shown on the plans and compacted to a relative compaction of not less than 90 percent, before lime is added. The surface of the material to be stabilized shall not vary more than 0.08-foot above or below the grade established by the Engineer, before lime is added.

24-1.05 Spreading—Lime shall be spread using equipment which will uniformly distribute the lime over the area to be stabilized.

Tailgate spreading of lime will not be permitted.

Lime shall be spread uniformly on the roadbed, and the rate of spread per square foot shall not vary by more than 10 percent of the rate designated by the Engineer.

Lime may be spread on the prepared material in either a slurry or dry form at the option of the Contractor. Hydrated lime shall not be spread in dry form. Either hydrated lime or quicklime may be used to prepare the slurry.

The distance which lime may be spread ahead of the mixing operation will be determined by the Engineer. In no case shall spread lime be allowed to remain exposed at the end of the work day.

Lime applied in slurry form shall be prepared and distributed using equipment and procedures capable of keeping the slurred lime in suspension and spreading the slurry uniformly over the area to be stabilized. The lime content of the slurry shall be as approved by the Engineer.

24-1.06 Mixing—Mixing lime and the material to be stabilized shall be conducted using equipment capable of mixing the materials uniformly to the depth specified.

Lime and the material to be stabilized may be mixed off site.

Mixing or remixing operations, regardless of the equipment used, shall continue until the material is uniformly mixed and free of streaks or pockets of lime. Prior to compaction, all mixed material other than rock or aggregate previously treated with asphalt, lime, or cement shall comply with the following grading requirements:

Sieve Sizes	Percentage Passing
1"	98 min.
No. 4	60 min.

When granular lime in dry form is used, the material shall be mixed at least twice. The first and final mixings shall not be performed on the same day.

When the stabilized material, exclusive of one-inch or larger clods, is sprayed with a phenolphthalein alcohol indicator solution, areas showing no color reaction will be considered evidence of inadequate mixing.

The depth of mixing of the lime stabilized material shall not vary more than 0.1-foot from the planned depth at any point. Mixing to a depth that exceeds the planned depth by 10 percent or more shall be considered evidence of an inadequate amount of lime and additional lime shall be added at the Contractor's expense.

The entire mixing operation shall be completed within 7 days of the initial spreading of lime, unless otherwise permitted by the Engineer.

24-1.07 Compaction—Compaction shall begin as soon as possible, but not more than 24 hours after final mixing.

Prior to initial compaction, maximum density will be determined on a composite of material from 5 random locations within the test area by California Test 216. The composite sample will be obtained after all mixing has been completed. The moisture content of the composite sample will be determined by California Test 226.

Initial compaction shall be by means of sheepsfoot or segmented wheel rollers. This shall be immediately followed with final compaction by rolling with steel drum or pneumatic-tired rollers. Vibratory rollers will not be allowed.

Where the required thickness is 0.50-foot or less, the mixture shall be compacted in one layer. Where the required thickness is more than 0.50-foot, the mixture shall be compacted in 2 or more layers of approximately equal thickness, and the maximum compacted thickness of any one layer shall not exceed 0.50-foot, except that the maximum compacted thickness of a single layer may be increased provided the Contractor can demonstrate to the Engineer that the equipment and method of operation will provide uniform distribution of the lime and the required compacted density throughout the layer.

Areas inaccessible to rollers shall be compacted to the required relative compaction by other means satisfactory to the Engineer.

The lime stabilized soil shall be compacted to a relative compaction of not less than 95 percent, except that the minimum relative compaction may be reduced to 92 percent provided the Contractor increases the lime content 0.5 percent at his expense.

The relative compaction will be calculated on the dry weight basis.

In-place density of the compacted lime stabilized material will be determined by California Test 231. A composite of material from a minimum of 5 random selected sites, taken at the time in-place density is determined, will be used to determine the in-place moisture content, by California Test 226.

DICE 00657

24-1.08 Finish Rolling and Grading—The finished surface of the lime stabilized material shall be the grading plane and at any point shall not vary more than 0.08-foot above or below the grade established by the Engineer, except that when the lime stabilized material is to be covered by material which is paid for by the cubic yard, the surface of the finished lime stabilized material shall not extend above the grade established by the Engineer.

If the compacted material is above the grade tolerances specified in this section, the excess material shall be trimmed, removed, and disposed of. No loose material shall be left on the finished plane. Trimming of excess material shall not be conducted unless finish rolling can be completed within 2 hours after trimming.

All trimmed surfaces shall receive finish rolling consisting of at least one complete coverage with steel drum or pneumatic-tired rollers. Vibratory rollers will not be allowed. Minor indentations may remain in the surface of the finished material after final trimming and rolling. Under no circumstances will it be permissible to add new or trimmed lime stabilized material to fill low areas or to raise the grade of compacted lime stabilized material.

24-1.09 Curing—A curing seal, consisting of SS or CSS grade asphaltic emulsion, shall be furnished and applied to the surface of the top layer of lime stabilized material in accordance with the provisions in Section 94, "Asphaltic Emulsions."

Curing seal shall be applied at a rate of between 0.10- and 0.20-gallon per square yard of surface. The exact rate will be determined by the Engineer.

Curing seal shall be applied within 48 hours of completion of initial compaction and on the same day as trimming and finish rolling are completed. The curing seal shall be applied as soon after finish rolling as is practicable. The lime stabilized material shall be at optimum moisture when the curing seal is applied.

Curing seal shall not be placed when the atmospheric temperature is below 40° F.

Curing by water will not be allowed, unless authorized by the Engineer.

Damage to the curing seal shall be promptly repaired by the Contractor at his expense, as directed by the Engineer.

24-1.10 Measurement—Lime stabilization will be measured by the square yard, determined from horizontal measurements of the planned surface of the lime stabilized material.

Lime will be measured by the ton in accordance with the provisions in Section 9-1.01, "Measurement of Quantities," except that if the minimum relative compaction is reduced to 92 percent, the quantity of lime to be paid for will be the weight of lime multiplied by the factor $L / (L+0.5)$ where L equals the percent of lime ordered by the Engineer.

Bituminous curing seal will be measured as provided in Section 94, "Asphaltic Emulsions."

24-1.11 Payment—Items of work, measured as provided in Section 24-1.10, "Measurement," will be paid for at the contract prices per square yard for lime stabilization, per ton for lime, and per ton for asphaltic emulsion (curing seal).

The above contract prices and payments shall include full compensation for furnishing all labor, materials, tool, equipment, and incidentals, and for doing all the work involved in constructing the lime stabilization complete in place, as shown on the plans, and as specified in the specifications and the special provisions, and as directed by the Engineer.

Full compensation for preparing material, spreading lime and mixing and compacting the lime stabilized material shall be considered as included in the contract price paid per square yard for lime stabilization and no additional compensation will be allowed therefor.

No adjustment of compensation will be made for any increase or decrease in the quantity of lime required, regardless of the reason for increase or decrease. The provisions in Section 4-1.03B, "Increase or Decreased Quantities," shall not apply to the item of lime.

APPENDIX D

Handbook of Chemistry, 10th Edition by Norbert Adolph Lange, Ph.D.

Dedication

To those workers in science who through their labors determined the values recorded herein, this compilation is dedicated. Their devotion to the search for the constants of nature and the dissemination of this knowledge are the foundations upon which rest the achievements of applied science.

HANDBOOK OF CHEMISTRY

*A reference volume for all requiring ready access
to chemical and physical data used in
laboratory work and manufacturing*

Compiled and Edited by
NORBERT ADOLPH LANGE, PH. D.

*Registered Professional Engineer; Member of the
American Chemical Society; Fellow of the
American Institute of Chemists*

Assisted by
GORDON M. FORKER, B. S. (CHEM. ENG.)
General Electric Company, Cleveland, Ohio

REVISED TENTH EDITION

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DICE 00660

No.	Name	Formula	Formula Weight	Color, Crystalline Form and Refractive Index
Calcium				
441	formate	Ca(HCO ₂) ₂	130.12	col., rhb.
442	hydride	CaH ₂	42.10	wh. cr. or pd.
443	hydroxide	Ca(OH) ₂	74.09	col., hex., 1.574
444	hypochlorite	Ca(ClO) ₂ ·4H ₂ O	215.05	wh., feathery cr.
445	hypophosphate	Ca ₂ P ₂ O ₆ ·2H ₂ O	274.13	granular
446	hypophosphite	Ca(H ₂ PO ₂) ₂	170.06	col., mn.
447	iodate (lautarite)	Ca(IO ₃) ₂	389.89	tri.
448	iodide	CaI ₂	293.89	wh., delq. pl.
449	iodide	CaI ₂ ·6H ₂ O	401.98	wh., delq.
450	lactate	Ca(C ₃ H ₅ O ₃) ₂ ·5H ₂ O	308.30	col., eff.
451	magnesium carbonate (dolomite)	CaO·MgO·2CO ₂	184.41	trig., 1.68174
452	magnesium silicate (diopside)	CaO·MgO·2SiO ₂	216.56	wh., mn.
453	molybdate	CaMoO ₄	200.02	wh., tet., 1.974
454	nitrate (nitrocalcite)	Ca(NO ₃) ₂	164.09	col., cb.
455	nitrate	Ca(NO ₃) ₂ ·4H ₂ O*	236.15	col., mn., 1.498
456	nitride	Ca ₃ N ₂	148.25	brn. or.
457	nitrite	Ca(NO ₂) ₂ ·H ₂ O	150.11	delq., hex.
458	oxalate	CaC ₂ O ₄	128.10	col., cb.
458.1	oxalate	CaC ₂ O ₄ ·H ₂ O	146.12	col.
459	oxide	CaO	56.08	col., cb., 1.837
459.1	perchlorate	Ca(ClO ₄) ₂	238.98	col.
460	peroxide	CaO ₂ ·8H ₂ O	216.20	pearly, tet.
461	permanganate	Ca(MnO ₄) ₂ ·4H ₂ O	350.01	purple pr.
462	phosphate, monobasic	CaH ₂ (PO ₄) ₂ ·H ₂ O	252.07	wh., tri.
463	phosphate, dibasic	CaHPO ₄ ·2H ₂ O	172.09	wh., mn. pl.
464	phosphate, tribasic	Ca ₃ (PO ₄) ₂	310.18	wh., amor.
465	phosphate, meta-	Ca(PO ₃) ₂	198.02	wh., tet., 1.588
466	phosphate, pyro-	Ca ₂ P ₂ O ₇	254.10	col., blaxial, 1.60
467	phosphate, pyro- (brushite)	Ca ₂ P ₂ O ₇ ·5H ₂ O	344.18	wh., mn.
468	phosphide	Ca ₃ P ₂	182.19	red cr.
469	phosphite, ortho-	2CaHPO ₃ ·3H ₂ O	294.17	.....
470	plumbate	Ca ₂ PbO ₄	351.35	yel. pd.
471	plumbite	CaPbO ₂	279.27	cr.
472	potassium sulfate (syngenite)	CaK ₂ (SO ₄) ₂ ·H ₂ O	328.42	mn.
473	salcylate	Ca(C ₇ H ₅ O ₃) ₂ ·2H ₂ O	350.34	wh., oct.
474	selenate	CaSeO ₄ ·2H ₂ O	219.07	mn.
475	silicate (α) (pseudowollastonite)	CaSiO ₃	116.16	col., pseudo hex., 1.6160 or mn.(?)
476	silicate (β) (wollastonite)	CaSiO ₃	116.16	col., mn., 1.610
477	silicide	CaSi ₂	96.25	.....
478	silicofluoride	CaSiF ₆	182.16	col.
479	silicofluoride	CaSiF ₆ ·2H ₂ O	218.19	wh., tet.
480	sodium sulfate	CaSO ₄ ·2Na ₂ SO ₄ ·2H ₂ O	456.25	col.
481	sulfate (anhydrite)	CaSO ₄	136.14	col., rhb., 1.576, or mn., 1.50

*Usual commercial form
Calcium hydrosulfide 484
Calcium lead oxide 470

Calcium metaborate 421
Calcium oxide hydrated 443
Calcium phosphate, hypo- 445

Calcium phosphate, primary 462
Calcium phosphate, secondary 463

No.	Specific Gravity	Melting Point °C.	Boiling Point °C.	Solubility in 100 Parts		
				Cold Water	Hot Water	Other Reagents
441	2.015	d.	.....	16.10°	18.4100°	l. al., et.
442	1.7	d. <675	.....	d.	.....	d. a.; l. bz.
443	2.24	-H ₂ O, 580	.....	0.1850°	0.077100°	s. NH ₄ Cl
444	.....	d.	.....	delq.; d.	.....	d. a.
445	.....	-2H ₂ O, 200	.....	l.	.....	s. HCl, H ₂ P ₂ O ₆
446	.....	d.	.....	17	.....	l. al.
447	4.69113°	d.	.....	0.123°	0.679°	s. HNO ₃
448	3.95614°	575	718	182°	426100°	s. a., abs. al., aol.
449	.....	42	160	754°	.....	v. s. al.
450	.....	-3H ₂ O, 100	.....	10.5	.....	wh. al.; l. et.
451	2.872	d. 730-760	.....	0.03213°	.....	.....
452	3.3	1391	.....	l.	l.	.....
453	4.35	.....	.....	l.	.....	s. a.; l. al.
454	2.36	561	.....	102°	376131°	1413° al.; s. amyl al., NH ₃
455	1.82	42.7	.....	266°	v. s.	.....
456	2.6317°	900	.....	d.	d.	s. dil. a.; l. abs. al.
457	2.2316°	.....	.....	77°	4179°	s. 90% al.
458	2.24°	d.	.....	0.0006713°	0.001493°	s. a.; l. ao.
458.1	2.2	-H ₂ O, 200	.....	l.	l.	s. a.; l. ao.
459	2.62	2570	2850	forms	.....	s. a.; l. al.
459.1	.....	.....	.....	Ca(OH) ₂	186.623°	v. s.
460	1.70	-8H ₂ O, 100	expl. 275	sl. s.	d.	166.213° al.; 237.423° m. al.; v. sl. s. et.
461	2.4	d.	.....	33114°	38823°	d. al.
462	2.22044°	-H ₂ O, 100	d. 200	.....	d.	.....
463	2.30613°	d.	.....	0.0244°	0.075100°	.....
464	3.14	1670	.....	0.0025	d.	s. a.; l. al., ac.
465	2.82	975	.....	l.	l.	l. a.
466	3.09	1230	.....	l.	.....	s. a.
467	2.25	.....	.....	sl. s.	.....	s. a.; l. NH ₄ Cl
468	2.6118°	>1600	.....	d.	.....	s. dil. a.; l. al., et.
469	.....	-3H ₂ O, 200-300	.....	sl. s.	d.	s. NH ₄ Cl
470	5.71(97%)	d.	.....	l.	.....	s. a.
471	.....	.....	.....	sl. s.	.....	.....
472	2.60	.....	.....	0.25	d.	s. a.
473	.....	-H ₂ O, 120	.....	s.	.....	l. al.
474	2.678	.....	.....	9.4°	6.17°	.....
475	2.905	1540	.....	0.009517°	.....	s. HCl
476	2.915	tr. 1190 to a	.....	.....	.....	.....
477	2.5	.....	.....	l.	d.	.....
478	2.66217°	.....	.....	sl. s. d.	.....	s. HCl, HF, al.
479	2.25	.....	.....	d.	.....	s. H ₂ SiF ₆
480	.....	-2H ₂ O, 60	.....	.....	d.	.....
481	2.96	1450(mn.)	tr. 1193 to rhb.	0.29810°	0.1619100°	s. a., Na ₂ S ₂ O ₃ , NH ₃ salts

Calcium phosphate, tertiary 464
Calcium phosphite, hypo- 446
Calcium sulfocyanate 489

Calcium sulfocyanide 489
Calomel 1344
Calx 459

Canton's phosphorus 485
Caput mortuum 824

APPENDIX E

Federal Register/Vol. 44, No. 220, 65400, 13 November 1979

substantive burdens are imposed on the parties affected. The delegation became effective September 11, 1979. Therefore, it serves no purpose to delay the technical change of this addition of an address to the Code of Federal Regulations. This rulemaking is effective immediately and is issued under authority of Section 112 of the Clean Air Act. (42 U.S.C. 7412)

Section 61.04 of Part 61 of Chapter I, Title 40 of the Code of Federal Regulations is amended by adding a new paragraph (b)(kk) as follows:

Subpart A—General Provisions

§ 61.04 is amended as follows:

§ 61.04 Address.

(b) ***

(kk) Ohio

Montgomery County Regional Air Pollution Control Agency, Montgomery County Combined General Health District, 451 West Third Street, Dayton, Ohio 45402.

Clarke, Darke, Greene, Miami and Preble Counties [except for all information required under § 61.22 (d) and (e)]; Montgomery County Combined General Health District, 451 West Third Street, Dayton, Ohio 45402.

Dated: November 2, 1978.

John McGuire,

Regional Administrator.

(FR Doc. 78-3488 Filed 11-9-78; 9:45 am) BILLING CODE 6560-01-2

40 CFR Parts 116 and 117

[FRL 1338-7]

Removal of Calcium Oxide and Calcium Hydroxide From Hazardous Substance List

AGENCY: Environmental Protection Agency.

ACTION: Amendments to Final rule.

SUMMARY: On August 28, 1978, (44 FR 50783) EPA tentatively concluded that calcium oxide and calcium hydroxide (lime) are not hazardous within the meaning of section 311 of the Clean Water Act and proposed to remove these chemicals from its hazardous substances list. Twenty-eight comments were received in response to the proposal. All commenters concurred with the proposed action. In consideration of comments received and of the factors discussed in the August 29 proposed amendment to rule, EPA today is removing calcium oxide and calcium

hydroxide from the hazardous substances list.

EFFECTIVE DATE: November 13, 1979.

FOR FURTHER INFORMATION CONTACT: Kenneth M. Mackenthun, Director, Criteria and Standards Division (WH-585), Office of Water Planning and Standards, U.S. Environmental Protection Agency, 401 M Street, S.W., Washington, D.C. 20460. (202) 755-0100.

SUPPLEMENTAL INFORMATION: Section 311(b)(2)(A) of the Clean Water Act (the Act) requires the Administrator to promulgate regulations designating as hazardous substances those elements and compounds which, when discharged in any quantity to surface waters or adjoining shorelines, present an imminent and substantial danger to the public health or welfare. Section 311(b)(4) of the Act requires the Administrator to assign to each assigned designated hazardous substance a quantity which, if discharged, gives rise to reporting requirements and civil penalty and clean-up cost liability.

Calcium oxide and calcium hydroxide ("lime") were among the substances designated as hazardous substances in an action taken on March 13, 1978 (43 FR 10474). On April 3, 1979, the Mississippi Lime Company petitioned EPA for reconsideration of the regulation designating lime as a hazardous substance. On August 29, 1978, (44 FR 50783) EPA proposed an amendment to rule that would remove these chemicals from the hazardous substances list.

As a result of the proposed amendment, EPA received 28 comments from industrial groups and other interested parties. All comments supported the EPA proposed action to remove calcium oxide and calcium hydroxide from the hazardous substances list. Thus, EPA today is amending Part 116 and Part 117 to delete calcium hydroxide and calcium oxide.

It should be emphasized that this action does not affect the validity of EPA's criteria for designating hazardous substances. Rather, based on the documents provided by petitioner, it appears that the unique chemistry of lime is such that lime would not exceed the section 311 acute toxicity criterion when discharged into the environment.

Dated: November 2, 1978.

Douglas M. Costle,
Administrator.

PART 116—DESIGNATION OF HAZARDOUS SUBSTANCES

Part 116 is amended as follows:

§ 116.4 (Amended)

1. Delete from § 116.4, Table 116.4, the term Calcium hydroxide. CAS No. 1305820. Lime, hydrated, slaked lime Calcium hydrate.

§ 116.4A (Amended)

2. Delete from § 116.4A, Table 116.4A, the term Calcium hydroxide. CAS No. 1305788. Lime, quicklime.

§ 116.4 (Amended)

3. Delete from § 116.4, Table 116.4B, CAS No. 1305820. Calcium hydroxide.

§ 116.4 (Amended)

4. Delete from § 116.4, Table 116.4B, CAS No. 1305788. Calcium oxide.

PART 117—DETERMINATION OF REPORTABLE QUANTITIES

Part 117 is amended as follows:

§ 117.3 (Amended)

1. Delete from § 117.3, Table 117.3 the term Calcium hydroxide, Category D, RQ in pounds (kilograms), 5,000 (2270).

§ 117.3 (Amended)

2. Delete from § 117.3, Table 117.3, the term Calcium oxide, Category D, RQ in pounds (kilograms), 5,000 (2270).

(Sec. 311 of the Clean Water Act, 33 U.S.C. 1251 and E.O. 11738)

(FR Doc. 78-3488 Filed 11-9-78; 9:45 am) BILLING CODE 6560-01-2

INTERSTATE COMMERCE COMMISSION

49 CFR Part 1033

[E.O. 14097]

Chicago & North Western Transportation Co. Authorized To Operate Over Tracks of Chicago, Rock Island & Pacific Railroad Co. at Worthington, Minn.

AGENCY: Interstate Commerce Commission.

ACTION: Service Order No. 1407.

SUMMARY: Authorizes the Chicago and North Western Transportation Company to operate over tracks of the Chicago, Rock Island and Pacific Railroad Company (RI) in Worthington, Minnesota, in order to serve shippers which would otherwise be deprived of essential railroad service due to track embargoes on the RI.

EFFECTIVE DATE: 12:01 a.m., November 8, 1978, and continuing in effect until 11:59 p.m., December 3, 1978.

FOR FURTHER INFORMATION CONTACT: Kenneth Carter, (202) 275-7840.

KennedyJenks Consultants

APPENDIX F

Stability Analysis For Open Pits, 1991, Triad Geotechnical Associates

Excerpts and Boring Logs

DICE 00664



TRIAD GEOTECHNICAL CONSULTANTS INC.

Soils Engineering • Engineering Geology • Environmental Engineering

17231 EAST RAILROAD STREET, SUITE 100, CITY OF INDUSTRY, CA 91748

TELEPHONE (818) 964-2313

FAX (818) 810-0915

STABILITY ANALYSIS FOR OPEN PIT

8832 DICE ROAD

SANTA FE SPRINGS, CALIFORNIA

JOB NUMBER 90-395

MAY 13, 1991

REQUESTED BY:

Liquid Air

2121 N. California Boulevard

P.O. Box 8038

Walnut Creek, CA 94596

Attention: Mr. Robert D. Predmore, Director

DICE 00665

1.0

INTRODUCTION

This report presents the results of a geotechnical investigation performed to assess the stability of an open pit and to provide mitigating measures if the pit is found to be unstable. This investigation was initiated upon the client's concerns regarding the stability of the pit and its impact on the site. The stability of the area was a special concern due to the presence of railroad tracks within 7 feet of the pit.

1.1 Purpose & Authorization

This phase of stability analysis is the result of the earlier investigation, see reference 1. The earlier work consisted of field reconnaissance and visual observations and as a result of this investigation a more detailed investigation was recommended. The scope of this work was detailed in our proposal dated August 31, 1990 and is summarized below. This work was authorized by Mr. Robert Pedmore, director of technical services of Liquid Air.

1.2 Scope of Services

The scope of work consisted of field investigation, laboratory testing and engineering analysis. Specifically, the scope of services included the following:

- (a) Drill 5 borings to the maximum depth of 20 feet.
- (b) Perform the site survey and produce topographic map with details of pit at the site.
- (c) Perform laboratory tests to determine the engineering properties of soils (strength, etc.) in the pit and its vicinity.

- (d) Perform stability analysis to evaluate the stability of the pit.
- (e) Prepare a report with findings and recommendations for the stabilization of the pit area.

2.0 SITE INVESTIGATION

2.1 Site Description

The site is located north of Los Nietos Road and west of Norwalk Boulevard on Dice Road in the City of Santa Fe Springs. The property is an industrial site with administrative offices. The entire site is fenced with chain link type fence. The pit is located on the northern end of the property. The east, west and south ends of the pit are being used by the plant facilities, and on the north end there are railroad tracks. On the northeast corner of the pit the railroad tracks fall within 6 to 7 feet of the pit. Several parked rail cars were noted in that area.

For the location of the pit in relation to the railroad tracks and the property fence, see the enclosed Plate A.

2.2 Proposed Project

This area under investigation consists of a large open pit. The attached Site Plan, Plate A, shows the limit of the pit. The pit is approximately 100 feet wide and 250 feet long and its sides are about 25 feet high and essentially vertical. This pit is being used as a lime processing area. Because of its use the inside walls of the pit are mostly coated with lime.

On the north end of the pit, approximately 7 feet from the top of the pit railroad tracks are located. These tracks are being used to transport heavy goods. Railroad cars are expected to impose heavy surcharge and possible vibrations in the pit area. In communications with the railroad industry it was established that maximum load per axle of the railroad car is 80 kips. Therefore, 80 kips of load were distributed to two wheels as surcharge to the pit area.

On the southern end of the property a ramp leads down from the property to the bottom of the pit.

2.3 Field Investigation

Field investigation consisted of drilling five exploratory borings at the locations indicated on the Site Plan presented in the Appendix. These borings ranged from 11 to 21 feet in depth. A description of the methods used for the exploration is presented in the Appendix of this report.

2.4 Laboratory Tests

To evaluate engineering properties of the on-site soils, several laboratory tests were performed on the soil samples obtained from the site. The type of tests and test results are provided in the Appendix of this report.

2.5 Subsurface Conditions

The subsurface material at the bottom of the pit, in the upper strata, is fill which ranges 5 feet to 13 feet in depth. Fills are gray to grayish brown silty sands and sands. These soils are in a moist and medium dense to dense condition. An ammonia odor was noted in the fills. Underlying the fills are natural soils which consist of silty sands, sandy silts and clayey silts. More commonly fine and cohesive material was encountered in the lower strata. Natural soils are light gray and grayish brown sands and silts. These soils are slightly moist to moist, slightly porous, and are medium dense to dense.

At the ground surface level, the top of pit area, the natural soils were encountered at the ground surface. The soils in the upper 13 feet of stratum were classified as sandy silts. These soils are soft and porous in the upper 2 to 3 feet and below that they increasingly become firm to very firm. The lower strata are grayish brown sands which are dense. Ground water was not encountered in any of the borings to the depths of exploration.

3.0

ANALYSIS

3.1 Fill Material

Fill material will be required at the site to buttress the existing open pit. As will be noted in the section of Stability Analysis, two types of fill may be required at the site. High quality of fill will be necessary in the eastern portion and

BORING LOG

Project 6832 Dice Road - Santa Fe Springs
 Boring No 1 Location see plot plan Job No. 90-395 Drill Date 2-5-91
 Surface Elev Logged by JLK Driving Weight 2400#

WATER	DEPTH (FEET)	GRAPHIC LOG	UNIT (soil, fill, alluvium, siltstone, etc.) MATERIAL DESCRIPTION (% sand, silt, clay; color, consolidation, etc.) ATTITUDE MEASUREMENTS: B - Bedding F - Fault J - Joint RS - Rupture Surface C - Contact	GROUP SYMBOL U.S.C.S.	PENE. RESIST BLOWS/FOOT	C-CORE B-BAS	DRY DENSITY pcf	MOISTURE CONTENT (%)
	0		<u>FILL:</u> Gravelly Fine to Coarse SAND - gray-brown, moist, moderately dense, some asphalt debris No debris Black	SW	1/4" (bounced)	C/B	94.2	9.9
	5		<u>FILL:</u> Silty Fine SAND - gray, moist, moderately dense to dense - has strong ammonia odor	SM	4	C/B	107.0	19.6
	10		Dark gray-brown, less Silt, strong odor, trace of porosity		7	C	110.2	11.1
	15		<u>NATURAL:</u> Sandy SILT with a trace of Clay - light gray-brown, moist to very moist, very firm to stiff - no contamination No Clay	ML	3	C/B	103.9	21.5
	20		<u>SILT with Clay</u> - red-brown, moist, very firm to stiff, slight trace of porosity		3	C	112.9	18.2
			END OF BORING 20.0 FEET No Ground Water or Caving					
	25							
	30							

DICE 00670

BORING LOG

Project 8822 Dice Road - Santa Fe Springs

Boring No 2 Location see plot plan Job No. 90-395 Drill Date 2-5-91

Surface Elev Logged by JLK

Driving Weight 2400#

WATER	DEPTH (FEET)	GRAPHIC LOG	UNIT (soil, fill, alluvium, siltstone, etc.) MATERIAL DESCRIPTION (% sand, silt, clay; color, consolidation, etc.) ATTITUDE MEASUREMENTS: B-Bedding F-Fault J-Joint RS-Rupture Surface C-Contact	GROUP SYMBOL U.S.C.S.	PENE. RESIST BLOWS/FOOT	C-CORE P-BAG	DRY DENSITY pcf	MOISTURE CONTENT (%)
	0		FILL: LIME with Soil mix - light gray & brown					
			FILL: Sandy GRAVEL/Gravelly Fine to Coarse SAND - gray-brown, moist, dense, well cemented	SW/GM				
			FILL: Silty Fine SAND with Clay - gray-brown, moist, dense, mild ammonia odor	SM	10	C	111.4	18.6
	5		NATURAL: SAND with Silt - light gray-brown, moist, moderately dense to dense	SP	5	C	113.0	16.8
	10		Clayey SILT - gray-brown, moist to very moist, very firm, trace of porosity	ML	1	C	82.7	37.0
	15		END OF BORING 11.0 FEET No Ground Water or Caving					
	20							
	25							
	30							

DICE 00671

BORING LOG

Project 8832 Dice Road - Santa Fe Springs

Spring No 3 Location see plot plan Job No. 90-395 Drill Date 2-5-91

Surface Elev Logged by JLK Driving Weight 2400#

WATER	DEPTH (FEET)	GRAPHIC LOG	UNIT (soil, fill, alluvium, siltstone, etc.) MATERIAL DESCRIPTION (% sand, silt, clay; color, consolidation, etc.) ATTITUDE MEASUREMENTS: B - Bedding F - Fault J - Joint RS - Rupture Surface C - Contact	GROUP SYMBOL U.S.C.	PENE. RESIST BLOWS/FOOT	C-CORE B-BAG	DRY DENSITY pcf	MOISTURE CONTENT (%)
	0		LIME MATERIAL - light gray			B		
			FILL: Sandy SILT - dark gray-brown, moist, firm	ML	push 6"	C	60.6	46.4
			FILL: Gravelly Fine to Coarse SAND - dark-gray, moist, dense - well cemented Black - mod. ammonia odor, very moist	SW				
	5		FILL: Fine SAND - gray-brown, moist, moderately dense to dense	SP	6	C	108.9	16.8
			NATURAL: Sandy SILT - gray-brown, moist, very firm to stiff	ML				
	10		Light gray-brown, very moist Trace of caliche		2	C	89.5	32.3
	15				2	C	98.0	26.7
	20		END OF BORING 16.0 FEET No Ground Water or Caving					
	25							
	30							

DICE 00672

BORING LO

Project 8832 Dice Road - Santa Fe Springs

Boring No 5 Location see plot plan Job No. 90-395 Drill Date 7-8-61

Surface Elev Logged by JLK Driving Weight 2400#

WATER	DEPTH (FEET)	GRAPHIC LOG	UNIT (soil, fill, alluvium, siltstone, etc.) MATERIAL DESCRIPTION (% sand, silt, clay; color, consolidation, etc.) ATTITUDE MEASUREMENTS: B - Bedding J - Joint C - Contact F - Fault RS - Rupture Surface	GROUP SYMBOL U.S.G.S.	PENE. RESIST BLOWS/FOOT	C-CORE P-BAG	DRY DENSITY pcf	MOISTURE CONTENT (%)
	0		SILT with Sand & Clay - brown, moist, firm, slightly porous	ML	1	C	97.0	20.0
	5		Moist to very moist, firm, trace of porosity		push & hold	C	91.7	22.7
	10		Sandy SILT - brown, moist, very firm Red-brown, stiff Some Clay, trace of porosity		4	C	114.5	14.7
	15		Fine to Coarse SAND with gravel - gray-brown to light red-brown, moist, dense	SW	5	C	112.7	13.0
	20		Fine to Medium SAND with some Coarse Sand Gravelly Fine to Coarse SAND - light gray-brown Strange odor - strong		10	C	118.1	2.0
	25		END OF BORING 21.0 FEET No Ground Water or Caving					
	30							

DICE 00674

APPENDIX G

Geotechnical Study, 1992, Geomatrix Consultants, Inc.

Excerpts, Figure and Boring Logs



**GEOTECHNICAL STUDY
PROPOSED OFFICE AND TRUCK
MAINTENANCE BUILDING AND TANK FARM
LIQUID AIR WASTE PONDS
SANTA FE SPRINGS, CALIFORNIA**

Prepared for

**Kennedy/Jenks Consultants
17310 Red Hill Avenue, Suite 220
Irvine, California 92714**

Geomatrix Consultants

DICE 00676

LABORATORY TESTING

Selected samples from the borings were tested in the laboratory to evaluate the unconfined compressive strength, dry density, moisture content, grain size distribution, Atterberg Limits, and R-value of the subsurface materials. Results of these tests are given at the corresponding sample locations on the boring logs, Figures A-1 through A-13. Grain size distribution plots are presented on Figure A-14. More detailed descriptions of the field exploration and laboratory testing programs undertaken for this study are given in Appendix A.

SURFACE AND SUBSURFACE CONDITIONS

SURFACE CONDITIONS

The site is relatively level except for the two waste ponds. The surface of the site is at about elevation 148 feet as shown on Figure 1. The large pond bottom is shown to slope down to a minimum elevation of about 122 feet at the northeast corner of the pond. The small pond bottom is relatively level at an elevation of approximately 141 feet. During our first visit to the site on July 30, 1992, several stockpiles of calcite were located adjacent to the waste ponds. Specifically, the stockpiles occupied the ground surface northwest of the large pond, and to the east and west of the small pond. The stockpile adjacent to the large pond had been pushed into the large pond by the time of our field exploration program. Visual examination of samples of soils retrieved from the three stockpile areas during our exploration indicate that the stockpile adjacent to the large pond contained trace calcium deposits, while soil in the two remaining stockpile areas appear to contain 50 to 75 % calcium deposits.

Soils from at least two street repair projects have been stockpiled just south of the site for use as backfill material. It is our understanding the materials consist of pulverized asphaltic concrete, aggregate base, and subgrade soils. Four types of soils were observed in the stockpiles at the time of our field exploration. These soils appear to be primarily silt, gravel and sand.

The surface of the site is covered with soil in most areas, with some portland cement concrete pavement in the vicinity of the proposed storage tank farm. Several low rise buildings currently occupy the site north and west of the proposed tank farm as shown on Figure 1. Several steel storage tanks are also located immediately west of the small pond, and on the northwest portion of the facility. The site is bounded by railroad tracks on the east and south, with a spur entering the Liquid Air facility west of the tanks adjacent to the small pond.

SUBSURFACE CONDITIONS

Waste Ponds

Subsurface conditions encountered in the borings drilled in the waste ponds indicate that the large pond is underlain by up to 1.5 to 4 feet of loose to very dense calcium deposits. The greatest thickness of calcium deposits is in the northeastern portion of the pond in the area of Boring B-3, and no calcium deposits were present in the southwest portion of the pond in Boring B-1. In the small pond, about 1.5 feet of calcium fill was encountered in Boring B-5, and no calcium was encountered in Boring B-4.

The native materials underlying the calcium fill in both ponds are comprised of about 7 to 16 feet of dense to very dense silty fine sands and fine sandy silts over stiff to very stiff clayey silts and silty clays. The base of the sandy soils underlying the large pond varied from elevation 121 feet, to elevation 108 feet. Sandy soils were encountered to a depth of about 15 feet at the small pond (approximately elevation 125 feet).

The upper 5 to 13 feet of granular soil underlying the large pond was identified as fill in the Triad borings. We have identified these soils as native materials. The soils differ from the native soils encountered at the same elevations in Borings B-11 and B-12 and T-5 outside of the ponds both in color and cementation. The sandy soils outside the ponds are brown, while the sand and sandy silt underlying the ponds is dark gray to black. In addition, the soils underlying the ponds are cemented, producing very large Standard

Penetration Test blow counts, while the soils outside the ponds do not appear to be cemented.

The causes of the dark coloration and cementation of soils beneath the ponds is not known. However, the cementation may be due to precipitation of calcium from the calcium hydroxide (lime) stored in the ponds. The calcium may have precipitated out of solution as the liquid passed through the once permeable native materials below the base of the ponds, eventually forming cementations in the sands and providing a barrier to additional infiltration. The native materials appear to be fairly permeable, but appear to have served as a pond liner once precipitation of calcium occurred. The change in color between the soils underlying the ponds and exterior native soils may be due to differences in moisture content.

Proposed Office and Truck Maintenance Building and Tank Farm

The proposed building location No. 1 is underlain by approximately 6 to 8 feet of medium dense to very dense silt with sand and clay overlying 14 to 17 feet of medium dense to very dense sand with silt. The sand is underlain in turn by medium dense sandy silt.

Approximately 1½ feet of gravel fill and topsoil with organics was encountered at the ground surface in Borings B-8 and B-10.

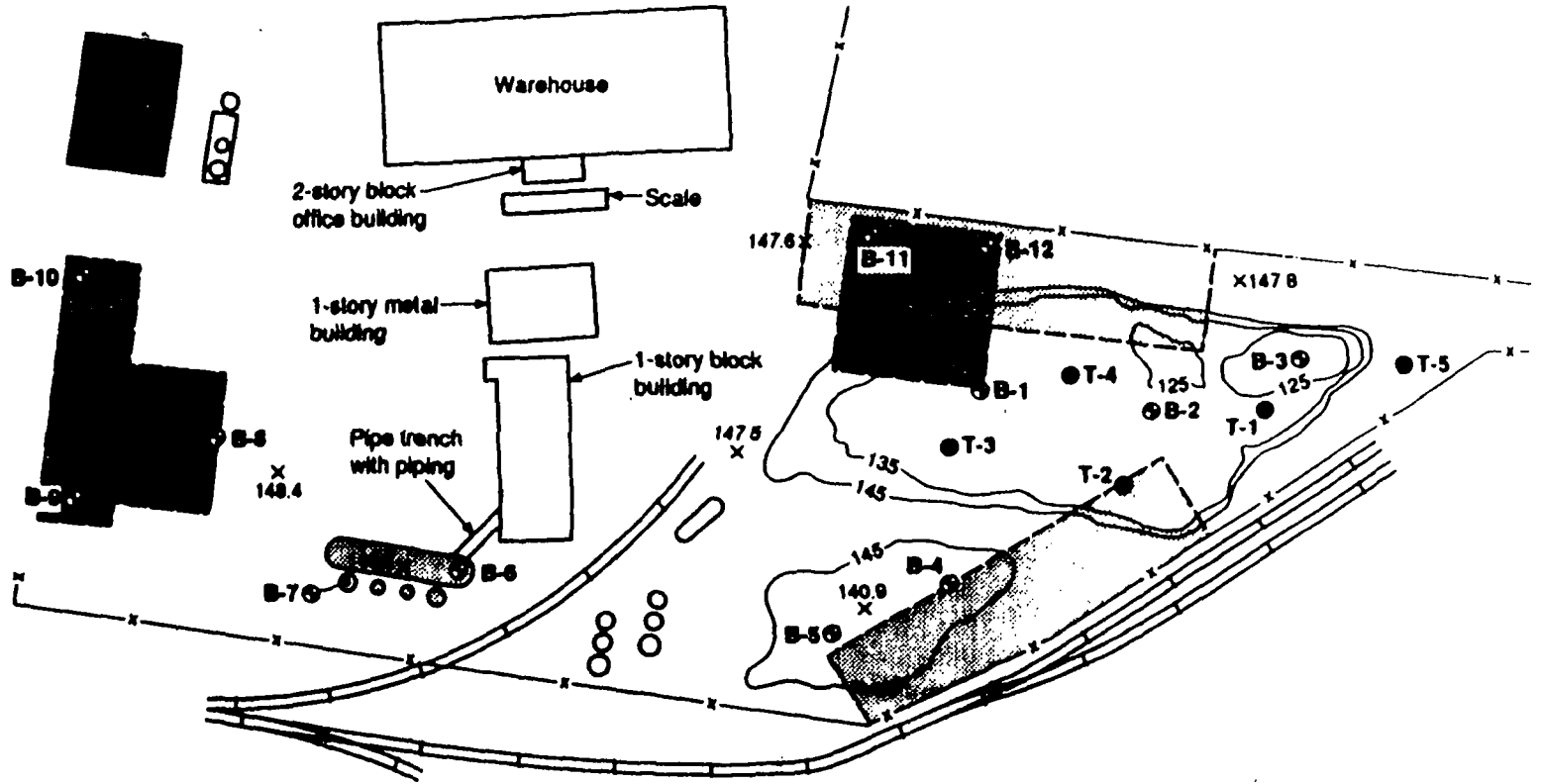
Subsurface conditions encountered in Borings B-11 and B-12 drilled at proposed building location No. 2 consist of 15 to 18 feet of loose to medium dense sandy silt and silt with clay over about 15 feet of medium dense to very dense sand and silty sand. The sand is underlain by medium dense silt. Loose calcium deposits were encountered in the upper 5 feet of soil encountered in Boring B-12.

The two exploratory borings drilled at the proposed tank farm site encountered 15 feet of stiff to very stiff sandy silty clay over medium dense to dense sand (Boring B-6) and 20 feet of loose to very dense micaceous silt with sand (Boring B-7).



SITE AND BORING LOCATION PLAN
 Liquid Air Waste Ponds
 Santa Fe Springs, California

DICE 00680



EXPLANATION

- B-1** ● 1992 Geomatrx boring
- T-1** ● 1991 Triad boring
- Proposed office and truck maintenance building location No. 1
- Proposed office and truck maintenance building No. 2
- Approximate location of proposed tank farm
- Existing office building proposed for demolition and replacement with parking lot
- Proposed truck parking stalls
- 140.9 x Spot elevation

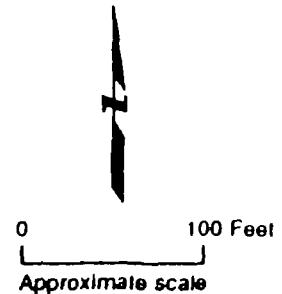


Figure 1
 Project No. 2220

PROJECT LIQUID AIR WASTE PONDS
Santa Fe Springs, California

Log of Boring No. B-1

BORING LOCATION: See Figure 1

DATE STARTED: 10/29/92

DATE FINISHED: 10/29/92

NOTES: Logged by E. Bailiff
Drilling Equipment: Mobil B-47
Drilling Contractor: H-F Drilling Inc.

DRILLING METHOD: 8" hollow stem auger

HAMMER WEIGHT: 140 lbs.

DROP: 30"

SAMPLER: Standard penetrometer and 2" I.D. modified California

DEPTH (feet)	SAMPLES			MATERIAL DESCRIPTION	LABORATORY TESTS		
	Sample No.	Sample	Blooms/ Feet		Moisture Content (%)	Dry Density (pcf)	Other
Surface Elevation: -129±							
1							
2							
3	1		75 4"	GRAY-BROWN SAND with GRAVEL (SP) Olive, very dense, moist			
4	2		50 1"	Becoming yellow-brown, slightly moist			
5							
6							
7							
8	3		41	FINE SANDY SILT (ML) Olive gray, dense, slightly moist			
9							
10							
11	4		17	SANDY SILT with CLAY (ML - CL) Olive brown, fine, stiff, moist			
12							
13							
14	5		12	CLAYEY SILT (ML - CL) Olive brown, stiff, moist			
15							

DICE 00681

PROJECT LIQUID AIR WASTE PONDS
Santa Fe Springs, California

Log of Boring No. B-1 (cont'd.)

DEPTH (feet)	SAMPLES			MATERIAL DESCRIPTION	LABORATORY TESTS		
	Sample No.	Sample	Blows/ Foot		Moisture Content (%)	Dry Density (pcf)	Other
16	6		19	CLAYEY SILT (ML - CL) (Continued) Becoming very stiff			
17	7		16				
18				Bottom of boring at 18 feet			
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
28							
30							
31							DICE 00682
32							

g-2-88

PROJECT LIQUID AIR WASTE PUNDS
Santa Fe Springs, California

Log of Boring No. B-2

BORING LOCATION: See Figure 1

DATE STARTED 10/29/92 DATE FINISHED 10/29/92 NOTES Logged by E. Bailiff
Drilling Equipment: Mobil B-47
Drilling Contractor: H-F Drilling Inc

DRILLING METHOD 8" hollow stem auger

HAMMER WEIGHT 140 lbs. DROP 30"

SAMPLER 2" I.D. modified California

DEPTH (feet)	SAMPLES			MATERIAL DESCRIPTION	LABORATORY TESTS		
	Sample No.	Sample	Blow/ Foot		Moisture Content (%)	Dry Density (pcf)	Other
Surface Elevation -125±							
1	1		100	SILT (ML) [Fill] Light gray calcium deposit, very dense, moist	29	71	
2			1"	SAND with GRAVEL (SP) Yellow-brown, very dense, moist, fine to coarse sand			
3							
4	2		42	SANDY SILT (ML) Olive yellow-brown, dense, moist, fine sand, black staining	18	111	Uncont Compr Strength 565 psf
5							
6							
7							
8	3		80	SAND with SILT (SP - SM) Yellow-brown, very dense, moist, fine to medium sand	11	119	
9							
10							
11	4		71	SAND (SP) Yellow-brown, very dense, moist, medium sand			
12							
13	5		85	Becoming gray			
14							
15							

DICE 00683

PROJECT: LIQUID AIR WASTE PONDS
 Santa Fe Springs, California

Log of Boring No. B-2 (cont'd.)

DEPTH (feet)	SAMPLES			MATERIAL DESCRIPTION	LABORATORY TESTS		
	Sample No.	Sample	Borehole Foot		Moisture Content (%)	Dry Density (pcf)	Other
16	6		27	SAND (SP) (Continued) Becoming medium dense, wet			
17				Bottom of boring at 16.5 feet			
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
28							
30							
31							DICE 00684
32							

gr 2-66

PROJECT LIQUID AIR WASTE FOUNDS
Santa Fe Springs, California

Log of Boring No. B-3

BORING LOCATION: See Figure 1

DATE STARTED 10/29/92

DATE FINISHED 10/29/92

NOTES Logged by E. Bailiff
Drilling Equipment: Mobil B-47
Drilling Contractor: H-F Drilling Inc

DRILLING METHOD 8" hollow stem auger

HAMMER WEIGHT 140 lbs.

DROP 30"

SAMPLER Standard penetrometer and 2" I.D. modified California

DEPTH (feet)	SAMPLES			MATERIAL DESCRIPTION	LABORATORY TESTS		
	Sample No	Sample	Blows/ Foot		Moisture Content (%)	Dry Density (pcf)	Other
Surface Elevation ~123'							
1	1		8	SANDY SILT (ML) [Fill] Light gray calcium deposit, loose, damp, fine sand			
2							
3							
4	2		100 6"	SAND with GRAVEL (SP) Gray to dark gray, very dense, moist, medium to coarse sand			Grain Size Distrib
5							
6							
7							
8	3		100 6"	SANDY SILT (ML) Mottled yellow-brown and olive green, very dense, moist, fine sand			
9							
10							
11	4		49	Becoming dense			
12							
13							
14	5		81	Becoming very dense with clay			
15							

DICE 00685

PROJECT LIQUID AIR WASTE PONDS
Santa Fe Springs, California

Log of Boring No. B-3 (cont'd.)

DEPTH (feet)	SAMPLES				MATERIAL DESCRIPTION	LABORATORY TESTS		
	Sample No.	Sample	Blows/ Foot			Moisture Content (%)	Dry Density (pcf)	Other
16	6		33		SANDY SILT (ML) (Continued) Becoming dense			
17					Bottom of boring at 16.5 feet			
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
28								
30								
31								
32								

DICE 00686

PROJECT LIQUID AIR WASTE FOUNDS
Santa Fe Springs, California

Log of Boring No. B-4

BORING LOCATION See Figure 1

DATE STARTED 10/29/92

DATE FINISHED 10/29/92

NOTES Logged by E. Bailiff
Drilling Equipment Mobil B-47
Drilling Contractor: H-F Drilling Inc.

DRILLING METHOD 8" hollow stem auger

HAMMER WEIGHT 140 lbs.

DROP 30"

SAMPLER: Standard penetrometer

DEPTH (feet)	SAMPLES			MATERIAL DESCRIPTION	LABORATORY TESTS		
	Sample No	Sample	Blows/ Foot		Moisture Content (%)	Dry Density (pcf)	Other
Surface Elevation -141±							
1	1		75	SAND (SP) Mottled olive and dark gray, very dense, moist, fine to coarse, with very strong cementations			Grain Size Distrib
2							
3							
4							
5	2		95 4'				
6							
7							
8	3		68	Becoming olive, slightly moist, with quartz gravel			
9							
10							
11	4		46	Becoming dense			
12							
13	5		95 4'	Becoming mottled olive and dark gray, very dense			
14							
15							

DICE 00687

gt-1-88

PROJECT. LIQUID AIR WASTE PONDS
Santa Fe Springs, California

Log of Boring No. B-4 (cont'd.)

DEPTH (feet)	SAMPLES				MATERIAL DESCRIPTION	LABORATORY TESTS		
	Sample No.	Sample	Blower Foot			Moisture Content (%)	Dry Density (pcf)	Other
16	6		86		SILT (ML) Olive and gray-brown, very dense, moist, micaceous			
17					Bottom of boring at 16.5 feet			
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
28								
30								
31								
32								

DICE 00688

g-2-86

PROJECT LIQUID AIR WASTE FOUNDS
Santa Fe Springs, California

Log of Boring No. B-5

BORING LOCATION See Figure 1

DATE STARTED 10/29/92 DATE FINISHED 10/29/92

NOTES Logged by E. Bailiff
Drilling Equipment: Mobil B-47
Drilling Contractor: H-F Drilling Inc

DRILLING METHOD 8" hollow stem auger

HAMMER WEIGHT 140 lbs. DROP 30"

SAMPLER 2" I.D. modified California

DEPTH (feet)	SAMPLES			MATERIAL DESCRIPTION	LABORATORY TESTS		
	Sample No	Sample	Blows/ Foot		Moisture Content (%)	Dry Density (pcf)	Other
Surface Elevation -141'±							
1	1		50 3'	SILT (ML) [Fill] Light gray calcium deposit, very dense, dry			
2				SAND (SP) Olive and dark gray, very dense, slightly moist, fine to medium			
4	2		120 6'		8	82	
7							
8	3		46	Becoming olive brown, dense			
10							
11	4		50 4'	Becoming very dense, with gravel			
12							
13	5		80 6'	Becoming olive and dark gray			
14							
15							

DICE 00689

PROJECT LIQUID AIR WASTE FUND
 Santa Fe Springs, California

Log of Boring No. B-5 (cont'd.)

DEPTH (feet)	SAMPLES			MATERIAL DESCRIPTION	LABORATORY TESTS		
	Sample No.	Sample	Bore/ Foot		Moisture Content (%)	Dry Density (pcf)	Other
16	6		95	SILT (ML) Olive brown, very dense, moist			
17				Bottom of boring at 16.5 feet			
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
28							
30							
31							
32							

DICE 00690

PROJECT LIQUID AIR WASTE PONDS
Santa Fe Springs, California

Log of Boring No. B-11

BORING LOCATION See Figure 1

DATE STARTED 10/30/92

DATE FINISHED 10/30/92

NOTES Logged by E. Bailiff
Drilling Equipment: Mobil B-47
Drilling Contractor: H-F Drilling Inc.

DRILLING METHOD 8" hollow stem auger

HAMMER WEIGHT 140 lbs.

DROP 30"

SAMPLER 2" I.D. modified California

DEPTH (feet)	SAMPLES			MATERIAL DESCRIPTION	LABORATORY TESTS		
	Sample No	Sample	Blower Foot		Moisture Content (%)	Dry Density (pcf)	Other
Surface Elevation -147±							
1				SILTY SAND (SM) Dark brown, loose, damp			
2	1		13	SILT with CLAY (ML) Dark olive brown, stiff, moist	22	98	Unconf Compr Strength 800 psf
3							
4				← Becoming light olive brown			
5	2		8		27	92	Unconf Compr Strength 1700 psf
6							
7							
8	3		14	SANDY SILT (ML) Brown, medium dense, moist, micaceous, fine to medium sand	12	119	
9							
10							
11	4		16				
12							
13							
14							
15							

DICE 00691

PROJECT LIQUID AIR WASTE PONDS
Santa Fe Springs, California

Log of Boring No. B-11 (cont'd.)

DEPTH (feet)	SAMPLES		MATERIAL DESCRIPTION	LABORATORY TESTS		
	Sample No.	Blow Foot		Moisture Content (%)	Dry Density (pcf)	Other
16	5	36	SANDY SILT (ML) (Continued)	7	111	Gran Size Distrib
17			SAND (SP) Dark yellow-brown, dense, damp, fine to coarse			
20				8	105	DICE 00692
21	6	23	Becoming medium dense, medium to coarse			
22						
25				8	105	DICE 00692
26	7	83	Becoming very dense, decreased medium sand			
27				18	118	
28						
30				18	118	
31	8	25	SILT (ML) Mottled olive-brown and dark olive gray, medium dense, moist			
32			Bottom of boring at 31.5 feet			

gr-2-88

PROJECT LIQUID AIR WASTE PONDS
Santa Fe Springs, California

Log of Boring No. B-12

BORING LOCATION See Figure 1

DATE STARTED 10/29/92 DATE FINISHED 10/29/92

DRILLING METHOD 8" hollow stem auger

HAMMER WEIGHT 140 lbs. DROP 30"

SAMPLER Standard penetrometer, 2" I.D. modified California

NOTES Logged by E. Bailiff
Drilling Equipment Mobil B-47
Drilling Contractor: H-F Drilling Inc

DEPTH (feet)	SAMPLES			MATERIAL DESCRIPTION	LABORATORY TESTS		
	Sample No	Sample	Blows/ Foot		Moisture Content (%)	Dry Density (pcf)	Other
Surface Elevation -145±							
1				SILT (ML) [Fill] Light gray calcium deposit, very stiff			R-value =5
2	1		16				
3							
4				SANDY SILT with CLAY (ML) Olive brown, loose, moist, fine sand			
5					32		
6	2		9				
7							
8	3		12	Becoming medium dense		13	
9							
10							
11	4		14			13	
12							
13							
14							
15							

DICE 00693

PROJECT LIQUID AIR WASTE PONDS
Santa Fe Springs, California

Log of Boring No. B-12 (cont'd.)

DEPTH (feet)	SAMPLES			MATERIAL DESCRIPTION	LABORATORY TESTS		
	Sample No.	Sample	Blower Foot		Moisture Content (%)	Dry Density (pcf)	Other
16	5		19	SANDY SILT with CLAY (ML) (Continued) Becoming light olive brown	9		
18				SILTY SAND (SP) Light olive brown, dense, moist, fine to coarse sand			
20	6		36				Gran Size Distrib.
21							
22				Bottom of boring at 21.5 feet			
23							
24							
25							
26							
27							
28							
28							
30							
31							
32							

DICE 00694

gr-2-88

APPENDIX H

California EPA Sampling and Analytical Data, 1991

Aug. 26, 1991

Liquid Air Corp.
8832 Dice Road
Santa Fe Springs, CA
CAD000021160

On Aug. 26, 1991 8 samples were collected at Liquid Air Corp. Four (4) samples were given to Brian Leger on Aug. 26, 1991 (split samples).

G. Hernandez
G. Hernandez, CAL EPA

8/26/91
Date

Brian Leger
Liquid Air Representative

8/26/91
DATE

Southern California Laboratory - Hazardous Materials Unit
 1449 Temple Street, Los Angeles Ca. 90026
 Telephone 213-620-3376

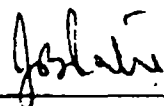
To : Guillermo Hernandez. SCL No. : 10389 to 10392.
 Sampling No. : See below. Date of Report: 9-9-91.
 Sample Location: Liquid Air.
 Analytical Procedures Used: Digestion : EPA 3055 Analysis : EPA 6010.
 PH : EPA 9040 & 9045.

Analysis Results: DICE 00697

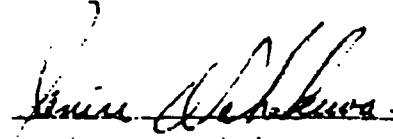
SCL No.	10389	10390	10391-Liquid	10391-Solids	10392
Field No.	LA-SA-01	LA-SA-02	LA-SA-03		LA-SA-04
Units	mg/Kg	mg/L	mg/L	mg/Kg	mg/Kg
Silver	<4	<4	<4	<50	<50
Arsenic	<4	<4	<4	<50	<50
Barium	6	6	6	<50	<50
Beryllium	<0.4	<0.4	<0.4	<5	<5
Cadmium	<0.8	<0.8	<0.8	<10	<10
Cobalt	<4	<4	<4	<50	<50
Chromium	<4	<4	<4	<50	<50
Copper	<4	<4	<4	<50	<50
Molybdenum	<4	<4	<4	<50	<50
Nickel	<4	<4	<4	<50	<50
Lead	<4	<4	<4	<50	<50
Antimony	<4	<4	<4	<50	<50
Selenium	<0.8	<0.8	<0.8	<10	<10
Thallium	<4	<4	<4	<50	<50
Vanadium	<4	<4	<4	<50	<50
Zinc	<4	<4	<4	<50	<50
pH	12.3 at 22 deg C	12.3 at 21 deg C	12.4 at 21 deg C		9.4 at 25 deg C

Analyst's Signature

Supervisor's Signature


 Jay Patel

9-10-91
 Date


 Janice Wskakuwa

9/10/91
 Date

DICE 00698

QC Summary for Metal Analysis
 Southern California Laboratory - Hazardous Materials Unit
 1449 Temple Street, Los Angeles, Ca. 90026
 Telephone 213-620-3376

To : Guillermo Hernandez. Sample Set SCL Nos : 10389 to 10399
 Matrix : Liquids & Solids Date of Analysis : 9-6-91.
 Level of Spike : 10 & 2 ppm. Standard Lot Number: SP0891DK100/20
 Duplicate done on: 10392. Spike done on : 10392.
 Sample Location: Liquid Air.
 Analytical Procedures Used: Digestion : EPA 3055 Analysis : EPA 6010.

	Reagent Blank	Method Std % Rec	Laboratory Control Sample			% RPD		Matrix Spike % Rec
			Expected Range	Found Dup A	Dup B	Ref Material	SMPL DUP	
I.D. of the Laboratory Control Sample: RMM 1088								
Units	mg/L	%	mg/kg	mg/kg	mg/kg	%	%	%
Silver	<1	109	380-505	474	454	5	*	86
Arsenic	<1	104	1550-1890	2219	1684	(27)	*	82
Barium	<1	107	2320-4480	4097	4062	0.9	*	90
Beryllium	<0.1	111	41-98	88	84	2	*	83
Cadmium	<0.2	108	406-490	476	441	8	*	75
Cobalt	<1	105	3280-3990	3746	3566	5	*	76
Chromium	<1	105	2110-2550	2412	2252	7	*	80
Copper	<1	109	1900-2760	2427	2260	7	*	93
Molybdenum	<1	**	2970-3600	3465	3134	10	*	**
Nickel	<1	107	1880-2010	1892	1783	6	*	78
Lead	<1	104	900-1150	968	949	2	*	78
Antimony	<1	**	310-548	519	502	3	*	**
Selenium	0.23	104	380-500	485	432	12	*	91
Thallium	<1	95	580-1060	1687	805	(71)	*	72
Vanadium	<1	103	3060-3680	3486	3380	3	*	89
Zinc	<1	106	2570-3280	2894	2767	5	*	86
Acceptable Range		80%-120%				< 20%	75%-125%	

*Element not found. **Element not present in std used. ()Refer narrative.

Analyst's Signature

Supervisor's Signature

Joseph
 Date 9-10-91

Janice Wskakuwa
 Date 9/10/91

APPENDIX I

- CERCLA Site Inspection 1989
EPA ID# CAD 982359747
- Screening Site Inspection Summary Report 1990,
EPA ID# CAD 003312600

PURPOSE: CERCLA SITE INSPECTION

SITE: Burdett Oxygen Company of California (CKA Liquid Air Corporation)
8832-8838 South Dice Road
Santa Fe Springs, CA 90670

EPA ID #: CAD 982359747

ASPIS #: 19-28-0224

INVESTIGATORS: Wendell Francisco
Hazardous Materials Specialist
Susan White
Hazardous Materials Specialist

Date of Inspection: February 17, 1989

Report Prepared By: Wendell Francisco

Report Date: June, 1989

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APPENDIX A

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1.0 INTRODUCTION:

The Burdett Oxygen Company (AKA Liquid Air Corporation) currently produces acetylene and repackages gases including carbon dioxide, hydrogen, helium, nitrogen, dinitrogen oxide, oxygen, propane and fuel gas for medicinal and industrial use. The facility has been in operation in Santa Fe Springs since 1946. Historical investigations of the site have revealed releases of waste products to the environment by facility operators. On-site disposal of process wastes to unlined pits has occurred. Poor waste disposal and handling practices have also been noted. Waste parameters including pH as high as 12.4, possible high toxicity and persistence, and potential carcinogenicity have been cited (1). The purpose of this report is to summarize previous investigations and make recommendations for further actions.

2.0 SITE CHARACTERIZATION:

2.1 SITE HISTORY AND DESCRIPTION:

Burdett Oxygen Company (BOC) is owned and operated by Liquid Air Corporation, 2121 N. California Blvd., Walnut Creek, CA (2). In 1957, the facility was called Burdett Oxygen of California. In 1962, the facility operated as California Oxygen Company, and by 1964 was known as the California Oxygen Division of American Cryogenics, Inc. (3,4). In 1971, the facility was known as the American Cryogenics Division of Liquid Air Inc. In 1980, the air separation plant was acquired by M.G. Burdett Gas Products Company. The entire facility is currently owned by the operator, Liquid Air Corporation (LAC) (1,2,5,6).

BOC is located at 8832-8838 Dice Road, Santa Fe Springs, CA in northeastern Los Angeles County (7) (Figure 1, Site Location Map: T2S,R11W, Section 31). The site is situated on level terrain on a parcel of 4 1/2 to 5 acres. The facility has been in operation for approximately 31 years in a primarily industrial area of Santa Fe Springs.

The site configuration has changed considerably over the 31 years of operation. The present facility configuration (Figure 2) shows the facility structures and two unlined quarry pits. Structures on-site include: an administrative office, an industrial gas-cylinder fill building, a garage, an acetylene plant, a hydrogen gas plant and an air separation (Alpha gas) plant. The air separation plant and the hydrogen plant are located at the southwest end of the site. The administrative office and the industrial gas-cylinder fill building are located on the north end of the facility. The garage and acetylene plant are centrally located. The two unlined quarry pits are located on the east end of the site between two southern Pacific

Railroad spurs (2).

The site is located approximately 1 mile east of the San Gabriel Freeway. The facility is now completely paved except for the area surrounding the quarry pits. The site is enclosed by a fence with a security guard at the front gate. The Southern Pacific Railroad extends along the southern boundary of the facility.

From 1949 to 1955, periodic inspections by the Los Angeles County Department of the County Engineer (LACE), indicated that BOC was in compliance with the requirement of an industrial waste permit under Los Angeles County Ordinance 6130 (LAC Ord. 6130) (8). Waste sludge from acetylene production and coolant water were discharged under this permit to the unlined quarry pit or pits (8,9). In 1962, LACE inspectors observed an indirect waste trap that resulted in the deposit of caustic effluent into an earthen pit at the facility. The LACE inspectors ordered a direct connection of the effluent to the unlined quarry pit(s). A representative sample of the caustic effluent measured pH 12.4 (10). In 1963, it was discovered that liquid waste from cleaning and cooling tower basin was discharged into the unlined drainage channel, located south of the formerly standing cooling tower. No further actions were recommended by LACE. In 1949 and 1964, LACE inspectors discovered a violation of LAC Ordinance 6130, consisting of a caustic waste spill on the ground surface. A clean-up order was issued in 1964 (11). In 1964, LACE inspectors ordered company officials to discontinue unpermitted discharge of caustic wastes to the public sewer system (12).

In 1976, representatives of the California Regional Water Quality Control Board, Region 4 (RWQCB) reported illegal discharges of acetylene production wastes and cooling tower water to an unlined drainage channel known as North Fork Coyote Creek, for which clean-up orders were issued (13,14,15). Analysis of the process effluent revealed a measured pH of 12.2 and total dissolved solids concentrations (TDS) of 3,220 mg/l (1). As a result, in 1977, RWQCB ordered Liquid Air to comply with waste discharge requirements under the National Pollutant Discharge Elimination System (NPDES). Effluent limits under the NPDES permit included pH 6.0-9.0 and maximum TDS of 700 mg/l (1). Later in the same year, the RWQCB documented excessive quantities of acetylene process wastes deposited in the drainage channel in violation of permit requirements (16). The NPDES permit was allowed to expire by RWQCB with the understanding that no further discharge of indicated wastes to surface waters would be conducted (17,18). In 1981, a facility drive-by conducted by DHS representatives confirmed the presence of acetylene (quarry) sludge ponds containing liquid wastes on site (19). In 1982, the facility was referred to DHS for consideration by the enforcement unit (19,20).

In 1986, it was revealed that a 6200 gallon underground acetone storage tank was leaking at a rate of 0.1566 gal/hr from the facility (21,22,23). The allowable leak rate is 0.05 gal/hour (24,25). A letter of noncompliance regarding the leaking acetone tank was issued by the Department of Public Works Waste Management Division Los Angeles County (25).

In February, 1988, it was revealed that ten or more piles of white to gray waste material were sitting on the unpaved ground surface along the southern border of the waste pit area. In March, 1988, a Santa Fe Fire Department inspection revealed the storage of twenty to thirty 55 gallon drums containing oil, paint, and other wastes near the waste pits (26,27). These drums were relocated to a properly paved storage area and segregated according to compatibility (2). As of July 21, 1989, DHS received a letter from Liquid Air Corporation stating that the 55 gallon drums containing oil, paint and other waste have been properly disposed of or recycled (28).

The facility is currently under permit as Alpha Gas by the South Coast Air Quality Management District (SCAQMD). The SCAQMD has no record of any enforcement action taken at the facility (29).

2.2 Process Description:

The company manufactures acetylene and repackages gases including carbon dioxide, hydrogen, nitrogen, dinitrogen, oxygen, propane and fuel gas for medicinal and industrial uses. The acetylene manufacturing process uses the reaction of calcium carbide stock with water to produce acetylene and slaked lime as shown below:

$\text{CaC}_2 + 2\text{H}_2\text{O} \text{ --- } \text{Ca}(\text{OH})_2 + \text{C}_2\text{H}_2 \text{ (gas)} \dots$ typically with a variety of trace impurities (30,31).

The company excavated two pits, estimated at 500,000 cubic feet in volume, to accumulate sludge by-product, principally slaked lime (8,9). The gas repackaging process consists of vaporizing liquid gases, then repumping and compressing the gases into cylinders (2). Some liquid gases are repackaged and shipped as liquid product while others are vaporized and pumped into cylinders for transport as vaporized gas. There are no by-products produced from the vaporization process (2).

Cylinders containing the following gases are currently produced at the BOC site: oxygen, nitrogen, argon, helium, carbon dioxide, compressed air, acetylene, hydrogen, propane, and speciality gas-mixtures (2,32).

In 1946, the acetylene manufacturing plant was established. In 1957, an air separation plant for the production of oxygen was installed. In 1971, the acetylene plant was reconstructed due to its destruction

by fire in the previous year (33). In 1980, the air separation or liquid plant was closed and has remained inoperative to the present day (2,5).

In the Industrial Gas-Cylinder Fill building oxygen, nitrogen, argon, helium, carbon dioxide, compressed air and hydrogen are transferred from large (truck tankers) to smaller cylinders (2). In the Acetylene plant, acetylene, produced in a controlled reaction of calcium carbide and water, is stored under pressure in cylinders and the lime by-product is hauled away by sub contractors. One 55 gallon drum of sulfuric acid per year is used to clean the piping in the acetylene manufacturing plant. In the garage 200-400 gallons of oil per year is used for trucks and compressors. In the maintenance building, one 55 gallon drum of III trichloroethane per year is used for cleaning pipes on the oxygen tanks used by hospitals and also as a cleaning solvent for engine parts (2).

2.3. Waste Management Practices:

No waste products are produced in the Industrial Gas-Cylinder Fill plant, since the process is principally transferring gas from one container to another. In the Acetylene plant, slaked lime (Ca(OH)_2) is produced as a liquid-sludge waste product. The lime is daily deposited in two large 500,000 cubic feet unlined slurry pits. Slaked lime is produced at BOC at a rate of 92 tons of dry lime per month. Approximately 55 gallons of spent liquid sulfuric acid is generated per year from the Acetylene plant. About 200-400 gallons of spent motor oil is generated per year from the company garage. Approximately 55 gallons of spent III Trichloroethane is generated per year from the maintenance building (2).

A tractor is used to transport lime sludge from the quarry pits to an adjacent milling machine. After the lime has been milled, it is hauled away by large trucks. Spent sulfuric acid, waste oil, and TCE are all stored in an enclosed, paved area in the former air separation plant located on the west side of the facility. Drums are grouped based on chemical characteristics. ENSCO Environmental Services of Irvine has been contracted to haul drummed waste products (2).

There are four above ground storage tanks located southeast of the plant office. Liquid argon, nitrogen and oxygen are separately stored in the three above ground storage tanks. All three tanks are sitting on the paved ground surface and have been in use since 1980. In the Industrial Gas Cylinder Filling area, water is constantly dripping over the valves of the cylinders being filled. This is a safety measure to assure that a spark that may produce a chain reaction of explosions does not occur (2).

In 1976, the RWQCB, Region 4 issued clean up orders for the illegal discharges of acetylene production wastes and cooling water to the North Fork Coyote Creek, an unlined drainage channel (13,14,15). Analysis of the process waste effluent revealed a measured pH of 12.2 and total dissolved solids concentration of 3,320 mg/l (1). Later in the same year, RWQCB documented excessive quantities of acetylene process waste deposited in the drainage channel in violation of permit requirements (16). BOC eventually allowed the National Pollutant Discharge Elimination System (NPDES) permit to expire and begin discharging acetylene process and cooling waters into two large onsite unlined pits (17,18,19). The lime pits are located on the east portion of the BOC site. The acetylene waste water is pumped from the Acetylene plant through a rubber hose out to the lime pits. The pits appear to be greater than 50 feet deep and there is an opaque-green liquid standing on the bottom of the two pits. A floor drainage system collects acetylene process run-off and pumps it out to the lime pits (2).

2.4. Permit:

BOC is not listed in the RCRA data base. In 1977, the RWQCB ordered BOC to comply with waste discharge under the National Pollutant Discharge Elimination System (NPDES). Effluent limits under the NPDES permit included pH 6.0-9.0 and maximum TDS of 700 mg/l (1). In 1976, BOC was not in compliance with the NPDES permit. The NPDES permit was allowed to expire by the RWQCB with the understanding that there would be no further discharges of the indicated wastes to nearby surface waters (17,18). BOC no longer discharged to U.S. Waters, but instead directed effluent to the slurry pits at the east of the facility (19,20). Currently, BOC does not discharge process waste by-products to the sewer.

2.5. Remedial Action:

BOC was ordered by the RWQCB to clean-up the North Fork Coyote Creek, an unlined drainage channel. There is an ongoing removal of lime sludge from the the acetylene slurry pits on-site. This lime is milled and hauled away to be used on roads and agricultural fields.

3.0. Environmental Setting:

3.1. Surrounding Area:

The BOC site is situated on the Santa Fe Springs Plain in the northeast portion of the Los Angeles Coastal Plain. The Santa Fe

Springs plain is a low, slightly rolling topographic feature that has been shaped by the Santa Fe Springs Coyote Hills anticlinal system. The plain dips moderately to the northeast toward Whittier and to the southwest towards the Downey Plain. Total elevation difference ranges from 175 to 200 feet above sea level (34).

The San Gabriel River Channel is located 1 mile west of the site and a percolation basin is located less than 3 miles northwest of the site. The Sorenson Avenue storm drain, located 1/4 mile northeast of the site, is tributary to Coyote Creek which is located approximately 3 miles southeast of the site (Figure 1).

The surrounding population of the City of Santa Fe Springs is 15,000. Distance to Southern California Chemical Company which has the nearest off site building is less than 500 feet west of the site. Witco Organics Company is less than 1,000 feet northwest of the site. An unpaved lot is located less than 200 ft. southwest of the facility on the east side of the Dice Rd. (Figure 3). There are no sensitive environments within the site vicinity such as wetlands, nature preserves, or critical habitats.

One year, 24-hour rainfall for the area is 2 inches (Figure 4). Net seasonal precipitation is -.30 inches (35). Local streams are intermittent due to the seasonal nature of the climate.

3.2. Geology:

The site is located on Upper Pleistocene alluvium of the Lakewood Formation. The Lakewood Formation unconformably overlies the Lower Pleistocene San Pedro Formation, the Pleistocene Pico, the Repette, and Miocene Puente formations (34). Underlying the site are the Lakewood and San Pedro formations which are fresh water bearing units containing Hollydale, Jefferson, Silverado, and Sunnyside Aquifers at increasing depth (1,34,36).

The site is located on the surface exposure of the Bellflower aquiclude, a low permeability layer of the Lakewood Formation. The aquitard, which is 15 - 20 feet thick, consists of gravelly clays, silts, silty clays, and sandy clays (34,37). The lower portion of the Lakewood Formation is the Gage Aquifer which is composed of fine to medium sands approximately 20 feet thick (Figure 5 and 6). Soil borings taken at a nearby facility (Southern California Chemical Company) indicate the base of the Gage Aquifer is located at a depth of 30 feet, however it is dry beneath the nearby site (34,37). The San Pedro Formation unconformably underlies the Lakewood Formation and its uppermost layer is an aquitard comprised of clayey silts and silty clays. It is 5 to 30 feet thick, according to nearby site boring logs, and separates the Gage from the Hollydale aquifer (38).

The Hollydale Aquifer is encountered at a depth of 60 feet below the site surface to approximately 100 feet (34,37). Regional groundwater flow is towards the south to southwest (36,37).

3.3. Hydrology:

3.3.1. Surface Water:

Drainage off of the site flows to the Sorenson Avenue storm drain, a concrete lined channel located 1/4 mile northeast of the facility. The storm drain is tributary to Coyote Creek which is located 3 miles to the southeast. The San Gabriel River is located 1 mile to the west and the San Gabriel percolation basin is located further upstream. The Rio Hondo River and percolation basin are located approximately 3 miles northwest of the site (see Figure 1).

3.3.2. Groundwater:

The site is located on a surface exposure of the Bellflower Aquiclude, a low permeability portion of the Lakewood, Formation, a late pleistocene alluvial formation approximately 20-25 feet thick in the vicinity location (34,37). Boring logs for monitoring wells in the vicinity of the site reveal 10-15 foot thickness of the Bellflower Aquiclude which is comprised mainly of clays (37,38). The unsaturated zone is comprised of gravelly clay, silty clay and clay with a permeability or hydraulic conductivity of 10⁻⁵ to 10⁻⁷ cm/sec and less (37,38,39).

The Gage Aquifer is found 5-15 feet beneath the aquiclude and is 15-30 feet thick beneath the site and consists of sands and is comprised of clays and lies beneath the site surface at a depth of 30 to 60 feet (38). The Lynwood Aquifer lies beneath the San Pedro aquiclude and beneath the site at a depth of 200 feet and extends for 80 feet. The Silverado aquifer lies beneath the site at 300 feet and extends 200 feet in thickness. The Sunnyside aquifer is found at a depth of 560 feet below the surface at depth of approximately 850 feet. The Gage, Hollydale, Jefferson, and Lynwood aquifers are hydrologically interconnected within 3 miles of the site. The Silverado and Sunnyside aquifers are not hydrologically interconnected within a 3 mile radius of the site (Figure 6). General regional groundwater flow in the area is south to southwest (37).

Depth to groundwater in the Central Basin of the Los Angeles Plain occurs at 30 to 35 feet depth to the Gage Aquifer beneath the surface (37). Depth to groundwater beneath the site is approximately 42 feet (34).

A hydrogeologic assessment conducted in the vicinity of the site, indicated that a confined aquifer exists beneath the site at a depth from 42 to 45 feet. Low permeability soils were encountered 10 feet below the ground surface. A second low permeability zone was encountered approximately 25 feet below the surface (38,39,40).

The area is served by several water purveyors within a 1 mile radius of the site. The San Gabriel Valley Water Co., has 2 active wells at State well location 2S/11W-18Q, Plant 1. The wells reach depths of 530 to 552 feet and are perforated at several depths in several of the local aquifers. These two active wells serve The Community of Whittier, California at a population of 17,000 people (41). The City of Norwalk Public Works operates one well within a 3 mile radius of the site and the population served is 7734. It is state well no. 3 s/11W-18M02 and is 1002 feet in total depth. The well is perforated in the Jefferson and Lynwood aquifers (42). The City of Santa Fe Springs Water Department operates State well no, 25/11W-30RS that is located at the Santa Fe Springs Fire Station, 1180 feet north of the site. It is the nearest well to the site and is used for municipal supply (43). The well is 900 feet in depth and is perforated in the Lynwood, Silverado, and Sunnyside aquifers (42,43). The population served by municipal wells within a 1-mile radius of the site is 15,067 (41,42). There are over 50 wells within a 3-mile radius of the site (Figure 7).

~~Depth to the aquifer of concern for the site is 200 feet to the Lynwood Aquifer which extends 80 feet (Figure 6). Wells used for municipal supply located within a 1 mile radius of the site indicate perforations within these depths (41,42,43). The Gage Aquifer is dry within the vicinity of the site, however a perched groundwater condition was discovered at 42 feet beneath the site (37).~~ *Depth to aquifer of concern is 42 feet due to aquifer interconnec*

4.0. SUMMARY OF INVESTIGATIVE EFFORTS:

4.1. Previous Activities By Other Agencies/Responsible Party:

Sampling by DHS was not conducted by BOC. Ralph Stone and Company (RSC) on June 24, 1987 obtained samples for the waste classification of waste produced by Liquid Air Corporation. The RSC report was submitted to the RWQCB and was also to satisfy all requirements of the TOXIC PITS Clean-up Act (TPCA) of 1984 (44).

The objective of this sampling effort was to determine if the lime pits were hazardous or non hazardous. Based on the sampling protocol, laboratory test results, chain of custody documentation and sampling locations, the BOC site lime pits were found to be non hazardous (44).

4.1.1 Discussion and Evaluation of Previous Sampling/Testing Results:

Previous sampling has been performed at the facility by RSC, Inc. There are currently two pits used by Liquid Air Corp. Since each pit is filled with fresh, hot liquid lime, allowed to solidify, then excavated, a composite sample from one pit should represent both pits. There is no variation of raw material being fed into the acetylene generator, therefore there should be no variation of the chemical constituents in each of the lime pits. One lime pit contains liquid lime while the other pit contains solid lime. Eight samples were taken from the solid lime pit (S1 thru S8) and four samples were taken from the liquid lime pit (L1 thru L4) (Figure 8).

Figure 8: Dates and Locations of Collected Samples.

<u>Type of Sample Collected</u>	<u>Sample Location</u>	<u>Date Collected</u>	<u>Field Sample</u>
Grab samples	Solid lime pit	6/4/87	S1 thru S8
Grab samples	Liquid lime pit	6/4/87	L1 thru L4

In the solid pit, grab samples were taken using clean equipment and samples jars. The equipment was cleaned after each sample with distilled water. In the liquid pit, a glass jar was attached to twenty feet of PVC pipe. Samples were scooped into the jar and poured into a clean glass sample jar. The jar attached to the PVC pipe was cleaned after each sample was taken. Collected samples were stored in an ice chest. Each sample was properly labeled and the caps were secured with electrical tape. Upon completion of sampling, samples were promptly delivered to the testing laboratory in an ice chest sealed with chain of custody tape. The laboratory was instructed to place samples in a refrigerator (44).

Sample locations for each respective lime pit are available on figure 9 and 10. Results of analysis performed on samples are found in Table 1, 2, and 3.

TABLE 1

Report of Analytical Results for Solid Slurry Pit.

<u>Log No.</u>	<u>Sample Description, Soil Samples</u>					<u>Date Sampled</u>
06-086-1	Comp. S(1-8)					04 Jun 87
06-086-2	S1					04 Jun 87
06-086-3	S2					04 Jun 87
06-086-4	S3					04 Jun 87
06-086-5	S4					04 Jun 87
<u>Parameter</u>	<u>06-086-1</u>	<u>06-086-2</u>	<u>06-086-3</u>	<u>06-086-4</u>	<u>06-086-5</u>	
Selenium, mg/kg	<0.4	—	—	—	—	
Silver, mg/kg	3.4	—	—	—	—	
Thallium, mg/kg	<5	—	—	—	—	
Vanadium, mg/kg	17	—	—	—	—	
Zinc, mg/kg	2.0	—	—	—	—	
Nitric Acid						
Digestion Date	5/11/87	—	—	—	—	

TABLE 2

Report of Analytical Results for Solid Slurry Pit.

<u>Log No.</u>	<u>Sample Description, Soil Samples</u>					<u>Date Sampled</u>
06-086-1	Composite S(1-8)					04 Jun 87
06-086-2	S1					04 Jun 87
06-086-3	S2					04 Jun 87
06-086-4	S3					04 Jun 87
06-086-5	S4					04 Jun 87
<u>Parameter</u>	<u>06-086-1</u>	<u>06-086-2</u>	<u>06-086-3</u>	<u>06-086-4</u>	<u>06-086-5</u>	
RCRA Reactivity Requirements						
Cyanide Generation, mg/kg	<10	—	—	—	—	
Reactivity with H2O/Acid/Base, mg/kg	NR	—	—	—	—	
Sulfide Generation, mg/kg	<1	—	—	—	—	

<u>Parameter</u>	06-086-1	06-086-2	06-086-3	06-086-4	06-086-5
CN Amenable to chlorination					
Cyanide, Total, mg/kg	UTD	---	---	---	---
CN amenable to chlorination, mg/kg	UTD	---	---	---	---
Hexavalent Chromium, mg/kg	<5	---	---	---	---
Sulfide, mg/kg	43	---	---	---	---
pH, Units	11.9	---	---	---	---
Sample Held, Not Analyzed					
Fluoride, mg/kg	<1	---	---	---	---
Antimony, mg/kg	<8	---	---	---	---
Arsenid, mg/kg	0.6	---	---	---	---
Barium, mg/kg	13	---	---	---	---
Beryllium, mg/kg	0.09	---	---	---	---
Cadmium, mg/kg	<0.5	---	---	---	---
Chromium, mg/kg	1	---	---	---	---
Cobalt, mg/kg	<1	---	---	---	---
Copper, mg/kg	2.9	---	---	---	---
Lead, mg/kg	<5	---	---	---	---
Molybdenum, mg/kg	<5	---	---	---	---
Nickel	11	---	---	---	---

TABLE 3

Report of Analytical Results for Liquid Slurry Pit.

<u>Log No.</u>	<u>Sample Description, Soil Samples</u>	<u>DATE SAMPLED</u>
06-086-1	Composite L(1-4)	04 Jun 87
06-086-2	L1	04 Jun 87
06-086-3	L2	04 Jun 87
06-086-4	L3	04 Jun 87
06-086-5	L4	04 Jun 87

<u>Parameter</u>	<u>06-086-1</u>	<u>06-086-2</u>	<u>06-086-3</u>	<u>06-086-4</u>	<u>06-086-5</u>
Hexavalent Chromium, mg/kg	<5	---	---	---	---
pH, Units	11.9	---	---	---	---
Sample Held, Not Analyzed					

Further results for analysis performed on samples are found in Appendix D. Generally, no hazardous constituents were found during the analytical analysis of the sample from the BOC lime pits (44).

Soil sampling was performed by Bruce Glasberg, R.E.A. of Ralph Stone and Company, Inc. The samples were taken to Brown & Caldwell Laboratories for analysis. Results of samples submitted to the laboratory indicate that the lime pits are non hazardous. No parameter was found to exceed state standards (44).

4.2. DHS Site Inspection:

4.2.1. DHS Activities:

A CERCLA site inspection was conducted on February 17, 1989 for the purpose of gaining the most recent information regarding the site processes, waste management practices, and site layout and condition of acetylene sludge pits. The site investigation does not include sampling as previous sampling of the acetylene sludge pits has indicated that the pits are non-hazardous. For purposes of this site investigation-only a site reconnaissance visit was performed.

5.0. HRS FACTORS:

There is no documented evidence which supports an observed release to groundwater, surface water or air from Burdett Oxygen Corporation site.

Fire and Explosion:

It has been documented that in 1971, the acetylene plant was reconstructed due to its destruction by fire in the previous year (33).

Direct Contact:

There is no record of direct contact or exposure with the public. The facility is well secured, fenced and guarded.

Waste Type:

Yearly wastes generated on-site consist of 55 gallons of spent sulfuric acid, 55 gallons of TCE, 200-400 gallons of spent motor oil and 1104 tons of dry lime (2). Waste sulfuric acid, oil, and TCE are all stored in an enclosed, paved area in the former air

separation plant to the west of the facility. Drums are grouped based on chemical characteristics. ENSCO Environmental Services of Irvine has been contracted to haul away drums (2). The slaked lime (calcium hydroxide) is deposited in two lime pits (125 ft. x 80 ft. x 50 ft. deep and 125 ft. x 80 ft. x 50 ft. deep) (44).

Sulfuric acid is a colorless, oily liquid which is extremely irritating, corrosive and toxic to tissue. TCE is an organic solvent about that decomposes and emits toxic fumes of Cl- when heated. Slake lime or sodium hydroxide consists of colorless crystals can cause dermatitis and irritation to eyes and mucus membranes upon contact for sodium hypochlorite dust (45).

Waste Quantity: *waste quantity only includes hazardous substances with a non-zero containment score. Dry lime doesn't count since it is non hazardous. TCE, sulfuric acid probably don't*
Yearly, 55 gallons of sulfuric acid and TCE are generated by the facility. 200-400 gallons of spent oil and 1104 tons of dry lime is generated by BOC on a yearly basis (2).
count since they are stored in intact drums.

Groundwater:

Soil boring logs from monitoring wells drilled in the vicinity of BOC show a depth to water of about 42 to 45 feet and indicate that the Gage Aquifer is dry in the vicinity of the site (38). Screened intervals for other monitoring wells in the area are approximately 45 to 75 feet below the surface. ~~The aquifer of concern for the site vicinity is the Lynwood Aquifer, found at a depth of 200 feet beneath the ground surface (38). Several municipal wells located within a 1 mile radius of the site are perforated in this aquifer (41,42,43).~~

The City of Santa Fe Springs Water Department operates State well no, 25/11W-30RS that is located at the Santa Fe Springs Fire Station, 1180 feet north of the site. It is the nearest well to the site and is used for municipal supply (43). The well is 900 feet in depth and is perforated in the Lynwood, Silverado, and Sunnyside aquifers (42,43). The population served by municipal wells within a 1-mile radius of the site is 15,067 (41,42). There are over 50 wells within a 3-mile radius of the site (Figure 9).

Surface Water:

Surface water bodies located within a 3 mile radius of the site are not used for municipal, irrigation, or recreational uses. The San Gabriel River, located 1 mile west of the facility is a flood control channel. Drainage off site flows to the Sorenson Avenue Drain, located 1/4 mile northeast of the site. Facility slope is nearby level and it does not appear that surface runoff from the site would affect surface water bodies except via the Sorenson Avenue storm drain.

6.0. RECOMMENDATIONS AND CONCLUSIONS:

Burdett Oxygen Company CKA Liquid Air Corporation located at 8838 Dice road, Santa Fe Springs, CA has operated an acetylene manufacturing plant, and a repackaging of industrial and medicinal gas operation using such gases as CO₂, H₂, He, N₂, N₂O, O₂, propane, and fuel gas. The BOC site has been in operation since 1957.

Samples were taken from the two slurry pits at the site to determine whether hazardous substances were being stored in them. Ralph Stone and Company, Inc. conducted the sampling effort which revealed that the slurry pits at the BOC were non-hazardous.

It is therefore unlikely that this site will be eligible to be listed on the NPL due to a lack of documented on-site hazardous waste.

EPA: No further Remedial Action Planned Under CERCLA based on a low potential to quality for the NPL.

DHS: No further Remedial Action recommended for the state since waste constituents in the facility sludge ponds are considered non-hazardous.

7.0 References

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2. CERCLA Site Reconnaissance Visit; telephone conversations (2-2-89,5-25-89) BOC, Tom Barber-Plant Manager; February 17, 1989.
3. LACE Request for Name Change, Burdett Oxygen Co. to Cal. Oxygen Co.; June 7, 1962.
4. City of Santa Fe Springs Industrial Waste Permit Application, American Cryogenics, Inc.; March 31, 1964.
5. Letter from M.G. Burdett to LACE; August 5, 1981.
6. LACE Request for Name Change, American Cryogenics to Liquid Air; June 4, 1975.
7. TRW Parcel List, Real Estate Information Services, First Dice Road Co.
8. LACE Inspection Reports, 1949-1955.
9. LACE Application for Industrial Waste Permit for Burdett Oxygen Company; October 25, 1946.
10. LACE Internal Memo, Bob Moore; January 2, 1963.
11. LACE Inspector's Report, R. Cathey; February 24, 1964.
12. LACE Internal Memo-Sewer Stoppage File, J.H. Stewart; September 10, 1964.
13. RWQCB Letter to Liquid Air; May 1976.
14. RWQCB Inspection Report, N.O. Acedera; July 6, 1976.
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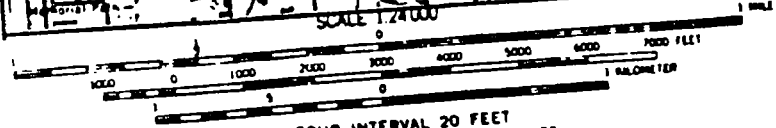
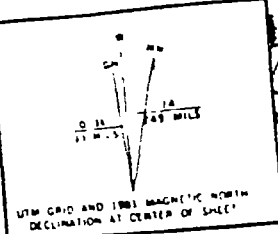
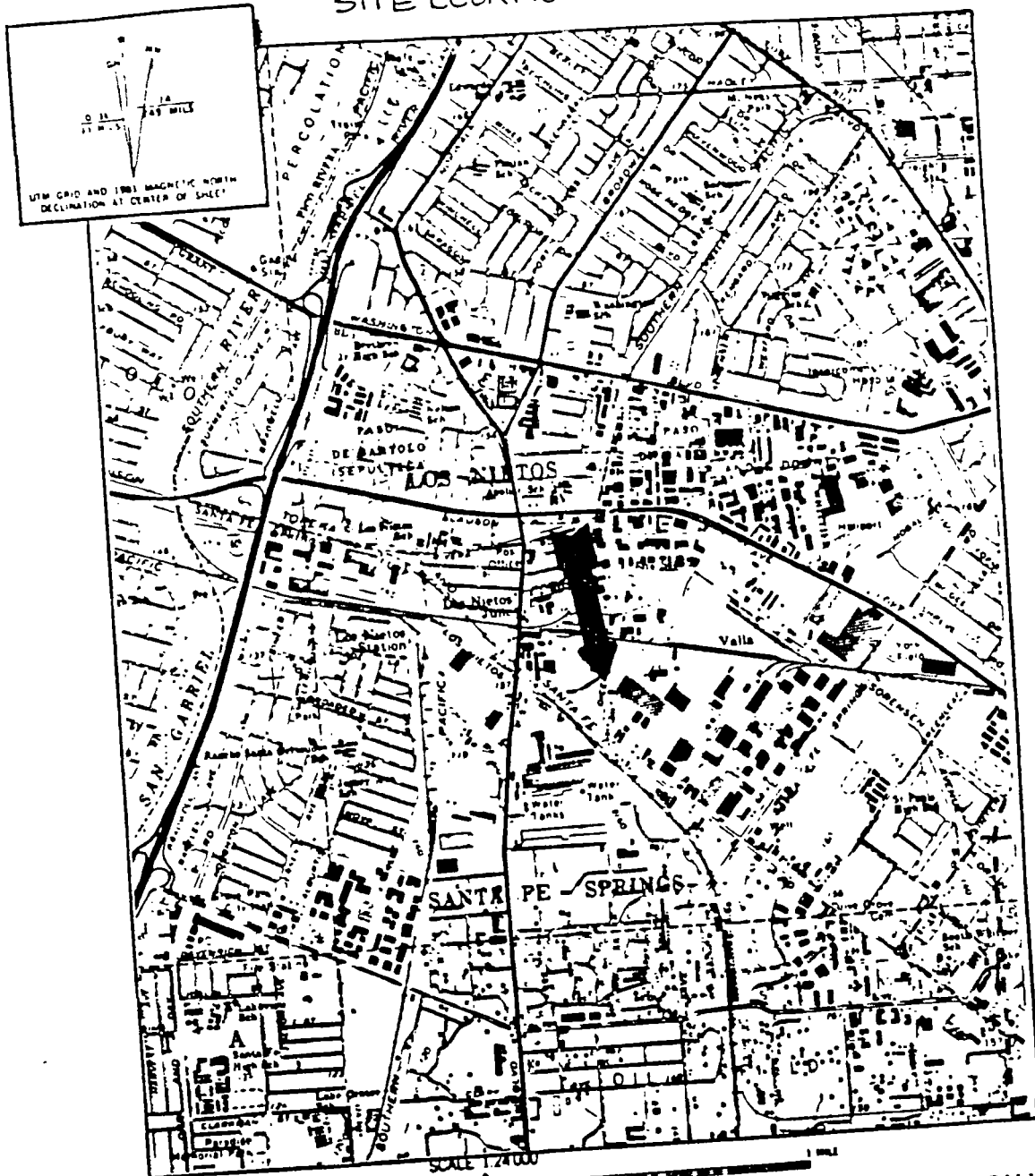
17. RWQCB Compliance Inspection Report, T.R. Bell; August 3, 1981.
18. RWQCB Letter to Liquid Air Corporation; December 14, 1981.
19. DHS-ASPIS Data File; March 21, 1987.
20. DHS Internal Memo, Maria Duraul; July 15, 1982 (with attachments).
21. County of Los Angeles O.P.W. Letter to SCS Engineers; December 17, 1986.
22. Work Plan Proposal, Underground Tank Investigation for Liquid Air Corporation, by SCS Engineers; October 31, 1986. (excerpts).
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26. Memo to File/Contact Report, March 11, 1988, Dave Klunk.
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39. J.H. Kleinfelder & Assoc., Hydrogeologic Assessment, Pond Number 1, SCCC, Santa Fe Springs, CA.
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43. Memo of Call, Ron Hughes, City of Santa Fe Springs Water Dept.; July 17, 1987.
44. Ralph Stone and Company, Inc., Liquid Air Corporation, Santa Fe Springs, Waste Classification Form Submission For Liquid Air Corporation, Santa Fe Springs, CA June 24, 1987.
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pg 22

FIGURES

SITE LOCATION MAP



CONTOUR INTERVAL 20 FEET
 DOTTED LINES REPRESENT 5-FOOT CONTOURS
 NATIONAL GEODETIC VERTICAL DATUM OF 1929

WHITTIER, CALIF
 N3352.5-W11800/7.5
 1965
 PHOTOREVISED 1981
 DWA 2391 HE-SERIES 789

LIQUID AIR CORPORATION
 (BURDETT OXYGEN)
 8832-8838 DICE RD.
 SANTA FE SPRINGS, CA 90670

FIGURE 1

CEMENTRY
INDUSTRY

PAVED LOT

60x 20'S
BURDETT

FIELD(?)
VITCO CHEMICAL

METAL
FABRICATOR

①
PLANT
OFFICE

INDUSTRIAL
GAS FILL
②
CYLINDER
FILLING
DOCK

CUSTOMER
TANKS

trucks/cylinders

USE
SAME
GASES
KNOWLEDGE
SPECIFIC GASES
PAVED
AREA

③
GARAGE
④
ACETYLENE
PLANT

SLURRY
PITS

Slurry present at bottom
of pits
approx depth?

UNPAVED
AREA

RR SPUR

50 CAL CHEM CO.

DICE RD.

WAREHOUSE
MAINTENANCE
MATERIALS

ALPHA GAS

⑥
AIR
SEPARATION
PLANT

Active Acid
Handling
Area

Hydrogen building

⑤
H₂ PLANT
GAS
COMPRESSOR
RECTIFIER,
FILLING AREA

NO WASTES
PROCESSED

RR TRACKS

C₃H₈

PAVEMENT
APPEARS
DETERIORATED
STAINING
NOT EVIDENT

APPC
ANG
CHEM

SOUTHERN

PACIFIC

R. R.

DRAINAGE DITCH

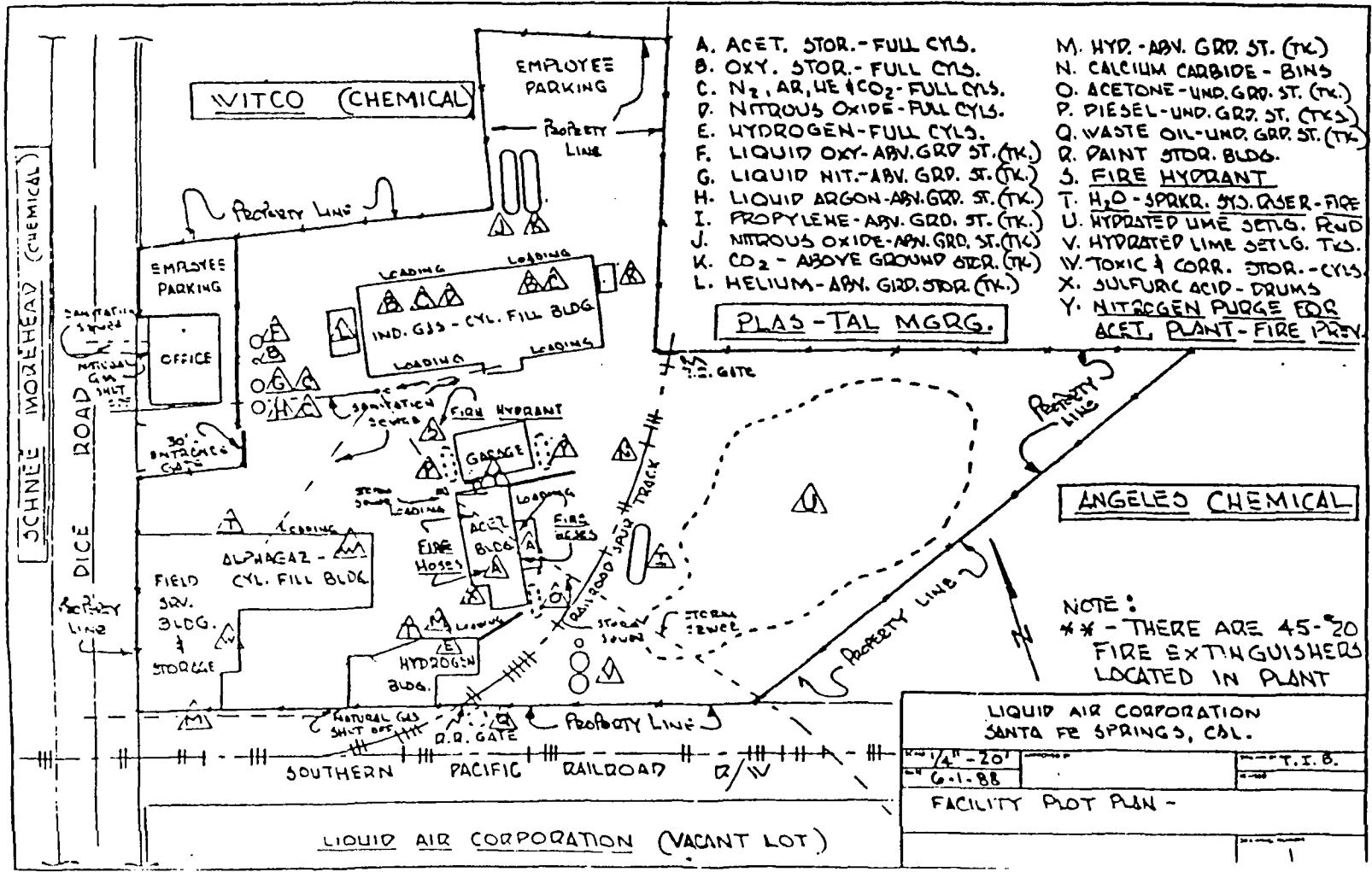
LIQUID AIR PROPERTY
(LEASING)
TO GARDNER
CROP FIELD

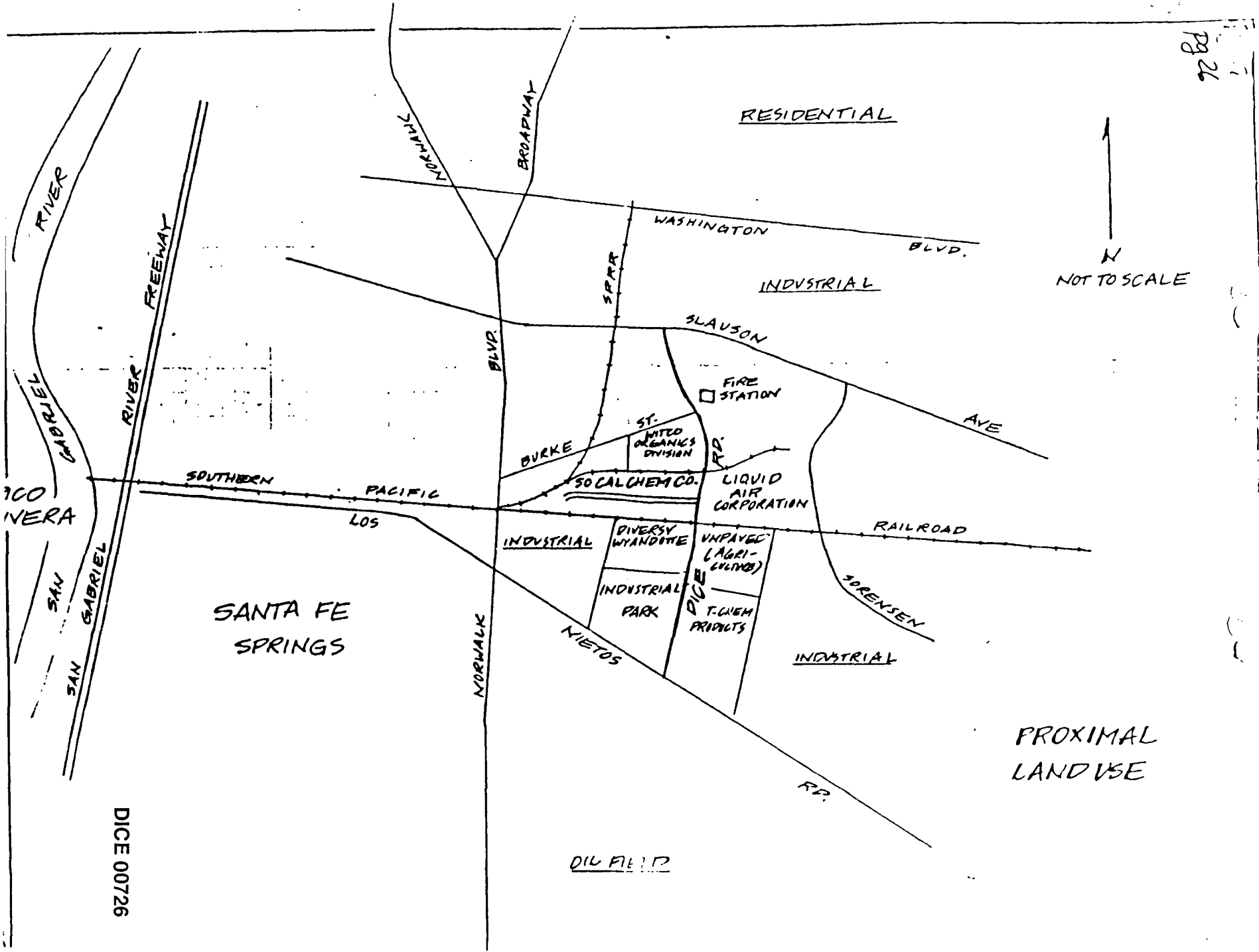
INDUSTRY
LMCKESSOLV

BURDETT

FACILITY SITE PLAN
FIGURE 2

DICE 00723





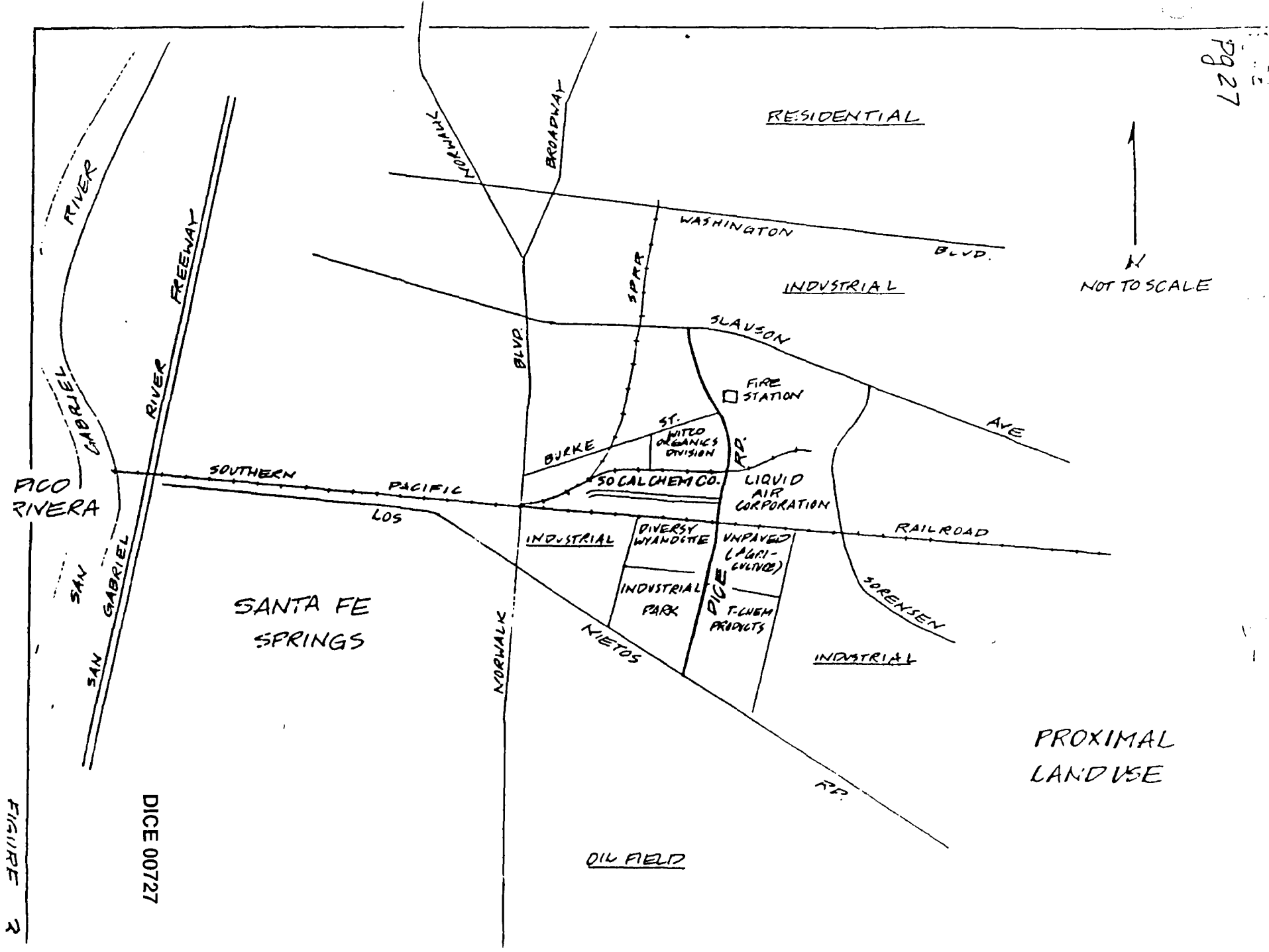
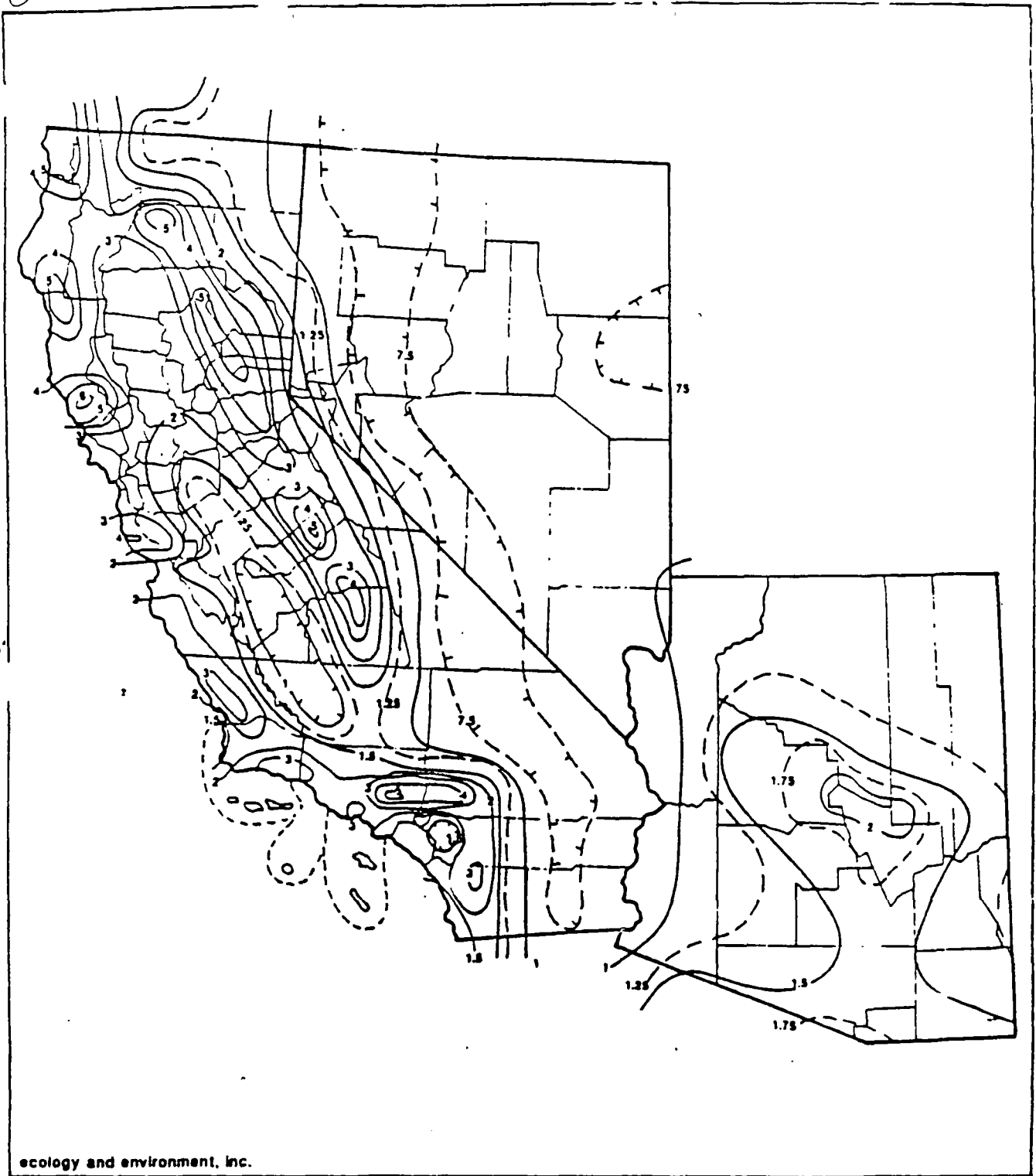


FIGURE 2

DICE 00727



1 YEAR - 24-HOUR

DICE 00728

FIGURE 4

62829
220

SYSTEM	SERIES	FORMATION	LITHOLOGY	AQUIFER AND AQUICLUDE	MAX. THICKNESS (FEET)	PREVIOUS FORMATION NAMES	PREVIOUS AQUIFER NAMES
QUATERNARY	RECENT	ACTIVE DUNE SAND		SEMPERCHED	80		SEMPERCHED [†]
		ALLUVIUM		BELLFLOWER AQUICLUDE	140	ALLUVIUM	
	UPPER PLEISTOCENE	OLDER DUNE SAND		GASPAR BALLONA SEMPERCHED BELLFLOWER AQUICLUDE	120 40	TERRACE COVER	GASPAR [†] "30 FOOT GRAVEL"
		LAKEWOOD FORMATION		EXPOSITION ARTESIA	200	PALOS VERDES SAND	SEMPERCHED [†]
				GARDENA	140	UNNAMED UPPER PLEISTOCENE	GARDENA [†]
				GAGE	180 160		"200 FOOT SAND"
		UNCONFORMITY				LOCAL UNCONFORMITY	
	LOWER PLEISTOCENE	SAN PEDRO FORMATION		HOLLYDALE	100	SAN PEDRO FORMATION	SILVERADO [†]
				JEFFERSON	140		
				LYNWOOD	200		
SILVERADO				300			
			SUNNYSIDE	500			
			UNCONFORMITY				
TERTIARY	UPPER PLEISTOCENE	PICO FORMATION		UNDIFFERENTIATED		PICO FORMATION	

LEGEND OF LITHOLOGY

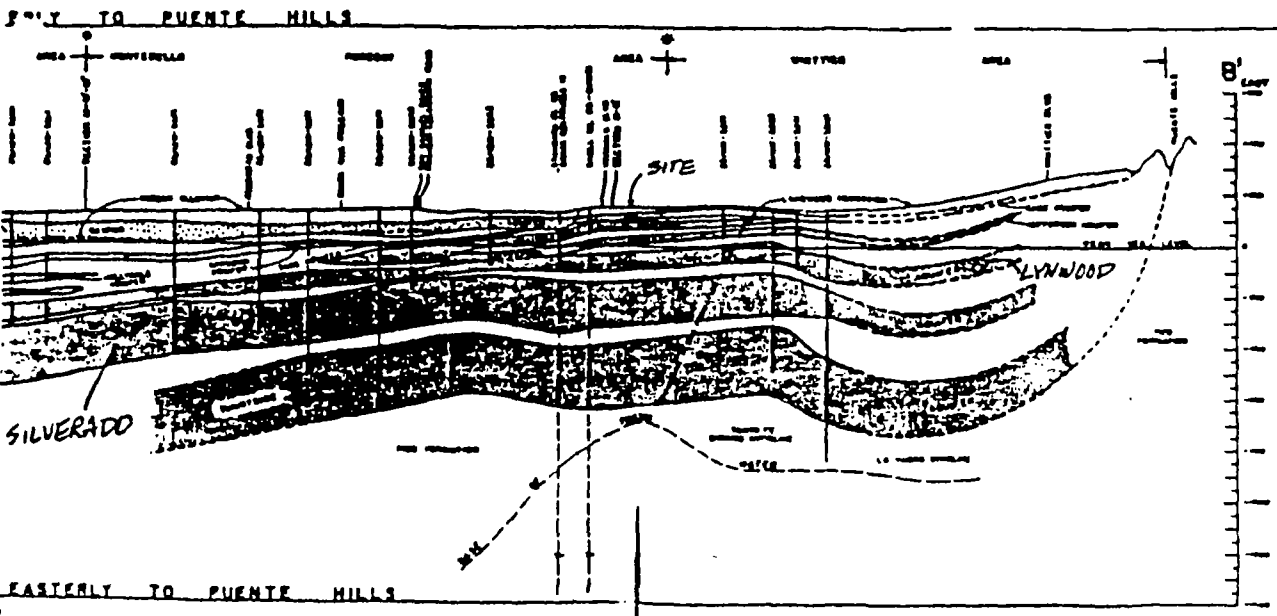
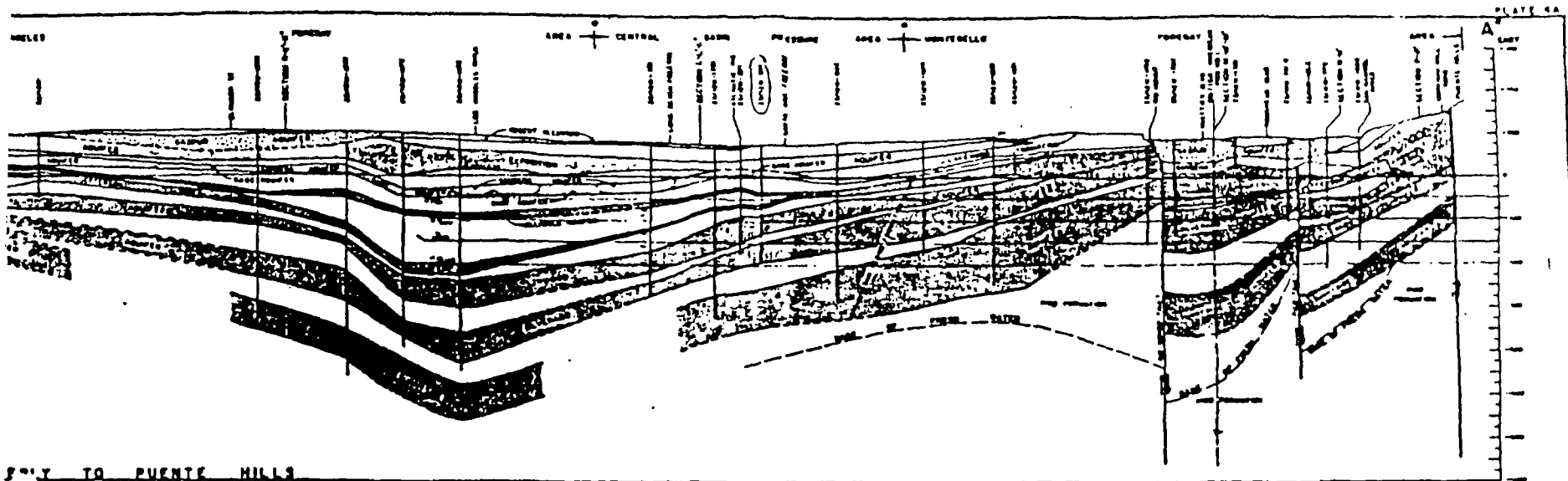
- GRAVEL AND SAND
- SAND
- SILTY OR SANDY CLAY
- CLAY OR SHALE

† DESIGNATIONS AND TERMS UTILIZE "REPORT OF REFERENCE" DATED JAN. PREPARED BY THE STATE ENGINEER COVERING THE WEST COAST BASIN. ILLUSTRATED AS "WATER BEARING" IN ABOVE NOTED REPORT OF REF.

GENERALIZED STRATIGRAPHIC COLUMN
COASTAL PLAIN OF LOS ANGELES COUNTY

DICE 00729

FIGURE 5



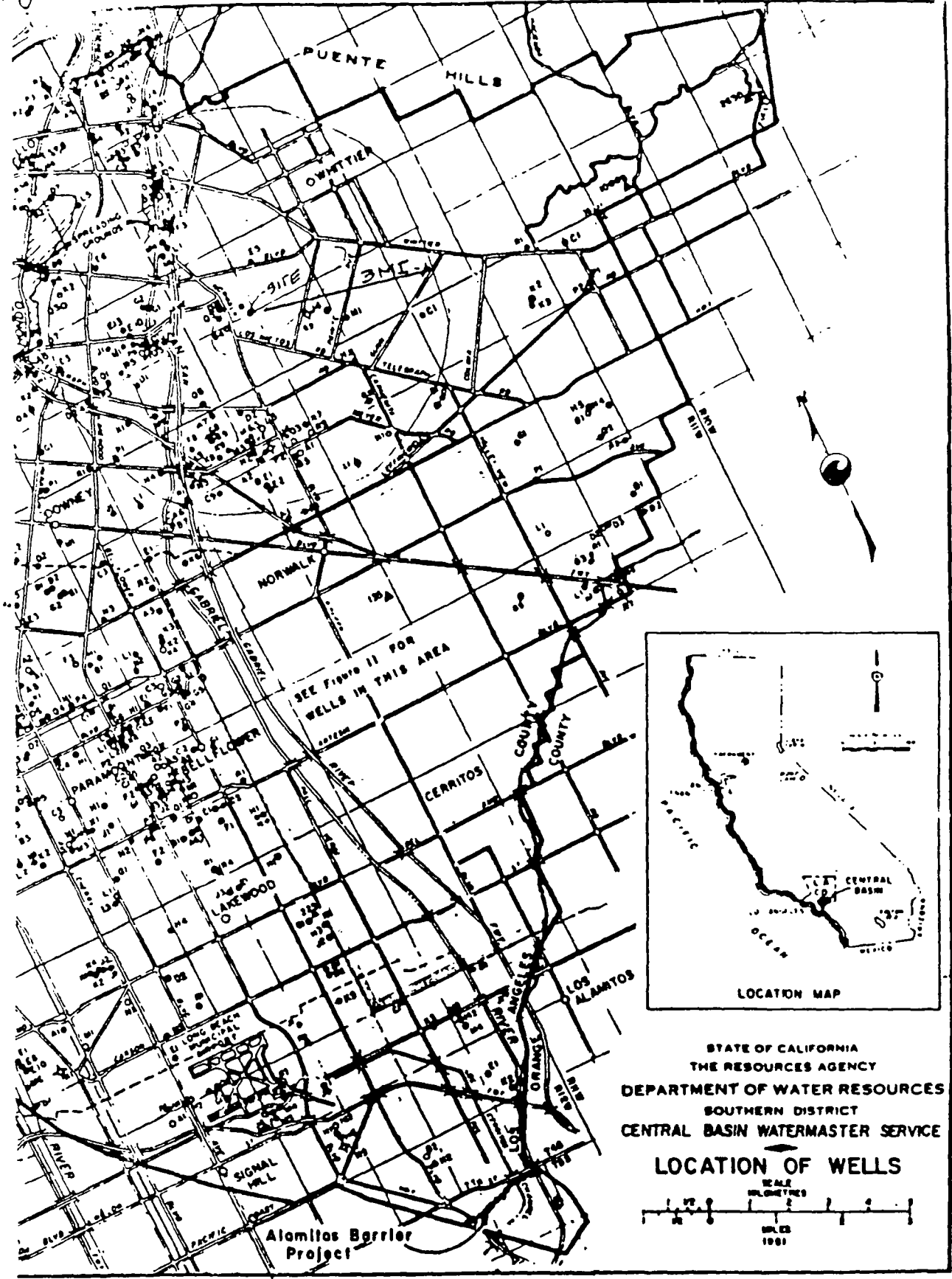
- LEGEND**
- ALLUVIUM AND RECENT UNCONSOLIDATED DEPOSITS
 - DEPOSITS OF RECENT ALLUVIUM OVERLAIN BY SAND AND GRAVEL
 - DEPOSITS OF A YOUNGER PERIOD THAN ALLUVIUM
 - DEPOSITS OF THE SAME PERIOD AS ALLUVIUM
 - FAULTS
 - WATER WELLS
 - OIL WELLS
 - FAULTS

STATE OF CALIFORNIA
 DEPARTMENT OF WATER RESOURCES
 DIVISION OF WATER RESOURCES
**GROUND WATER GEOLOGY OF THE
 COASTAL PLAIN OF
 LOS ANGELES COUNTY**
**IDEALIZED GEOLOGIC SECTIONS
 A-A'-A' AND B-B'**
 PREPARED BY

DICE 00730

FIGURE DWR, Bulletin 204

DWR, Bulletin 204

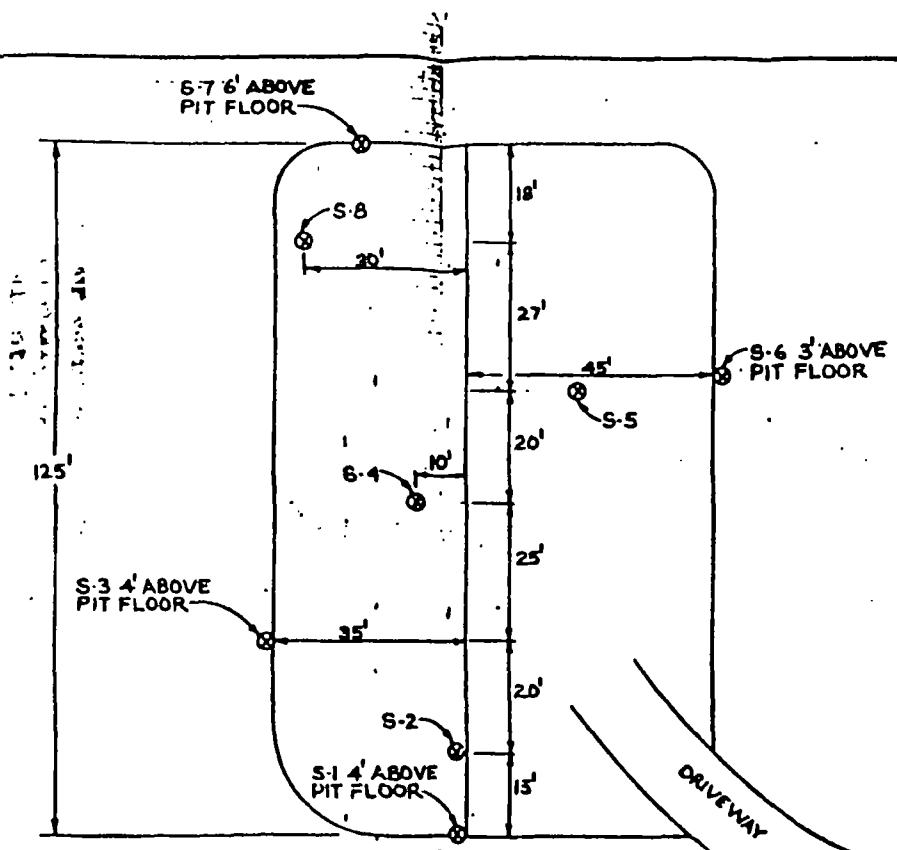


STATE OF CALIFORNIA
 THE RESOURCES AGENCY
 DEPARTMENT OF WATER RESOURCES
 SOUTHERN DISTRICT
 CENTRAL BASIN WATERMASTER SERVICE


LOCATION OF WELLS



DICE 00732

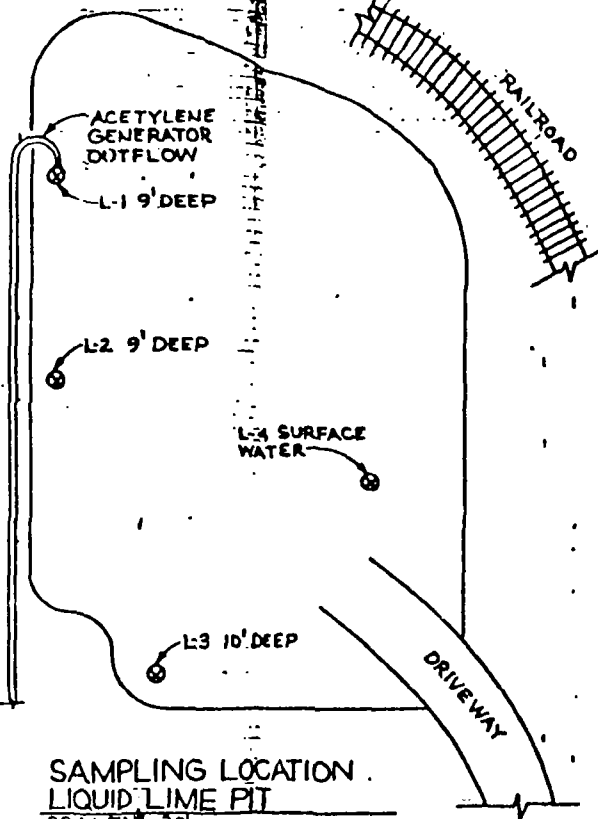
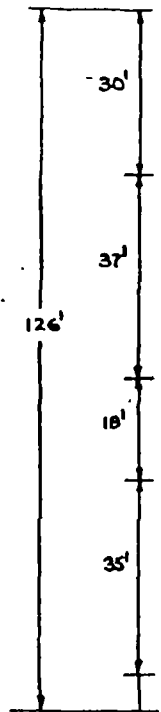


SAMPLING LOCATIONS
SOLID LIME PIT
SCALE: 1" = 20'

RALPH STONE AND COMPANY, INC.  <small>10024 SANTA MONICA BOULEVARD - LOS ANGELES CALIFORNIA 90025</small> 478 - 1501 879 - 1115		SAMPLING LOCATION SOLID LIME PIT	
LIQUID AIR CORPORATION INDUSTRIAL GASES CORPORATION 8832 DICE ROAD SANTA FE SPRINGS, CA. 90670		BY E.H.J. DATE 6/22/87	QTY NO 2142 UNIT 1 = 20' D-1

DICE 00733

ENGINEER



SAMPLING LOCATION
LIQUID LIME PIT
SCALE: 1" = 20'

RALPH STONE AND COMPANY, INC.		478 - 1501		878 - 1715	
10000 STATE BOONICKA BOULEVARD LOS ANGELES CALIFORNIA 90008					
LIQUID AIR CORPORATION INDUSTRIAL GASES CORPORATION 8832 DICE ROAD SANTA FE SPRINGS, CA. 90670				SAMPLING LOCATION LIQUID LIME PIT	
BY	E.H.J.	NO.	2142	DATE	
CS		SCALE	1" = 20'		D-2
APP		DATE	6/27/87		

8/71 INTERCOMPONENT CLEARPRINT 1584-10

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APPENDIX B
CONTACT LOG AND REPORTS

DICE 00734

RALPH STONE AND COMPANY

WASTE CLASSIFICATION FORM
SUBMISSION FOR
LIQUID AIR CORPORATION, SANTA FE
SPRINGS, CALIFORNIA

Submitted to:
California Regional Water Quality
Control Board

June 24, 1987

Prepared by:
Ralph Stone and Company
10954 Santa Monica Blvd.
Los Angeles, CA 90025
213-478-1501

DICE 00736



June 22, 1987
File No. 2142

California Regional Water Quality
Control Board
107 South Broadway, Suite 4027
Los Angeles, California 90012-4596

ATTENTION: Ms. Mavis Kent

REFERENCE: Waste Classification Form Submission for Liquid Air Corporation
Santa Fe Springs, CA.


Dear Ms. Kent:

Please find enclosed a completed Waste Classification Form for Liquid Air Corporation, located at 8832 Dice Road, Santa Fe Springs, CA, 90670. This submission should satisfy all requirements of the Toxic Pits Cleanup Act (TPCA) of 1984.

Results of samples submitted to the laboratory indicate that the lime pits are non hazardous. No parameter was found to exceed state standards. Please review the enclosed data. If you have any questions, please call the undersigned or Richard Kahle.

Sincerely,

RALPH STONE AND COMPANY, INC.


Bruce Glasberg
Environmental Engineer

BG:gw
Enc.

DICE 00737

DETERMINATION OF WASTE
CLASSIFICATION OF TWO LIME PITS
AT LIQUID AIR CORPORATION
SANTA FE SPRINGS, CA

Liquid Air Corporation obtains "carbide lime" as a by-product of the generation of acetylene from calcium carbide. Calcium carbide (CaC_2) reacts with water ($2\text{H}_2\text{O}$) to form acetylene (C_2H_2) and carbide lime or calcium hydroxide ($\text{Ca}(\text{OH})_2$). The actual equation is:



Enclosed in Exhibit B is a pamphlet put out by the Compressed Gas Association describing carbide lime generation from acetylene generators.

There are currently two pits used by Liquid Air Corp. One pit receives hot, liquid carbide lime from the acetylene generator. Once this pit is full, it is allowed to cool and solidify. The second pit is then filled with the hot, liquid carbide lime from the acetylene generator. Figure 1 shows the effluent hose leading to the liquid pit (on the right). On the left side of Figure 1 is the dry pit. Figure 2 shows the dry pit being excavated. The excavated solid lime is re-liquified (Figure 3) and sold as construction material for road stabilization.

Since each pit is filled with fresh, hot, liquid lime, allowed to solidify, then excavated, a composite sample from one pit should represent both pits. There is no variation of the raw material being fed into the acetylene generator, therefore, there will be no variation of the chemical constituents in each of the lime pits.

Laboratory results indicate no hazardous constituents in the solid lime pit. All parameters tested for were below state standards. The pH was 11.9 in both the liquid and solid pits. While this value shows caustic corrosivity, it is below the 12.5 value deemed necessary for classification as a hazardous waste "corrosive".



Figure 1 Effluent hose from acetylene generator seen leading into liquid lime pit. On the right is the solid lime pit.



Figure 2 Excavation of solid lime pit.



Figure 3 Arrow indicates re-liquidified lime which will be loaded onto a tank truck and used for road stabilization.

WASTE CLASSIFICATION FORM

1. Name and Address of Waste Facility:

a. Mailing address. LIQUID AIR CORP. INDUSTRIAL GASES DIVISION
9832 DICE ROAD
SANTA FE SPRINGS, CA 90670

b. Location at which waste is generated, if different from above.

c. Contact person and phone number.

STEVE PEBLER, PLANT MGR . . 213-945-1383

2. Description of Waste:

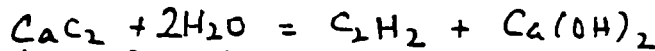
a. Physical description. HYDRATED LIME. SEMI-SOLID:

Approximate composition \Rightarrow 50% WATER
46% Ca(OH)_2 Calcium hydroxide
4.5% CaCO_3 Calcium carbonate

b. Quantities produced per unit time. Balance SiO_2 , Mg(OH)_2 , Free Carbon

c. Process used to generate waste.

ACETYLENE GENERATION, CALCIUM CARBIDE TO WATER PROCESS.



d. Present method of waste disposal.

Calcium carbide + water = acetylene gas + calcium hydroxide

LIME IS STORED IN EARTHEN (DIKED) CONTAINMENT POND ON SITE. LIME IS SUBSEQUENTLY REMOVED FROM POND AND SOLD TO CUSTOMER.

3. Sampling Information:

a. Name and address of company that sampled the waste.

Ralp Stone and Company, Inc., 10954 Santa Monica Blvd.,
Los Angeles, CA 90025; 213-478-1501

(rev: FO3 9/83)

Sampling performed by Bruce Glasberg, Staff Engineer

c. Dates and locations of collected samples:

Sampling performed on 6/4/87. Eight samples were taken from the solid pit, four samples taken from the liquid pit.

TYPE OF SAMPLE COLLECTED	LOCATION	DATE COLLECTED	FIELD SAMPLE NO.
Grab samples	solid lime pit	6/4/87	S1 thru S8
Grab samples	liquid lime pit	6/4/87	L1 thru L4

Exhibit 4 contains drawings of both pits and sample locations

d. Description of sampling methodology:

- (1) Sampling technique at site or facility. In the solid pit, grab samples were taken with a clean spatula into clean glass jars. The spatula was cleaned after each sample with distilled water. In the liquid pit, a glass jar was attached to twenty feet of PVC pipe. Samples were scooped into the jar and poured into a cleaned glass jar. The jar attached to the PVC pipe was cleaned after each sample was collected. Collected samples were stored in an ice chest. Each sample was properly labelled. The caps were secured with electric tape.
- (2) Sample handling and preservation prior to laboratory analysis. Samples were stored in an ice chest prior to delivery to the laboratory. As soon as the sampling operation was completed, prompt delivery to the testing laboratory was made. The laboratory was instructed to place the samples in refrigerators. Appropriate chain-of-custody documentation was used. See Exhibit 3 for copies of chain-of-custody documents.

4. Testing Laboratory Information: Calcium Carbide

a. Name and address of laboratories:

b. Test methods and references:

SPECIFIC TEST	METHOD*	REFERENCE
1. Organic Analysis	ORGANIC PARAMETERS ABSENT FROM PROCESS REACTANTS AND PRODUCTS, SEE ITEM 2 C.	
- Chlorinated Pesticides	N/A	
- Polychlorinated Biphenyls	N/A	
- Chlorophenoxy Acid Pesticides	N/A	
- Nitroaromatics	N/A	
- Organophosphorus Pesticides	N/A	
- Phenols	N/A	
- Polynuclear Aromatic Hydrocarbons	N/A	
- Priority Pollutants	N/A	
- Volatile Organics	N/A	
- Carbamates	N/A	
- Other (specify)	N/A	
2. Inorganic Analysis, Metallic		
- Antimony	EPA 3050	
- Arsenic	EPA 3050	
- Barium	EPA 3050	
- Beryllium	EPA 3050	
- Cadmium	EPA 3050	
- Chromium (VI)	EPA 3050	
- Chromium (total)	EPA 3050	
- Cobalt	EPA 3050	

SPECIFIC TEST	METHOD	REFERENCE
Inorganic Analysis, Metallic (continued)		
- Copper	EPA 3050	
- Lead, inorganic	EPA 3050	
- Lead, organic	EPA 3050	
- Mercury	EPA 3050	
- Molybdenum	EPA 3050	
- Nickel	EPA 3050	
- Selenium	EPA 3050	
- Silver	EPA 3050	
- Tellurium	EPA 3050	
- Vanadium	EPA 3050	
- Zinc	EPA 3050	
- Other (Specify)	EPA 3050	
3. Inorganic Analysis, Non-Metallic		
- Total cyanide	EPA 335.5	
- Cyanide (chlorination)	EPA 335.1	
- Fluoride	EPA 340.1	
- Sulfide	EPA 376.2	
- Asbestos	N/A	ABSENT FROM PROCESS REACTANTS AND PRODUCTS
- pH	EPA 150.1	
- Free liquids	N/A - material dry	
- Other (specify)		
4. Special Tests		
- California Waste Extraction Test	Sec. 66700	
- Tests for Hazardous Properties		
- Aquatic 96 hr LC ₅₀	N/A	Not near water
- Flashpoint	N/A - no flammable constituents	
- Corrosivity	N/A - testing for pH already	
- Head Space	Sec. 66695(a)(10)	
- Other (specify)		

* If this is not a standard method (APHA-AWWA-WPCF, ASTM, AOAC, ES please attach a copy of method with this report.

c. Names and qualifications of persons testing etc.

All laboratory analysis performed by Brown and Caldwell Laboratories, 373 South Fair Oaks Avenue, Pasadena, CA 91105. The Dept. of Health Services Laboratory Certification for Brown and Caldwell is enclosed in Exhibit I.

d. Preparation of laboratory samples from field samples.

EPA approved methods were utilized. Specific digestion method followed was EPA 3050 for metals analysis. Other preparation procedures are included in Methods listed on pages 3 and 4.

e. Sample identification information:

TYPE OF SAMPLE TESTED	FIELD SAMPLE NO(S)	LABORATORY SAMPLE NO.	DATE TESTED
Grab Sample	S1 through S8	Same	6/5/87 - 6/19/87
Grab Sample	L1 through L4	Same	6/5/87 - 6/19/87

5. Quality Assurance and Control: (See Appendix 1)
 - a. On file with the DOHS Hazardous Materials Laboratory;

yes X no
 - b. Enclosed: yes no X ;
 - c. Will be forwarded to DOHS by _____;
6. Laboratory Results
 - a. Waste Components and California Waste Extraction Test Summary (Form 1).
 - b. Aquatic Bioassay. Use California Department of Fish Bioassay Data Sheet.
 - c. Submission of Data and Reports (See Appendix 1).
7. Acute toxicity calculations from published data: (Form 2)
8. Corrosivity, Flammability, Reactivity (Form 3)
9. References (Attach complete citations)
10. Certification by person(s) who is the responsible manager of the facility.

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this notification and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Signature _____

Date _____

Printed Name _____

Title _____

WASTE COMPONENT AND WASTE EXTRACTION TEST SUMMARY

Laboratory Sample # Composite S1-S8Date Analyzed 6/5/87 - 6/19/87Type of Sample Tested Composite of crab samples from solids pit

I. Chemical Analysis and Extractions

Waste Component	Total Concentration (mg/kg)	California Extraction Test (mg/d.)
Inorganic Analysis:		
Antimony	8	
Arsenic	0.6	
Barium	13	
Beryllium	0.09	
Cadmium	0.5	
Chromium (iii)	1.0	
Chromium (VI)	<5	
Cobalt	1	
Copper	2.9	
Fluoride	1	
Lead	5	
Mercury	NA - not found in raw material	
Molybdenum	5	
Nickel	11	
Selenium	0.4	
Silver	NA - not in raw material	
Thallium	5	
Vanadium	17	
Zinc	2	
Organic Analysis: ORGANIC PARAMETERS ABSENT FROM PROCESS REACTANTS AND PRODUCTS.		
Chlorinated Pesticides	N/A	
Polychlorinated Biphenyls	N/A	
Chlorophenoxy Acid Pesticides	N/A	
Nitroaromatics	N/A	
Organophosphorus Pesticides	N/A	
Phenols	N/A	
Polynuclear Aromatic Hydrocarbons	N/A	
Priority Pollutants	N/A	
Volatile Organics	N/A	
Carbamates	N/A	
Other (Spec:iv)	N/A	
pH	Not Applicable	
Sulfide	43	
Cyanide(Total) Cyanide(amenable to chlor)		Cyanide results unable to determine due to interferences.

D. Summary

Concentration (mg/l)

59-hr LC ₅₀ for Waste	
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E. Head Space Vapor Concentration

Component	Molecular weight	Weight of component in syringe (mg)	Head space vapor concentration

$$(CA) = \frac{(QA) (R)}{(MW) (G)}$$

- where (QA) = quantity of component in head space vapor (mg)
- (MW) = molecular weight (mg/mole)
- (R) = 24.5 ml/mole
- (G) = $2 \times 10^{-6} M^3$
- (CA) = Head space vapor concentration (ppm)

Above calculations not necessary because no organic (volatile) constituents are present.

FORM 2

ACUTE TOXICITY CALCULATIONS⁽¹⁾

WASTE COMPONENT*	TOTAL CONCENTRATION PPM	AVERAGE ^(a) LD ₅₀ ORAL RATE		$\frac{Ax}{\sum Ax \approx 10,000}$ LI ₅₀ Ax Given	AVERAGE ^(a) LC ₅₀ DERMAL		$\frac{\sum Ax}{LI_{50} Ax}$
		(mg/kg)	(ref.)		(mg/kg)	(ref.)	
Arsenic	0.6	150	NIOSH-ave of LDLo	4×10^{-7}			
Barium	13	180	NIOSH for BaCl ₂	7.2×10^{-6}			
Beryllium	0.09	0.496	NIOSH-IVN LD50	1.8×10^{-5}			
Chromium(t)	1.0	1870	NIOSH for CrCl ₃	5.3×10^{-8}			
Copper	2.9	140	NIOSH for CuCl ₂	2.0×10^{-6}			
Nickel	11	5	NIOSH-LDL ₀ gpg	2.2×10^{-4}			
Vanadium	17	50	NIOSH-SCU LD50	3.4×10^{-5}			
Zinc	2	350	NIOSH-for ZnCl ₂	5.7×10^{-7}			

* Chemicals which had analytical values below the detection limit are not included.

- Ave = average
- IVN = intravenous
- gpg = guinea pig
- SCU = subcutaneous
- ipr = intraperitoneal

SUM 2.8×10^{-4}

CALCULATED TOXICITY 357,142 mg/kg

SUM _____

CALCULATED TOXICITY _____

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CALCULATIONS SUMMARY

NOTE:

(a) Average or most reliable values listed for individual compounds.

(b) Calculated $LD_{50} = \frac{100}{\text{Sum } \% \Lambda_x} LD_{50 \Lambda_x}$

where $LD_{50 \Lambda_x} = LD_{50}$'s of the pure toxic constituents $\Lambda_1, \Lambda_2, \Lambda_3$

$\% \Lambda_x =$ concentration by weight in the waste (total ppm/10,000)

FORM 3

CORROSIVITY, FLAMMABILITY, REACTIVITY OF WASTE

Parameter	Experimental data or certification by chemist [@]	Reference [#]
Corrosivity		
- pH* 0.5% dilution	11.9	see item 4b
- pH* 50% dilution		see item 4b
- corrosion rate (mm/yr)		see item 4b
Flammability		
- Flash point* (°C)	N	see item 4b
- Causes fire	N	
- Flammable gas	N	
- Flammable solid	N	
- Oxidizer	N	
Reactivity		
- Unstable		
- Reacts with H ₂ O	N	
- Forms potentially explosive mixture with H ₂ O	N	
- Generates toxic gases with H ₂ O	N	
- Is a cyanide or sulfide between pH 2 and 12.5 which generates toxic gases	<10 mg/kg CN generated <1 mg/kg Sulfide generated	
- Detonates or reacts at standard temperature, pressure	N	
- Detonates if heated under confinement or with initiating source	N	
- Forbidden or class B explosive	N	

NOTES:

@ Fill in as follows:

Code	Certification
Y	yes
N	no
X	not applicable

Optional

* Supply experimental data



ecology and environment, inc.

717 W. TEMPLE ST., LOS ANGELES, CA 90012, TEL. 213-481-3870
International Specialists in the Environment

SCREENING SITE INSPECTION SUMMARY REPORT

SUBMITTED TO: Carolyn Douglas, Site Assessment Manager
EPA Region IX

PREPARED BY: Christopher R. Harner, Ecology and Environment, Inc.

THROUGH: Christine Houston, Ecology and Environment, Inc. *CMA*

DATE: April 25, 1990

SITE: Liquid Air Corporation
AKA Burdett Oxygen Company
8832-8838 Dice Road
Santa Fe Springs, California 90607
Los Angeles County

TDD#: F9-9004-024

EPA ID#: CAD003312600 (Liquid Air)
CAD982359747 (Burdett Oxygen)

PROGRAM ACCOUNT#: FCA1295SBA

FIT REVIEW/CONCURRENCE: *Karen Judd for James M. James 4/30/90*

cc: FIT Master File
Don Plain, California Department of Health Services

INTRODUCTION:

Pursuant to Technical Directive Document number F9-8909-047, Ecology and Environment, Inc.'s Field Investigation Team (FIT) conducted a Screening Site Inspection (SSI) of Liquid Air Corporation in Santa Fe Springs, Los Angeles County, California. During the investigation, FIT discovered that Liquid Air Corporation is the same facility as Burdett Oxygen Company, for which California Department of Health Services (DOHS) had completed an SSI in June 1989 (1) (see Appendix, CERCLA Site Inspection, California Department of Health Services). Both the state SSI and

subsequent Site Inspection Report Review, completed by FIT in August 1989, used the Hazard Ranking System (HRS) to evaluate the site's potential to qualify for inclusion on the National Priorities List (NPL) (1, 2). This SSI Summary Report evaluates the site's potential to qualify for the NPL using factors outlined in the proposed revised Hazard Ranking System (rHRS).

The EPA ID numbers associated with the investigations of this site are:

<u>EPA ID NUMBER</u>	<u>SITE NAME</u>	<u>REPORT TYPE/AGENCY</u>	<u>REPORT DATE</u>
CAD003312600	Liquid Air	PA/DOHS	May 1986
		PA Report Review/EPA	May 22, 1987
		PA Reassessment/EPA	July 26, 1988
CAD982359747	Burdett Oxygen	PA/DOHS	March, 1988
		SSI/DOHS	August 2, 1989
		SSI Report Review/EPA	September 1989

As listed in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS), Liquid Air is located at 8832 Dice Road, and Burdett Oxygen is located at 8838 South Dice road. This is incorrect since both addresses constitute a single site.

Liquid Air Corporation, with headquarters at 2121 North California Boulevard, Walnut Creek, Contra Costa County, California, owns and operates Burdett Oxygen Company of California. Burdett Oxygen company is located at 8832-8838 Dice Road, Santa Fe Springs, Los Angeles County, California, (Township 2 South, Range 11 West, San Bernardino Base and Meridian). The site has operated since 1949 under several names and owners (1). Previous names associated with the site include American Cryogenics, MG Burnett Gas Products, Cal Oxygen Company and the Burnett Oxygen Company (1).

Activities at this facility include the production of acetylene gas and the repackaging of gas bottles with hydrogen, helium, oxygen, argon, nitrous oxide and carbon dioxide (3).

In 1986, the Los Angeles County Department of Public Works, Waste Management Division, issued a letter of noncompliance to Burdett Oxygen Company for a leak in the 6200-gallon underground acetone tank (4). While the acetone leak was not fully addressed in the DOHS Burdett Oxygen Company SSI, further inquiry by FIT revealed that the acetone tank was removed in September 1988, under the direction of the Los Angeles County Department of Public Works, Waste Management Division (4, 5).

A 1000-gallon underground waste oil storage tank was also removed at the same time as the acetone tank. Prior to May 1980, the waste oil storage tank contained blowdown from compressors located in the building which is now the repackaging plant (3, 6). Testing conducted after the removal of the tank failed to detect hydrocarbon contamination (7).

HRS INFORMATION

Approximately 1104 tons (dry weight) of liquid acetylene by-product is pumped into two 500,000 cubic foot unlined lime slurry pits on site annually. Once dry, the slaked lime is milled on-site and hauled away in large trucks as product (1). The liquid lime slurry, as deposited in the slurry pits, consists of calcium hydroxide (lime) with trace quantities of heavy metals (pH = 11.9). The analytical results of the sampling of these pits are contained in the Appendix of this report. Since no background samples were collected as part of the sampling, it is not known whether the concentrations of heavy metals in the slurry pits (ranging between 0.09 mg/kg to 17 mg/kg) represent levels substantially above local background levels (1). The heavy metal concentrations in the slurry pits are not substantially above mean background levels presented in a report of the Western United States by the U.S. Geological Survey (8). Other than the high pH of the lime slurry due to the calcium hydroxide, there appear to be no hazardous substances associated with the pits.

In addition to the acetylene waste process by-product in the slurry pits, approximately 15 gallons of 1,1,1-trichloroethane and 115 gallons of spent motor oil are currently stored on site. The waste oil is periodically hauled away by Cal-Oil. Arrangements have not been made for the disposal of the 1,1,1-trichloroethane (3). Liquid Air Corporation is not listed in the current RCRA database.

Analyses conducted by Liquid Air Corporation prior to removal of the 6200-gallon underground acetone storage tank found low levels of acetone in the soil immediately surrounding the tank. Soil samples contained up to 6.8 ppb of acetone (with a detection limit of 2 ppb.) No further investigation of the area was required by the Los Angeles County Department of Public Works (4, 9).

There have been no documented releases of hazardous substances to the air, nor does there appear to be potential for a release (1). Spent motor oil and 1,1,1-trichloroethane are all stored in intact and sealed 55-gallon drums and kept in a paved and enclosed area prior to removal from the facility (1, 3). Although both lime slurry pits are uncovered and exposed to the atmosphere throughout the sludge-drying process, it does not appear that hazardous substances are contained within the pits (1). The area surrounding Liquid Air Corporation in Santa Fe Springs is highly industrialized and sparsely populated.

There have been no documented releases of hazardous substances to surface water. Drainage from the facility flows to the Sorenson Avenue storm drain which connects to North Fork Coyote Creek 3 miles southeast of the facility. Coyote Creek is tributary to the San Gabriel River, which empties into the Pacific Ocean approximately 15 miles from the site. The San Gabriel River is located about 1 mile west of the facility. Although there may be potential for a release of hazardous substances to surface water, none of these surface water bodies are used for drinking water, recreation, or irrigation within 4 miles of the Liquid Air site (1, 10).

There have been no documented releases of hazardous substances to groundwater. The depth to groundwater in the Gardena aquifer below the site is approximately 70 feet below the ground surface (5, 10). While the Gardena aquifer is not utilized for municipal supply, it may be hydrologically connected with deeper aquifers within 2 miles of the site which do provide municipal water (11). The nearest well used for drinking water is 0.22 miles from the site (10, 12). The population served by municipal wells drawing groundwater from deeper aquifers within 4 miles of the site exceeds 50,000 people (10, 12, 13, 14, 15). There appears to be low potential for an observed release of hazardous substances to groundwater due to the depth to groundwater, low permeability of the unsaturated zone and low net annual precipitation.

There appears to be low potential for on-site exposure to hazardous substances to populations near Liquid Air Corporation in Santa Fe Springs. The surface extent of the lime slurry pits is approximately 20,000 square feet. The surrounding area is highly industrialized and sparsely populated. No sensitive environments are identified within 4 miles of the Liquid Air facility (1). The facility is completely fenced, and a security guard is posted at the entry gate (1).

CONCLUSIONS

Liquid Air Corporation (EPA ID# CAD003312600) and Burdett Oxygen Company (EPA ID# CAD982359747), occupy the same physical location at 8832-8838 Dice Road, in Santa Fe Springs, Los Angeles County, California. The Liquid Air Corporation name should be retained to identify this site because Liquid Air Corporation is the parent company of all operating facilities on the site (Burdett Oxygen Company and Alpha Gas).

The Site Inspection Report Review of the Burdett Oxygen Company concluded that the site appeared to be eligible for inclusion on the National Priorities List based on a preliminary Hazard Ranking System screening estimate (9). However, a proposed revised Hazard Ranking System screening estimate does not support the site's eligibility for inclusion on the National Priorities List based on the following factors:

- o No documented observed releases of hazardous materials from the site have occurred to groundwater, surface water or air.
- o Spent motor oil and 1,1,1-trichloroethane are stored in sealed drums in an enclosed, paved area prior to being hauled off site by the appropriate licensed contractor.
- o The area surrounding the site is highly industrialized and sparsely populated.
- o The leaking underground acetone storage tank has been removed.
- o Surface water is not used for drinking or recreational purposes, and no sensitive environments exist within 4 miles of the site.

EPA RECOMMENDATION

Refer to Other Authority

No Further Remedial Action Planned

Listing Site Inspection

Medium-Priority SSI

Low-Priority SSI

Notes:

Initial Date

ajd. 5/17/90

REFERENCES

1. California Department of Health Services, Toxic Substances Control Division, "CERCLA Site Inspection of Burdett Oxygen Company," Burbank, California, February 17, 1989.
2. Ecology and Environment, Inc., "Site Inspection Report Review of Burdett Oxygen Company," prepared by John Chester for EPA, Region IX, September 29, 1989.
3. Simon, David N., Liquid Air Corporation, to Thomas Mix, U.S. EPA, letter re: CERCLA 104 Request, March 14, 1990.
4. Esfandi, David, Los Angeles County Department of Public Works, Waste Management Division, and Christopher R. Harner, Ecology and Environment, Inc., personal communication, January 19, 1990.
5. DeVries, George, "Geotechnical Evaluation and Review of Subsurface Tank Removal at Liquid Air Corporation," November 2, 1988.
6. Simon, David N., Liquid Air Corporation, to Thomas Mix, U.S. EPA, letter re: Supplemental information regarding CERCLA 104 Request, March 19, 1990.
7. Whitaker Concrete Corporation, Total Recoverable Hydrocarbons EPA Method 418.1, soil samples taken 2 feet beneath waste oil tank at Liquid Air Corporation, Santa Fe Springs, California, September 28, 1988.
8. Shacklette, H.T., and E.G. Boerngen, Concentrations in Soils and Other Surficial Materials of the Conterminous United States, U.S. Geological Survey Professional Paper 1270, 1984.
9. Aqua Science Engineers, Inc., "Site Investigation for Acetone Contamination in Soil at Liquid Air Corporation," September 2, 1988.
10. U.S. Geological Survey, map of Whittier, California, 7.5 Minute Series Quadrangle, 1965, (photorevised 1981).
11. California Department of Water Resources, Southern District, Planned Utilization of Ground Water Basins of the Coastal Plains of Los Angeles County, Bulletin 104, Appendix A, Ground Water Geology, 1961.
12. Black, Jerry, San Gabriel Water Company, to Karen Johnson, Ecology and Environment, Inc., letter, June 7, 1987.
13. Padmuck, Sharon, City of Downey, Public Works Department, and Christopher R. Harner, Ecology and Environment, Inc., personal communication, March 1, 1990.

14. Hughes, Ron, City of Santa Fe Springs, Department of Public Works, and Christopher R. Harner, Ecology and Environment, Inc., personal communication, March 1, 1990.
15. Pearce, Gene, City of Norwalk, Department of Public Works, and Christopher R. Harner, Ecology and Environment, Inc., personal communication, March 1, 1990.

CONTACT REPORT

AGENCY/AFFILIATION: Los Angeles County Department of Public Works		
DEPARTMENT: Waste Management Division		
ADDRESS/CITY: 900 S. Fremont Avenue, Alhambra		
COUNTY/STATE/ZIP: Los Angeles County, California 91803-1331		
CONTACT(S)	TITLE	PHONE
1. David Esfandi	Engineer	(213) 458-3509
2.		
E & E PERSON MAKING CONTACT: Christopher R. Harner		DATE: 1/19/90
SUBJECT: Underground tank removal		
SITE NAME: Liquid Air Corporation (Burdett Oxygen)		EPA ID#: CAD003312600

David Esfandi originally contacted Liquid Air Corporation when a file search revealed that the underground storage tanks at the facility were not permitted. The Department issued an order for the testing of the tanks for leaks.

Testing indicated violations of leak standards in the acetone tank for which the Department of Public Works issued an order of noncompliance. The acetone tank was removed, and a site inspection conducted. Based on the results of the inspection, the Department of Public Works issued a closure report approving the removal.

Mr. Esfandi does not know whether the 1,000-gallon waste oil tank was removed. If it was, a site inspection would have been required to be submitted to the Department of Public Works within 180 days. Mr. Esfandi suggested I contact David Simon at Liquid Air for more information.

CONTACT REPORT

AGENCY/AFFILIATION: City of Norwalk		
DEPARTMENT: Department of Public Works		
ADDRESS/CITY: 12700 Norwalk Boulevard, Norwalk		
COUNTY/STATE/ZIP: Los Angeles County, California 90650		
CONTACT(S)	TITLE	PHONE
1. Gene Pearce		(213) 929-2677
2.		
E & E PERSON MAKING CONTACT: Christopher R. Harner		DATE: 3/1/90
SUBJECT: Norwalk municipal wells		
SITE NAME: Liquid Air Corporation (Burdett Oxygen)		EPA ID#: CAD003312600

Mr. Pearce provided the following information in addition to the distances of each well to the site:

<u>State Well Number</u>	<u>Owner Designation</u>	<u>Perforated In</u>	<u>Distance to Site</u>
3S/12W-13L01S	Leffingwell	Jefferson	3.75 miles
3S/11W-18L01	San Antone #2	<u>abandoned</u>	3.25 miles
3S/11W-18L02	San Antone #8	Lynwood Jefferson Hollydale	3.25 miles

Combined, the San Antone #8 and the Leffingwell wells supply 2200 to 2300 people.

CONTACT REPORT

AGENCY/AFFILIATION: City of Downey		
DEPARTMENT: Department of Public Works		
ADDRESS/CITY: 1111 Brookshire Avenue, Downey		
COUNTY/STATE/ZIP: Los Angeles County, California 90241		
CONTACT(S)	TITLE	PHONE
1. Sharon Padmuck		(213) 869-7331
2.		
E & E PERSON MAKING CONTACT: Christopher R. Harner		DATE: 3/1/90
SUBJECT: Downey municipal wells		
SITE NAME: Liquid Air Corporation (Burdett Oxygen)		EPA ID#: CAD003312600

Ms. Padmuck informed me that the city wells serve a population of 23,000 people in Downey. It is blended with about 10% Municipal Water District water during the dry months.

The following wells within 3 miles of the site are all in operation. They probably are perforated in the Lynwood aquifer, although Ms. Padmuck could not provide perforation depths.

<u>State Well #</u>	<u>Downey Well #</u>	<u>Distance to Site</u>
2S/12W-35K01	#06	3 miles
2S/12W-35P01	#10	3 miles
2S/12W-02M04	#12	3 miles

CONTACT REPORT

AGENCY/AFFILIATION: City of Santa Fe Springs		
DEPARTMENT: Department of Public Works		
ADDRESS/CITY: 11714 East Telegraph Road, Santa Fe Springs		
COUNTY/STATE/ZIP: Los Angeles County, California 90670		
CONTACT(S)	TITLE	PHONE
1. Ron Hughes		(213) 868-0511
2.		
E & E PERSON MAKING CONTACT: Christopher R. Harner		DATE: 3/1/90
SUBJECT: Santa Fe Springs municipal wells		
SITE NAME: Liquid Air Corporation (Burdett Oxygen)		EPA ID#: CAD003312600

According to Mr. Hughes, the City of Santa Fe Springs currently operates Well #1 and Well #2.

<u>State Well #</u>	<u>Owner Designation</u>	<u>Location</u>
3S/11W-30R03S	Well #1	Dice Road and Burke
3S/11W-20R09	Well #2	Over 4 miles from site
3S/11W-06D03	Well #4	Approximately 1 mile from site

Well #1 supplies the northern portion of the city.
 Well #2 supplies the southern portion of the city.
 Well #4 is a standby well.

Overall, approximately 55% of the water delivered to the city is from the Municipal Water District, while 45% is groundwater. The system is not completely blended. Mr. Hughes could not provide perforation depths when we contacted him. He also could not speculate on the population served by the wells.

APPENDIX J

Diversey Wyandotte Corporation, Amended Closure Plan, Kleinfelder, 1989.

Excerpts, Boring Log and Groundwater Analytical Data

**DIVERSEY WYANDOTTE CORPORATION
AMENDED CLOSURE PLAN**

PROJECT 50-1601-02

PREPARED FOR

**DEPARTMENT OF HEALTH SERVICES
REGION 3
1405 NORTH SAN FERNANDO BOULEVARD, SUITE 3300
BURBANK, CALIFORNIA 91504**

PREPARED BY

**KLEINFELDER
17100 PIONEER BOULEVARD, SUITE 350
ARTESIA, CALIFORNIA 90701**

November 1989

1984-1989

All wastes stored and transported offsite for disposal.

DWC ceased production of products containing chromium early in 1989. These were the products requiring that DWC operate under a hazardous waste storage permit. Since manufacture of these products was discontinued at SFS, DWC has had no need for its permit and can operate as a small-quantity generator.

GEOLOGIC AND HYDROGEOLOGIC CONDITIONS

The Diversey Wyandotte Corporation's Santa Fe Springs facility is located at 8921 Dice Road in section 31 of township 2 south, range 11 west, San Bernardino baseline and principal meridian, in the Santa Fe Springs Plain area of the coastal plain of Los Angeles County, California. The Santa Fe Springs Plain is a low, slightly rolling topographic feature that has been warped by the Santa Fe Springs - Coyote Hills anticlinal system. This plain dips gently both to the northeast, toward Whittier, and to the southwest, toward the Downey Plain, with elevations that ranges between 175 and 200 feet above sea level.

The site is located on upper Pleistocene alluvium of the Lakewood formation. The Lakewood formation unconformably overlies the lower Pleistocene San Pedro Formation, the Pliocene Pico and Repetto Formations, and the Miocene Puente Formation (refer to Figure 4). Based on literature, only the Lakewood and the San Pedro formations underlying the site contain fresh-water-bearing units (DWR Bulletin 104).

Three monitoring wells were installed on the property, then later destroyed, as part of an assessment study in January 1986. Locations of these wells are shown on Figure 2. Geologic boring logs are included in Appendix A. Based on the geologic logs from these wells, the following site specific information has been prepared.

The site is located on surface exposure of the Bellflower Aquiclude, a low permeability portion of the Lakewood Formation. This late Pleistocene aquiclude is approximately 10 to 15 feet thick and consists of clays, silt, silty clays, and sandy clays at the site's location. The Gage aquifer underlies the Bellflower aquiclude to a depth of 30 to 35 feet. Below the Gage, a second aquiclude exists to a depth of 50 feet. This aquiclude separates the Gage from the Hollydale aquifer. The Hollydale aquifer contains the first water beneath the site. Results from drilling by Kleinfelder near the site have indicated that the bottom of this aquifer is approximately 105 feet beneath the surface. The transmissivity of this aquifer is on the order of 40,000 gallons per day per foot beneath the site. Based on an assumed aquifer thickness of 50 feet and an error factor of one order of magnitude, a permeability range of 80 to 8,000 gal/day/ft² can be expected.

The general regional flow of groundwater in the area is in a south to southwest direction.
Depth to groundwater is approximately 50 feet beneath the site's surface.

As part of the January 1986 assessment study, 12 soil samples and five water samples were analyzed. The soils were analyzed for pH, phosphate, chloride, ammonia and EPA priority pollutant metals. The water samples were analyzed for general minerals pH, EPA priority pollutant metals, phosphate, chloride, ammonia and purgeable halocarbons (U.S. EPA method 601). The laboratory results for both the soil and groundwater are included in Appendix B.

DESCRIPTION OF OPERATION PRODUCING HAZARDOUS WASTE

This facility manufactured a variety of cleaning and sanitizing products and only a few of these products contain chromic acid. When the manufacturing tanks were washed out, the water that was collected became a "Hazardous Waste". This "waste solution of chromic acid," a corrosive solution containing chromic acid, was collected and stored in 55-gallon drums. This facility accumulated about 5 drums (275 gallons) of this waste chromic acid solution per month.

DEPTH (feet)	Blow Count	Sample	USCS	Description	Well Const
	0				Locking Well cap PVC cap
5	67	5	CL	PID 1ppm Clay: Strong brown, 2.5 YR/4/4, very stiff dry-damp	
10	17	10	SP	Sand: medium to fine, 5YR/5/6, yellow red, medium dense, dry	Cement grout
15	57	15	SP	PID 1ppm Sand: fine to medium grained, yellow-red 5YR/5/8, very dense, moist	Blank PVC casing
20	52	20	CL	Clay: with silt, strong brown, 7.5YR/4/6 very stiff, moist	
25	31	25	CL	Clay: dark yellowish-red, 10YR/4/4, very stiff, moist	
30					

J.H. KLEINFELDER & ASSOCIATES
 GEOTECHNICAL CONSULTANTS • MATERIALS TESTING



DIVERSEY-WYANDOTTE
 Santa Fe Springs, California

PLATE

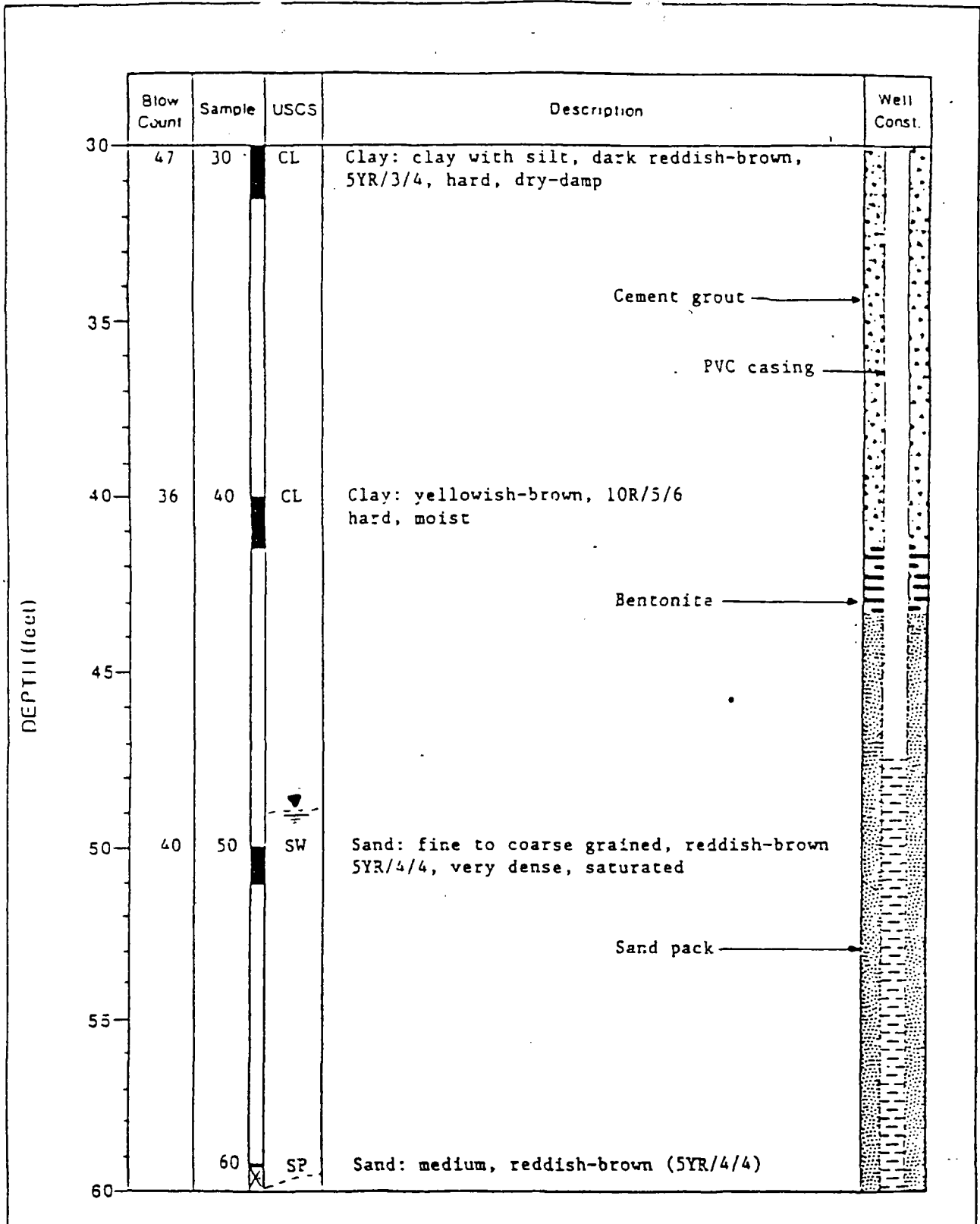
LOG of BORING MW-1

4

PREPARED BY: NAP DATE: 11/86

CHECKED BY: KD DATE: 11/86

PROJECT NO. Q1073-1



J.H. KLEINFELDER & ASSOCIATES
 GEOTECHNICAL CONSULTANTS • MATERIALS TESTING



DIVERSEY-WYANDOTTE
 Santa Fe Springs, California

PLATE

4

PREPARED BY: NAP DATE: 1/86

LOG of BORING MW-1


CHECKED BY: KD DATE: 1/86

PROJECT NO. Q1073-1

DICE 00768

DEPTH (feet)	Blow Count	Sample	USCS	Description	Well Const.
	60				Sand pack Slotted PVC casing
70		70	SP	Sand: medium, reddish-brown (5YR/4/4)	
75	50+	75	MI/GM	Silt: dark yellowish-brown (10YR/4/4) very dense, wet Tip of sample had fine gravelly silt.	
80				Boring Terminated at 78' Date of Drilling: 11/13/85 Drilling Done By: Ken Durand/ Jeff Friedman	
85					
90					

I.H. KLEINFELDER & ASSOCIATES
 GEOTECHNICAL CONSULTANTS • MATERIALS TESTING



PREPARED BY: NAP DATE: 1/86
 CHECKED BY: KD DATE: 1/86

DIVERSEY-WYANDOTTE
 Santa Fe Springs, California

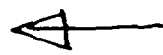
LOG of BORING MW-1

PROJECT NO. Q1073-1

PLATE
 4

Table F
 Tabulation of Water Data
 (mg/l)

	General Minerals					Secondary Drink Water Standards
	QC 1	MW 1	MW 2	QC 2	MW 3	
Calcium	1.2	145	130	1.4	130	--
Copper	ND.1	ND.1	ND.1	ND.1	ND.1	1.0
Iron	ND.2	ND.2	ND.2	ND.2	0.3	0.3
Magnesium	ND.1	38	33	ND.1	36	--
Manganese	ND.2	0.7	0.6	ND.2	1.8	0.05
Sodium	3.0	108	115	4.1	123	--
Zinc	ND.1	0.5	0.4	ND.1	0.5	5.0
Total Alkalinity to pH 4.6, mg CaCO ₃ /L	2.5	405	375	2.5	510	--
Fluoride	ND.1	0.36	0.34	ND.1	0.31	1.4
Nitrate Nitrogen	2.0	27.0	25.2	2.3	4.1	45
Chloride	240	120	120	30	150	500
Surfactants	70	70	50	ND10	55	--
pH (units)	8.04	7.27	7.31	8.26	7.04	--
Conductivity, (mhos/cm)	10	1,300	1,200	10	1,300	1,600
Sulfate	NT 1	412	458	ND1	386	500
Total Dissolved Solids	295	1,325	1,135	120	1,175	1,000
Hardness, (mg CaCO ₃ /L)	3	518	461	3.5	473	--
Phosphate	7.7	11.3	14.4	ND3	12.0	--



APPENDIX K

**Baseline Risk Assessment, McKesson - Santa Fe Springs, CA
by Harding Lawson Associates, October 1992**

Excerpts; Boring Logs, Site Plan and Groundwater Analytical Data

**BASELINE RISK ASSESSMENT
McKESSON-SANTA FE SPRINGS
October 26, 1992
Page 2 - 4**

2.3 Soil and Groundwater Characterization

The McKesson site is located on the Santa Fe Springs Plain of the Los Angeles Coastal Plain. The Santa Fe Springs Plain generally dips to the northeast in this area. Prominent area features include the Puente and Coyote Hills to the northeast, east, and southeast and the San Gabriel River to the west of the plain. In the vicinity of the site, the Santa Fe Springs Plain consists of Pleistocene alluvium of the Lakewood Formation. The formation unconformably overlies the San Pedro Formation. Local geologic and hydrogeologic investigations have been conducted at the McKesson site and nearby sites. Shallow, near-surface materials underlying the site consist predominantly of silty sand, with minor amounts of silt and clay. Poorly sorted, fine- to coarse-grained sand (locally with gravel) underlie the fine-grained surficial deposits from depths between 15 and 25 to 30 feet bgs. This upper sand zone is interpreted to be the Gage Aquifer which is stratigraphically positioned at the bottom of the Lakewood formation. Groundwater was not encountered in this unit except in the northeast corner of the site for a limited time in the aboveground solvent storage area. Below the upper sand unit a zone of discontinuous silt, clay, and silty sand units are encountered to depths of approximately 45 to 50 feet bgs. Beneath this zone of discontinuous units, a fine- to medium-grained sand is present. This sand unit, referred to as the aquifer sand, is continuous across the site and is approximately 75 feet thick, extending to depths of 126 feet bgs. This aquifer sand is water-bearing, (groundwater being encountered at depths between 48 and 50 feet bgs), and is interpreted as being the Hollydale aquifer, the upper-most aquifer of the San Pedro formation.

2.4 Preliminary Investigations

Preliminary investigations of site soil and groundwater in 1984, 1986, and 1989 were conducted at the request of Cal-EPA. Soil and groundwater sampling locations for these

DETAILS

Top of Casing 149.03 ft

Equipment 8 & 10" Hollow Auger

Elevation 149.7 ft Date 6/15/90

(See Plate B48 for Wellhead Construction)

18" dia. Borehole

14" dia. Steel Conductor Casing

4" dia. Blank PVC Casing

Bentonite-Cement Grout

Bentonite Pellet Seal

PID	OVA	Soil PH
0.0	0.0	9.10
0.0	0.0	8.21
0.0	0.0	8.26
0.5	1.0	8.69
0.0	0.0	8.31
0.0	0.0	8.07
0.0	9.0	8.13
0.0	0.0	8.04

Depth ft Sample

4" ASPHALTIC CONCRETE
 BROWN SILTY SAND (SM)
 moist, fine to medium grained
 color change to red-brown
 color change to brown
 decreasing silt content
 with trace of coarse-grained sand and few gravel
 color change to red-brown
 increasing gravel content
 with minor clay
 ORANGE-BROWN SAND (SP)
 moist, fine to coarse grained with trace of gravel
 and minor silt
 medium grained
 increasing gravel content
 BROWN SILTY SAND (SM)
 moist, fine grained with trace of gravel
 BROWN CLAYEY SAND (SC)
 moist, fine grained
 BROWN SILTY SAND (SM)
 moist, fine grained, micaceous
 increasing silt content
 RED-BROWN SANDY CLAY (CL)
 moist, fine grained with some coarse-grained sand
 and trace of gravel
 BROWN SILTY SAND (SM)

DICE 00773



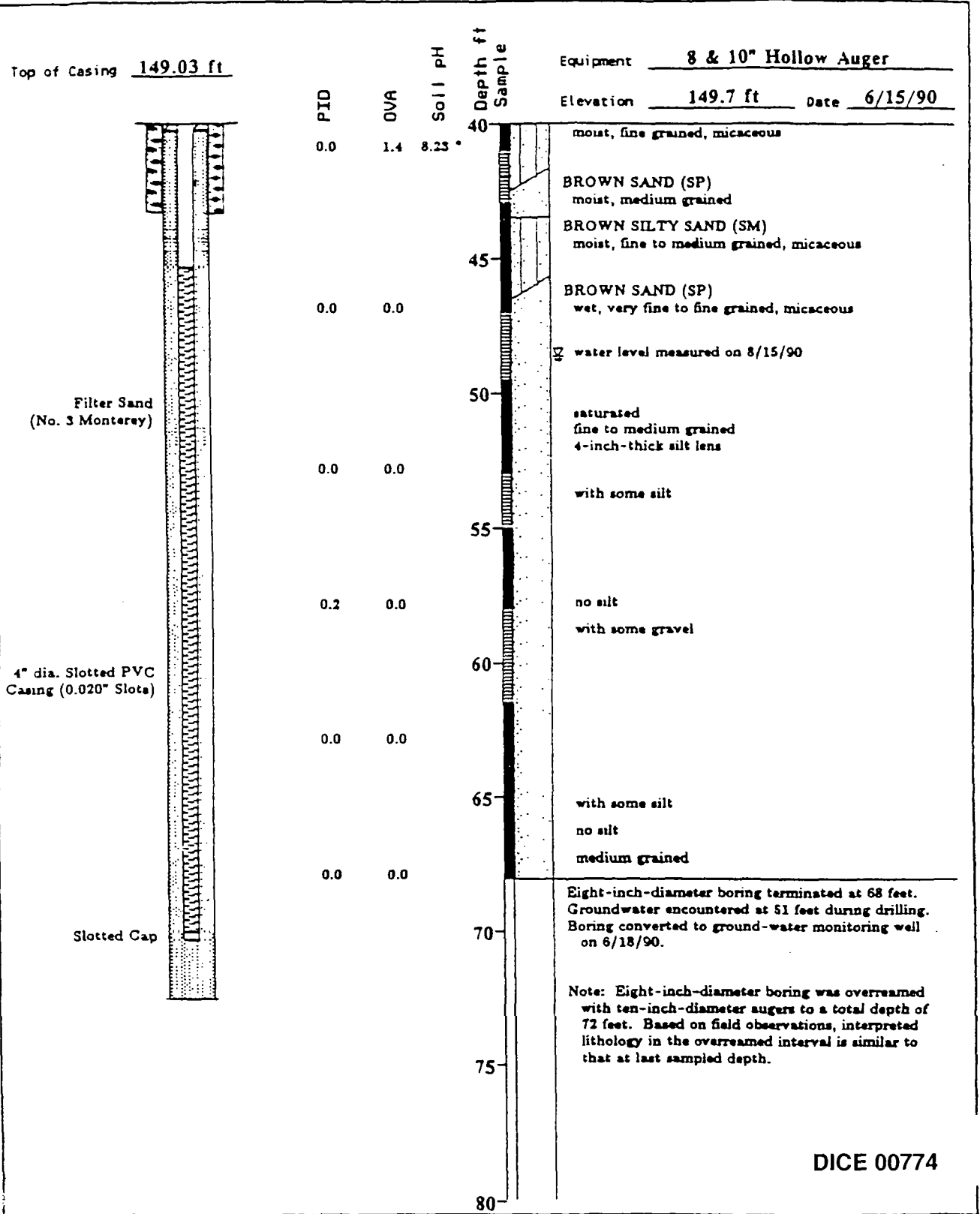
Harding Lawson Associates
 Engineering and Environmental Services

Log of Boring MK-MW-03 (sheet 1 of 2)
 McKesson Corporation Property
 Santa Fe Springs, California

PLATE
B4

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
HK	17333, 168.11	TRK	1/92		

Site/D:



DICE 00774

Harding Lawson Associates
Engineering and Environmental Services

Log of Boring MK-MW-03 (sheet 2 of 2)
McKesson Corporation Property
Santa Fe Springs, California

PLATE

B4a

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
HK	17333, 168.11	TAC	1/92		

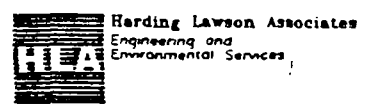
HOK 17333.168.11

MAJOR DIVISIONS				TYPICAL NAMES
COARSE-GRAINED SOILS MORE THAN HALF IS LARGER THAN No. 200 SIEVE MORE THAN HALF IS SMALLER THAN No. 4 SIEVE SIZE	GRAVELS	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES
			GP	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES
		GRAVELS WITH OVER 12% FINES	GM	SILTY GRAVELS, POORLY GRADED GRAVEL-SAND-SILT MIXTURES
			GC	CLAYEY GRAVELS, POORLY GRADED GRAVEL-SAND-CLAY MIXTURES
	SANDS	CLEAN SANDS WITH LITTLE OR NO FINES	SW	WELL-GRADED SANDS, GRAVELLY SANDS
			SP	POORLY GRADED SANDS, GRAVELLY SANDS
		SANDS WITH OVER 12% FINES	SM	SILTY SANDS, POORLY GRADED SAND-SILT MIXTURES
			SC	CLAYEY SANDS, POORLY GRADED SAND-CLAY MIXTURES
FINE-GRAINED SOILS MORE THAN HALF IS SMALLER THAN No. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT 50% OR LESS		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS, OR CLAYEY SILTS WITH SLIGHT PLASTICITY
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			OL	ORGANIC CLAYS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50%		MH	INORGANIC SILTS, VICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS			Pt	PEAT AND OTHER HIGHLY ORGANIC SOILS

<ul style="list-style-type: none"> ■ = "Undisturbed" S&M or Shelby tube sample ○ = Bulk or classification sample ⊗ = Standard Penetration Test sample ■ = No sample recovered I = Core sample <p>Blows/ft - Blows required to drive sampler 12 inches with a 140-pound hammer falling 30 inches. Blow counts for S&M samplers are converted to approximate "equivalent" SPT N values (N = 0.5 X S&M blows per foot)</p>	<p><u>HC Odor - Hydrocarbon Odor</u></p> <p>Na - No Odor La - Slight Odor Md - Moderate Odor Sg - Strong Odor</p> <p>PID - Photoionization Detector reading (10.2-electron-volt lamp, calibrated using an isobutylene standard)</p> <p>OVA - Organic Vapor Analyzer (flame ionization detector) calibrated using a methane standard</p> <p>* - Sample submitted for chemical analysis</p> <p>** - Based on M&A Temporary Bench Mark (TBM) shown on Plate 2. Assumed elevation = 100.00'</p>
--	--

DICE 00775

KEY TO BORING LOG



SOIL CLASSIFICATION CHART
& KEY TO BORING LOGS
McKesson Corporation Property
Santa Fe Springs, California

PLATE
B1

MAR-10-93 WED 17:32

BEVERIDGE & DIAMOND

FAX NO. 4153970100

P. 08

03/00/93

14:08

02415 083 6184

UCK TREASURY DEP

02002-002

Harding Lawson Associates


A Report Prepared for


McKesson Corporation
One Post Street
San Francisco, California 94104

REMEDIAL INVESTIGATION
MCKESSON CORPORATION PROPERTY
9006 SORENSEN AVENUE
SANTA FE SPRINGS, CALIFORNIA

Client No. 17333
HLA Project No. 11136-108

by


Thomas Harder
Staff Geologist


Ted A. Koalsch, Ph.D., RG
Principal Geologist

Harding Lawson Associates
3 Hunon Centre, Suite 200
Santa Ana, California 92707
714/538-7992

June 25, 1992
Revised October 30, 1992

• Printing on Recycled Paper

DICE 00776

TABLE No. SUMMARY OF LABORATORY ANALYSES - GENERAL IONICALS AND SELECTED METALS

Location ID	Date Collected	Total Sodium	Total Zinc	Cation/Anion Balance	pH	Cond-ductivity	Total Dissolved Solids	Hardness
04-01	8/01/90	115	0.24	NA	7.15	1530	2530	640
04-04	10/26/90	117	0.54	0.94	6.99	1630	2060	634
04-04	2/11/91	NA	NA	NA	7.11	NA	NA	NA
04-02	8/01/90	109	0.02	0.90	7.29	1400	1120	561
04-02	10/26/90	106	0.07	0.92	7.13	1520	1810	634
04-02	2/11/91	106	0.09	0.99	7.42	1400	994	577
04-03	8/02/90	99.1	0.01	0.85	7.27	1170	764	370
04-03	10/26/90	NA	NA	NA	6.91	NA	NA	NA
04-03	2/11/91	82.1	0.05	0.92	7.31	1150	640	370
04-04	8/03/90	123	0.01	0.98	7.22	1540	1150	621
04-04	10/26/90	NA	NA	NA	7.08	NA	NA	NA
04-04	2/11/91	NA	NA	NA	7.19	NA	NA	NA
04-07	8/03/90	130	0.01	1.02	7.44	1290	972	644
04-07	10/26/90	NA	NA	NA	7.14	NA	NA	NA
04-07	2/12/91	NA	NA	NA	7.29	NA	NA	NA
04-10	8/02/90	117	<0.01	1.06	7.26	1450	1070	501
04-10	10/26/90	102	<0.01	0.90	7.15	1490	1030	600
04-11	8/02/90	105	<0.01	1.00	7.32	1450	1000	609
04-13	10/26/90	NA	NA	NA	7.05	NA	NA	NA
04-13	2/11/91	NA	NA	NA	7.18	NA	NA	NA
04-17	8/02/90	111	0.02	1.00	6.99	1470	1070	509
04-17	10/25/90	112	0.02	0.97	6.92	1760	1118	606
04-17	2/13/91	98.2	0.03	0.96	7.11	1540	1040	619
04-17A	2/12/91	200	0.06	0.99	6.95	1640	1130	600
04-17B	2/12/91	64.1	<0.01	1.05	7.11	1190	802	516
04-20	8/02/90	121	0.02	0.99	7.00	1540	1360	500
04-20	10/25/90	NA	NA	NA	7.04	NA	NA	NA
04-20	2/13/91	NA	NA	NA	7.17	NA	NA	NA
04-23	8/01/90	121	0.02	0.96	7.22	1650	1230	606

Notes: 1. All values in milligrams per liter (mg/L), except pH (units), Conductivity (microhm/cm) and cation/anion balance.
 2. Composite shown are those detected at one or more sample locations.
 3. See Appendix for laboratory data reports.
 4. NA = Not Analyzed.

DICE 00777



February 6, 2002

Santa Fe Springs Fire Department
Fire & Environmental Protection Bureau
11300 Greenstone Avenue
Santa Fe Springs, CA. 90670

Dear Sir or Madam:

Attached is a revision to the hazardous material business plan for our business, located at 9756 Santa Fe Springs Road, Santa Fe Springs, CA. 90670

The primary change is; Air Liquide no longer operates or occupies the distribution center and garage located on the south side of the property.

Some of the emergency contact names and numbers have been changed as well as the elimination of some compressed gases, oil, and other related mechanical garage maintenance chemicals.

Should you have any questions or concerns regarding this revision, please contact me at 916-771-0344.

Sincerely,

William J. Cardoza
Area Health, Safety and Environmental Specialist

- AIR LIQUIDE AMERICA CORPORATION 7441 School House Lane, Roseville, California 95747
Phone: 916-771-0344 Fax: 916-771-0344

DICE 00778

CITY OF SANTA FE SPRINGS
CERTIFIED UNIFIED PROGRAM AGENCY

**HAZARDOUS MATERIALS BUSINESS PLAN
&
HAZARDOUS WASTE GENERATOR
APPLICATION PACKAGE**



CITY OF SANTA FE SPRINGS
FIRE DEPARTMENT

11300 GREENSTONE AVE • SANTA FE SPRINGS • CA 90670
(562) 944-9713 FAX (562) 941-1817

DICE 00779

HAZARDOUS MATERIALS BUSINESS PLAN & HAZARDOUS WASTE GENERATORS

*To be completed by all businesses that handle
Hazardous materials and/or generate hazardous waste*

This package includes:

- Business Activities Form
- Business Owner/Operator Identification Form
- Hazardous Materials Inventory-Chemical Description Form
(complete for each material equal to or greater than 55 gallons, 500 pounds, or 200 cubic feet)
- Hazardous Waste Generator Form
- Consolidated Contingency Plan
- Site Plan

UNIFIED PROGRAM CONSOLIDATED FORM

BUSINESS ACTIVITIES

Page 1 of

I. FACILITY IDENTIFICATION

FACILITY ID #	1 9 0 4 9	EPA ID # (Hazardous Waste Only)	CAL 00129317
BUSINESS NAME (Same as Facility Name of DBA-Doing Business As)		BUSINESS ADDRESS	
AIR LIQUIDE AMERICA CORPORATION		9756 SANTA FE SPRINGS ROAD	

II. ACTIVITIES DECLARATION

**NOTE: If you check YES to any part of this list,
please submit the Business Owner/Operator Identification page.**

Does your facility...	If Yes, please complete these pages of the package	
A. HAZARDOUS MATERIALS Have on site (for any purpose) hazardous materials at or above 55 gallons for liquids, 500 pounds for solids, or 200 cubic feet for compressed gases (include liquids in ASTs and USTs); or the applicable Federal threshold quantity for an extremely hazardous substance specified in 40 CFR Part 355, Appendix A or B; or handle radiological materials in quantities for which an emergency plan is required pursuant to 10 CFR Parts 30, 40 or 70?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO 4	<input checked="" type="checkbox"/> HAZARDOUS MATERIALS INVENTORY - CHEMICAL DESCRIPTION (complete this form for every material over the exempt amounts listed to the left) <input checked="" type="checkbox"/> CONSOLIDATED CONTINGENCY PLAN <input checked="" type="checkbox"/> SITE MAP
B. UNDERGROUND STORAGE TANKS (USTs) 1. Own or operate USTs? (If yes, complete forms under 4 above.) 2. Intend to upgrade existing or install new USTs? 3. Need to report closing a UST?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO 5 <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO 6 <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO 7	<input checked="" type="checkbox"/> UST FACILITY <input checked="" type="checkbox"/> UST TANK (ONE PAGE PER TANK) <input checked="" type="checkbox"/> UST APPLICATION PACKAGE <input checked="" type="checkbox"/> UST CLOSURE APPLICATION PKG
C. ABOVE GROUND PETROLEUM STORAGE TANKS (ASTs) Own or operate ASTs above these thresholds: --any tank capacity is greater than 660 gallons, or --the total capacity for the facility is greater than 1,320 gallons?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO 8	<input checked="" type="checkbox"/> No form is required at this time, however, if you answered yes, prepare and maintain a Spill Prevention Control and Countermeasure (SPCC) plan to address oil spills and releases from the APST(s) at your facility.
D. HAZARDOUS WASTE		
1. Generate hazardous waste?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO 9	<input checked="" type="checkbox"/> HAZ. WASTE GENERATOR FORM <input checked="" type="checkbox"/> CONSOLIDATED CONTINGENCY PLAN
2. Recycle onsite more than 100 kg/month of excluded or exempted recyclable materials (per HSC 25143.2)?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO 10	<input checked="" type="checkbox"/> RECYCLABLE MATERIALS REPORT
3. Treat hazardous waste on site?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO 11	<input checked="" type="checkbox"/> ONSITE HAZARDOUS WASTE TREATMENT - FACILITY <input checked="" type="checkbox"/> ONSITE HAZARDOUS WASTE TREATMENT - UNIT (one page per unit)
4. Treatment subject to financial assurance requirements (for Permit by Rule and Conditional Authorization)?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO 12	<input checked="" type="checkbox"/> CERTIFICATION OF FINANCIAL ASSURANCE
5. Consolidate hazardous waste generated at a remote site?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO 13	<input checked="" type="checkbox"/> REMOTE WASTE / CONSOLIDATION SITE ANNUAL NOTIFICATION
6. Need to report the closure/removal of a tank that was classified as hazardous waste and cleaned onsite?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO 14	<input checked="" type="checkbox"/> HAZARDOUS WASTE TANK CLOSURE CERTIFICATION
E1. REGULATED SUBSTANCES		
Have Regulated Substances (RS) including Extremely Hazardous Substances (EHS) stored on site at greater than the threshold planning quantities established by the California Accidental Release Program (Cal ARP)?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO 15a	In addition to Hazardous Materials requirements, complete: <input checked="" type="checkbox"/> Regulated Substance Registration <input checked="" type="checkbox"/> Risk Management Plan (when required)
E2. INDUSTRIAL WASTE/RELEASE REPORT		
a. Discharge any liquid waste into the public sewer system or storm drain other than domestic wastewater from restrooms?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO 15b	<input checked="" type="checkbox"/> Contact the Santa Fe Springs Fire Department at (562) 944-9713 to determine permit requirements.
b. Are you aware of any contamination or hazardous waste releases at your facility?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO 15c	<input checked="" type="checkbox"/> Contact the Santa Fe Springs Fire Department at (562) 944-9713 regarding a Preliminary Remediation Assessment.

OFFICIAL USE ONLY	UP Form	HW	HM	ARP	AST	UST	TP	CUPA	PA
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Business Activities

Please submit the Business Activities page, the Business Owner/Operator Identification page (OES Form 2730), and Hazardous Materials Inventory - Chemical Description pages (OES Form 2731) for all submissions. Please number all pages of your submittal. This helps your CUPA or PA identify whether the submittal is complete and if any pages are separated.

1. **FACILITY ID NUMBER** Leave this blank. This number is assigned by the Certified Unified Program Agency (CUPA) and identifies your facility.
2. **EPA ID NUMBER** If you generate, recycle, or treat hazardous waste, enter your facility's 12-character U.S. Environmental Protection Agency (U.S. EPA) or California Identification number. For facilities in California, the number usually starts with the letters "CA". If you do not have a number, contact the Department of Toxic Substances Control (DTSC) at (916) 324-1781, (800) 61-TOXIC or (800) 61-86942, to obtain one.
3. **BUSINESS NAME** Enter the full legal name of the business. This is the same as the terms "Facility Name" or "DBA - Doing Business As".
4. **HAZARDOUS MATERIALS ONSITE** Check the box to indicate whether you have hazardous materials onsite. You have a hazardous material if:
 - It is handled in quantities equal to or greater than 500 pounds, 55 gallons, or 200 cubic feet of gas (calculated at standard temperature and pressure),
 - It is handled in quantities equal to or greater than the applicable federal threshold planning quantity for an extremely hazardous substance listed in 40 CFR Part 355, Appendix A,
 - Radioactive materials are handled in quantities for which an emergency plan is required to be adopted pursuant to Part 30, Part 40, or Part 70 of Chapter 10 of 10 CFR, or pursuant to any regulations adopted by the state in accordance with these regulations.

If you have hazardous materials onsite, then you must complete the Business Owner/Operator Identification page (OES Form 2730) and the Hazardous Materials Inventory - Chemical Description page (OES Form 2731), as well as an Emergency Response Plan (i.e. Consolidated Contingency Plan) and Training Plan. Do not answer "YES" to this question if you exceed only a local threshold, but do not exceed the state threshold.

5. **OWN OR OPERATE UNDERGROUND STORAGE TANK (UST)** Check the appropriate box to indicate whether you own or operate USTs containing hazardous substances as defined in Health and Safety Code (HSC) §25316. If "YES", then you must complete one UST Facility page and UST Tank pages for each tank. You must also submit a plot plan and a monitoring program plan.

6. **UPGRADE/INSTALL UST** Check the appropriate box to indicate whether you intend to install or upgrade USTs containing hazardous substances as defined in HSC §25316. If "YES", then you must complete the UST Installation - Certificate of Compliance page in addition to UST Facility and Tank pages, plot plan and monitoring program plan.

7. **UST CLOSURE** Check the appropriate box if you are closing an UST and complete the closure portion of the UST Tank pages for each tank.

8. **OWN OR OPERATE ABOVEGROUND PETROLEUM STORAGE TANK (APST)** Check the appropriate box to indicate whether there are APSTs onsite which exceed the regulatory thresholds. (There is no UPCF page for APSTs.) This program applies to all facilities storing petroleum in aboveground tanks. Petroleum means crude oil, or any fraction thereof, which is liquid at 60 degrees Fahrenheit temperature and 14.7 pounds per square inch absolute pressure (HSC §25270.2 (g)). The facility must have a single tank greater than 660 gallons, or cumulative storage capacity greater than 1,320 gallons for all APSTs. An aboveground petroleum storage tank (APST) facility with one or more of the following (see HSC §25270.2 (k)) is not subject to this act and is exempt:

- A pressure vessel or boiler which is subject to Division 5 of the Labor Code,
- A storage tank containing hazardous waste if a hazardous waste facility permit has been issued for the storage tank by DTSC,
- An aboveground oil production tank which is regulated by the Division of Oil and Gas,
- Certain oil-filled electrical equipment including but not limited to transformers, circuit breakers, or capacitors.

9. **HAZARDOUS WASTE GENERATOR** Check the appropriate box to indicate whether your facility generates hazardous waste. A generator is the person or business whose acts or processes produce a hazardous waste or who causes a hazardous substance or waste to become subject to State hazardous waste law. If your facility generates hazardous waste, you must obtain and use an EPA Identification number (ID) in order to properly transport and dispose of it. Report your EPA ID number in #2. Hazardous waste means a waste that meets any of the criteria for the identification of a hazardous waste adopted by DTSC pursuant to HSC §25141. "Hazardous waste" includes, but is not limited to, federally regulated hazardous waste. Federal hazardous waste law is known as the Resource Conservation and Recovery Act (RCRA). Unless explicitly stated otherwise, "hazardous waste" also includes extremely hazardous waste and acutely hazardous waste.

10. **RECYCLE** Check the appropriate box to indicate whether your facility recycles more than 100 kilograms per month of recyclable material under a claim that the material is excluded or exempt per HSC §25143.2. Check "YES" and complete the Recyclable Materials Report pages, if you either recycled onsite or recycled excluded recyclable materials which were generated offsite. Check "NO" if you only send recyclable materials to an offsite recycler; you do not need to report.

11. **ONSITE HAZARDOUS WASTE TREATMENT** Check the appropriate box to indicate whether your facility treats hazardous waste onsite. "Treatment" means any method, technique, or process which is designed to change the physical, chemical, or biological character or composition of any hazardous waste or any material contained therein, or removes or reduces its harmful properties or characteristics for any purpose. "Treatment" does not include the removal of residues from manufacturing process equipment for the purposes of cleaning that equipment. Amendments (effective 1/1/99) add exemptions from the definition of "treatment" for certain processes under specific, limited conditions. Refer to HSC §25123.5 (b) for these specific exemptions. Treatment of certain laboratory hazardous wastes do not require authorization. Refer to HSC §25200.3.1 for specific information. Please contact your CUPA to determine if any exemptions apply to your facility. If your facility treats hazardous waste onsite, complete the Onsite Hazardous Waste Treatment Notification - Facility page and one set of Onsite Hazardous Waste Treatment Notification - Unit pages for each unit.

12. **FINANCIAL ASSURANCE** Check the appropriate box to indicate whether your facility is subject to financial assurance requirements for closure of an onsite treatment unit. Unless they are exempt, Permit by Rule (PBR) and Conditionally Authorized (CA) operations are required to provide financial assurance for closure costs (per 22 CCR §67450.13 (b) and HSC §25245.4). If your facility is subject to financial assurance requirements or claiming an exemption, then complete the Certification of Financial Assurance page.

13. **REMOTE WASTE CONSOLIDATION SITE** Check the appropriate box to indicate whether your facility consolidates hazardous waste generated at a remote site. Answer "YES" if you are a hazardous waste generator that collects hazardous waste at remote sites and transports the hazardous waste to a consolidation site you also operate. You must be eligible pursuant to the conditions in HSC §25110.10. If your facility consolidates hazardous waste generated at a remote site, then complete the Remote Waste Consolidation Site Annual Notification page.

14. **HAZARDOUS WASTE TANK CLOSURE** Check the appropriate box to indicate whether the tank being closed would be classified as hazardous waste after its contents are removed. Classification could be based on your knowledge of the tank and its contents, the mixture rule, testing of the tank, the listed wastes in 40 CFR 261.31 or 40 CFR 261.32, or inability to remove hazardous materials stored in the tank. If the closed tank would be classified as hazardous waste, then complete the Hazardous Waste Tank Closure Certification page.

- 15a. **LOCAL REQUIRED INFORMATION: REGULATED SUBSTANCES (RS)** Check the box to indicate whether Regulated Substances (RS) are stored onsite. An RS is any substance, listed in CCR, Title 19, Section 2770.5. See attached Regulated Substance list. If you handle an RS at greater than the threshold planning quantities then complete the Regulated Substance Registration in addition to forms required under item number 4.

- 15b. Indicate whether or not you discharge any liquid waste into the public sewer system or storm drain other than domestic waste water from restrooms.

- 15c. Indicate whether or not you are aware of any contamination or hazardous materials releases at your facility.

**Unified Program (UP) Form
CONSOLIDATED CONTINGENCY PLAN**

COVER PAGE

FACILITY IDENTIFICATION				
BUSINESS NAME AIR LIQUIDE AMERICA CORPORATION	3	FACILITY ID # 19-049-	1	
SITE ADDRESS 9756 SANTA FE SPRINGS ROAD	103	CITY SFS	104	ZIP CODE 90670
			105	

The Consolidated Contingency Plan provides businesses a format to comply with the emergency planning requirements of the following three written hazardous materials emergency response plans required in California:

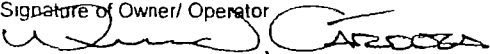
- ❖ Hazardous Materials Business Plan (HSC Chapter 6.95 Section 25504 (b) and 19 CCR Sections 2729-2732),
- ❖ Hazardous Waste Generator Contingency Plan (22 CCR Section 66264.52), and
- ❖ Underground Storage Tank Emergency Response Plan and Monitoring Program (23 CCR Sections 2632 and 2641).

This format is designed to reduce duplication in the preparation and use of emergency response plans at the same facility, and to improve the coordination between facility response personnel and local, state and federal emergency responders during an emergency. Use the chart below to determine which sections of the Consolidated Contingency Plan need to be completed for your facility. If you are unsure as to which programs your facility is subject to, refer to the Business Activities Page.

PROGRAMS	SECTION(S) TO BE COMPLETED
Hazardous Materials Business Plan (HMBP)	Cover Page, Section I, II, and Site Map(s)
Hazardous Waste Generator (HWG)	Cover Page, Section I, II, and Site Map(s)
Underground Storage Tank (UST)	Cover Page, Sections I, II, III, and Site Map(s)
HMBP, HWG, UST	Cover Page, Sections I, II, III, and Site Map(s)

A copy of the plan shall be submitted to the Santa Fe Springs Fire Department and at least one copy of the plan shall be maintained at the facility for use in the event of an emergency and for inspection by the local agency. Describe below where a copy of your Contingency Plan, including the hazardous material inventories and Site Map(s), is located at your business:

Indicate where this plan is located: MAIN ENTRANCE TO OFFICE / RECEPTIONIST DESK

PLAN CERTIFICATION	
<i>I certify under penalty of law that I have personally examined and I am familiar with the information provided by this plan and to the best of my knowledge the information is accurate, complete, and true.</i>	
Printed Name of Owner/ Operator <u>WILLIAM J. CARDOZA</u>	Title of Owner/Operator <u>AREA HSE SPECIALIST</u>
Signature of Owner/ Operator 	Date <u>FEB. 06, 2002</u>

We appreciate the effort of local businesses in completing these plans and will assist in every possible way. If you have any questions, please contact the Santa Fe Springs Fire Department at (562) 944-9713.

OFFICIAL USE ONLY		DATE RECEIVED			REVIEWED BY		
DIV	BN	STA	OTHER	DISTRICT	CUPA	PA	

**Unified Program (UP) Form
CONSOLIDATED CONTINGENCY PLAN**

SECTION I: EMERGENCY RESPONSE PLANS AND PROCEDURES

EMERGENCY CONTACTS			
The name(s) and title(s) of the person(s) responsible for authorizing any work necessary under this response plan.			
PRIMARY		SECONDARY	
NAME	JERRY BEESON 123	NAME	DAVE JONES 128
TITLE	EMERGENCY RESPONDER 124	TITLE	FIELD SERVICE MANAGER 129
BUSINESS PHONE	562-244-4182 125	BUSINESS PHONE	562-906-8738 130
FOIA ex 6, Personal Privacy		FOIA ex 6, Personal Privacy	

A. Notifications

Your business is required by State Law to provide an immediate verbal report of any release or threatened release of a hazardous material to local fire emergency response personnel, this Unified Program Agency (CUPA or PA), and the Office of Emergency Services. If you have a release or threatened release of hazardous materials, immediately call:
FIRE/PARAMEDICS/POLICE/SHERIFF
PHONE: 911

AFTER the local emergency response personnel are notified, you shall then notify this office and the Office of Emergency Services.

Santa Fe Springs Fire Department: (562) 944-9715
 State Office of Emergency Service: (800) 852-7550 or (916) 262-1621
 National Response Center: (800) 424-8802 (for quantities greater than their reportable quantities)

Information to be provided during Notification:

- ❖ Your name and the telephone number from where you are calling.
- ❖ Exact address of the release or threatened release.
- ❖ Date, time, cause, and type of incident (e.g. fire, air release, spill etc.)
- ❖ Material and quantity of the release, to the extent known.
- ❖ Current condition of the facility.
- ❖ Extent of injuries, if any.
- ❖ Possible hazards to public health and/ or the environment outside of the facility.

B. Emergency Medical Facility

List the local emergency medical facility that will be used by your business in the event of an accident or injury caused by a release or threatened release of hazardous material

HOSPITAL/CLINIC:	HEALTH FIRST MEDICAL	PHONE NO:	-
ADDRESS:	11817 EAST TELEGRAPH		
CITY:	SANTA FE SPRINGS	ZIP CODE:	90670

DICE 00784

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UNIFIED PROGRAM CONSOLIDATED FORM
BUSINESS OWNER/OPERATOR IDENTIFICATION

NEW BUSINESS OUT OF BUSINESS REVISE/UPDATE (EFFECTIVE / /) PAGE OF

I. IDENTIFICATION

FACILITY ID#	1 9 0 4 9	BEGINNING DATE	100	ENDING DATE	101
BUSINESS NAME	AIR LIQUIDE AMERICA CORPORATION	BUSINESS PHONE	562-906-8700		
BUSINESS SITE ADDRESS	9756 SANTA FE SPRINGS ROAD				103
CITY	SANTA FE SPRINGS	104	CA	ZIP CODE	90670 105
DUN & BRADSTREET	00-331-2600	106	SIC CODE (4 digit #)	5169	107
COUNTY	LOS ANGELES	108	UNINCORPORATED	<input type="checkbox"/> Yes <input type="checkbox"/> No	133a
BUSINESS OPERATOR NAME		109	BUSINESS OPERATOR PHONE		110

II. BUSINESS OWNER

OWNER NAME	AIR LIQUIDE AMERICA	111	OWNER PHONE	800-324-2443	112
OWNER MAILING ADDRESS	12800 WEST LITTLE YORK				113
CITY	HOUSTON	114	STATE	TX	115
			ZIP CODE	77041	116

III. ENVIRONMENTAL CONTACT

CONTACT NAME	WILLIAM J. CARDOZA	117	FOIA ex 6, Personal Privacy		
FOIA ex 6, Personal Privacy					

-PRIMARY-

IV. EMERGENCY CONTACTS

-SECONDARY-

NAME	JERRY BEESON	123	NAME	DAVE JONES	128
TITLE	EMERGENCY RESPONDER	124	TITLE	FST MANAGER	129
BUSINESS PHONE	562-464-1204	125	BUSINESS PHONE	562-906-8738	130
FOIA ex 6, Personal Privacy			FOIA ex 6, Personal Privacy		

V. ADDITIONAL LOCALLY COLLECTED INFORMATION

DESCRIPTION OF BUSINESS	ADMINISTRATION OFFICE / FIELD SERVICE WAREHOUSE	133b
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MAILING/ BILLING INFORMATION

ADDRESS	9756 SANTA FE SPRINGS RD	CITY	SANTA FE SPRINGS	33e	STATE	CA	133f	ZIP CODE	90670	133g
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Certification: Based on my inquiry of those individuals responsible for obtaining the information, I certify under penalty of law that I have personally examined and am familiar with the information submitted and believe the information is true, accurate, and complete.

SIGNATURE OF OWNER/OPERATOR OR DESIGNATED REPRESENTATIVE	DATE	134	NAME OF DOCUMENT PREPARER	135
<i>William J. Cardoza</i>	02-06-02		WILLIAM CARDOZA	
NAME OF SIGNER (print)	136	TITLE OF SIGNER	137	
WILLIAM J. CARDOZA		AREA HSE SPECIALIST		

OFFICIAL USE ONLY	UP Form	HW	HM	ARP	AST	UST	TP	CUPA	PA
INSPECTOR	DISTRICT	DATE OF INSP.	DIVISION	BATTALION	STATION				

DICE 00785

Business Owner/Operator Identification (formerly OES Form 2730)

Please submit the Business Activities page, the Business Owner/Operator Identification page (OES Form 2730), and Hazardous Materials - Chemical Description pages (OES Form 2731) for all hazardous materials inventory submissions. For the inventory to be considered complete, this page must be signed by the appropriate individual. Please number all pages of your submittal. This helps your CUPA or PA identify whether the submittal is complete and if any pages are separated.

1. FACILITY ID NUMBER This number is assigned by the CUPA. This is the unique number which identifies your facility.
 3. BUSINESS NAME Enter the full legal name of the business.
 100. BEGINNING DATE Enter the beginning year and date of the report. (YYYYMMDD, ex. 1999/07/01)
 101. ENDING DATE Enter the ending year and date of the report. (YYYYMMDD, ex. 2000/06/30)
 102. BUSINESS PHONE Enter the phone number, area code first, and any extension.
 103. BUSINESS SITE ADDRESS Enter the street address where the facility is located. No post office box numbers are allowed.
 104. CITY Enter the city or unincorporated area in which the business site is located.
 105. ZIP CODE - Enter the zip code of the business site. The extra 4 digits in the zip code may also be added.
 106. DUN & BRADSTREET Enter the Dun and Bradstreet number for the facility. The Dun & Bradstreet number may be obtained by calling (610) 882-7748 or by visiting Dun and Bradstreet on the internet at www.dnb.com.
 107. SIC CODE Enter the primary Standard Industrial Classification Code number for primary business activity. Report only the first four digits.
 108. COUNTY Enter the county in which the business site is located.
 109. BUSINESS OPERATOR NAME Enter the name of the business operator.
 110. BUSINESS OPERATOR PHONE Enter business operator's phone number including any extension, if different from the business phone.
 111. OWNER NAME Enter name of the business owner, if different from the business operator.
 112. OWNER PHONE Enter the business owner's phone number if different from the business phone, area code first, and any extension.
 113. OWNER MAILING ADDRESS Enter the owner's mailing address if different from the business site address.
 114. OWNER CITY Enter the name of the city for the owner's mailing address.
 115. OWNER STATE Enter the 2 character state abbreviation for the owner's mailing address.
 116. OWNER ZIP CODE Enter the zip code for the owner's address. The extra 4 digits in the zip code may also be added.
 117. ENVIRONMENTAL CONTACT NAME Enter the name of the person, if different from the Business Owner or Operator, who receives all environmental correspondence and will respond to enforcement activity.
 118. CONTACT PHONE Enter the phone number at which the environmental contact can be contacted including any extension.
 119. CONTACT MAILING ADDRESS Enter the mailing address where all environmental contact correspondence should be sent.
 120. CITY Enter the name of the city for the environmental contact's mailing address.
 121. STATE Enter the 2 character state abbreviation for the environmental contact's mailing address.
 122. ZIP CODE Enter the zip code for the environmental contact's mailing address. The extra 4 digit s in the zip code may also be added.
 123. PRIMARY EMERGENCY CONTACT NAME Enter the name of a representative that can be contacted in case of an emergency involving hazardous materials at the business site. The contact shall have FULL facility access, site familiarity, and authority to make decisions for the business regarding incident mitigation.
 124. TITLE Enter the title of the primary emergency contact.
 125. BUSINESS PHONE Enter the business number for the primary emergency contact, area code first, and any extensions.
 126. 24-HOUR PHONE Enter a 24-hour phone number for the primary emergency contact. The 24-hour phone number must be one answered 24 hours a day. If it is not the contact's home phone number, then the service answering the phone must be able to immediately contact the individual stated above.
 127. PAGER NUMBER Enter the pager number for the primary emergency contact, if available.
 128. SECONDARY EMERGENCY CONTACT NAME Enter the name of a secondary representative that can be contacted in the event that the primary emergency contact is not available. The contact shall have FULL facility access, site familiarity, and authority to make decisions for the business regarding incident mitigation.
 129. TITLE Enter the title of the secondary emergency contact.
 130. BUSINESS PHONE Enter the business telephone number for the secondary emergency contact, area code first, and any extension.
 131. 24-HOUR PHONE Enter a 24-hour phone number for the secondary emergency contact. The 24 hour phone number must be one which is answered 24 hours a day. If it is not the contact's home phone number, then the service answering the phone must be able to immediately contact the individual stated above.
 132. PAGER NUMBER Enter the pager number for the secondary emergency contact, if available.
 - 133a. UNINCORPORATED AREA Check "Yes" if your facility is located in an unincorporated area of the County (ex. East LA, Marina Del Rey etc.).
 - 133b. DESCRIPTION OF BUSINESS Enter description of business (auto body shop, steel fabrication, welding shop, chemical storage, etc.)
 - 133d. MAILING/BILLING ADDRESS Enter the address that all correspondence and bills should be sent.
 - 133e. MAILING/BILLING CITY Enter the city for the mailing/billing address.
 - 133f. MAILING/BILLING STATE Enter the 2 character state abbreviation for the mailing/billing address.
 - 133g. MAILING/BILLING ZIP CODE Enter the zip code for the mailing/billing address. The extra 4 digit s in the zip code may also be added.
 134. DATE Enter the date that the document was signed. (YYYYMMDD, ex. 1999/07/01)
 135. NAME OF DOCUMENT PREPARER Enter the full name of the person who prepared the inventory submittal information.
 136. NAME OF SIGNER Enter the full printed name of the person signing the page.
- SIGNATURE OF OWNER/ OPERATOR OR DESIGNATED REPRESENTATIVE The Business Owner/Operator, or officially designated representative of the Owner/Operator, shall sign in the space provided. This signature certifies the signer is familiar with the information submitted, and based on the signer's inquiry of those individuals responsible for obtaining the information, it is the signer's belief that the information is true, accurate and complete.
137. TITLE OF SIGNER Enter the title of the person signing the page.

DICE 00786

UNIFIED PROGRAM CONSOLIDATED FORM HAZARDOUS MATERIALS INVENTORY – CHEMICAL DESCRIPTION

(One page per material per building or area)

 ADD

 DELETE

 REVISE

REPORTING YEAR

200

Page of

I. FACILITY INFORMATION

 BUSINESS NAME (Same as FACILITY NAME or DBA – Doing Business As) **AIR LIQUIDE AMERICA CORPORATION** 3

 CHEMICAL LOCATION 201 CHEMICAL LOCATION CONFIDENTIAL (EPCRA) YES NO 202

 FACILITY ID # 1 9 0 4 9 1 MAP# (optional) 1 GRID# (optional) 204
 Fire Dept use only SHOP BLDG.

II. CHEMICAL INFORMATION

 CHEMICAL NAME **ACETYLENE** 205 TRADE SECRET Yes No 206
 If Subject to EPCRA, refer to instructions

 COMMON NAME **ACETYLENE** 207 EHS* Yes No 208

 CAS# **74-86-2** 209 *If EHS is "Yes", all amounts below must be in lbs.

 FIRE CODE HAZARD CLASSES (Complete if required by CUPA) **1-4-3** 210

 HAZARDOUS MATERIAL TYPE (Check one item only) a. PURE b. MIXTURE c. WASTE 211 RADIOACTIVE Yes No 212 CURIES 213

 PHYSICAL STATE (Check one item only) a. SOLID b. LIQUID c. GAS 214 LARGEST CONTAINER **200** 215

 FED HAZARD CATEGORIES (Check all that apply) a. FIRE b. REACTIVE c. PRESSURE RELEASE d. ACUTE HEALTH e. CHRONIC HEALTH 216

 AVERAGE DAILY AMOUNT 217 **300** MAXIMUM DAILY AMOUNT 218 **300** ANNUAL WASTE AMOUNT 219 **N/A** STATE WASTE CODE 220 **N/A**

 UNITS* (Check one item only) a. GALLONS b. CUBIC FEET c. POUNDS d. TONS 221 DAYS ON SITE: **365** 222
 *If EHS, amount must be in pounds.

 STORAGE CONTAINER a. ABOVE GROUND TANK e. PLASTIC/NONMETALLIC DRUM i. FIBER DRUM m. GLASS BOTTLE q. RAIL CAR
 b. UNDERGROUND TANK f. CAN j. BAG n. PLASTIC BOTTLE r. OTHER
 c. TANK INSIDE BUILDING g. CARBOY k. BOX o. TOTE BIN
 d. STEEL DRUM h. SILO l. CYLINDER p. TANK WAGON 223

 STORAGE PRESSURE a. AMBIENT b. ABOVE AMBIENT c. BELOW AMBIENT 224

 STORAGE TEMPERATURE a. AMBIENT b. ABOVE AMBIENT c. BELOW AMBIENT d. CRYOGENIC 225

%WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS #
1		<input type="checkbox"/> Yes <input type="checkbox"/> No	
2		<input type="checkbox"/> Yes <input type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information.

 NFPA 704 Hazard Identification System	246	Health	Fire	Reactivity	Specific hazard	How is material used? (stored, welding, lubricant, etc.)
	1	4	3		WELDING	

If EPCRA, Please Sign Here
 (Facilities reporting Chemicals subject to EPCRA reporting thresholds must sign each Chemical Description page for each EPCRA reported chemical.)

OFFICIAL USE ONLY			DATE RECEIVED			REVIEWED BY		
DIV	BN	STA	OTHER	DISTRICT	CUPA	PA		

Hazardous Materials Inventory - Chemical Description

Complete a separate Hazardous Materials Inventory - Chemical Description page for each hazardous material (hazardous substances and hazardous waste) handled at your facility in aggregate quantities equal to or greater than 500 pounds, 55 gallons, 200 cubic feet of gas (calculated at standard temperature and pressure), or the federal threshold planning quantity for Extremely Hazardous Substances, whichever is less. Also, complete a page for each radioactive material handled over quantities for which an emergency plan is required by 10 CFR Parts 30, 40, or 70. Completed inventories should reflect all reportable quantities of hazardous materials at your facility, reported **separately** for each building or outside adjacent area, with **separate** pages for unique occurrences of physical state, storage temperature and storage pressure. Please, number all pages of your submittal.

1. FACILITY ID NUMBER This number is assigned by the CUPA. This is the unique number which identifies your facility.
3. BUSINESS NAME Enter the full legal name of the business.
200. ADD/DELETE/ REVISE Indicate if the material is being added to the inventory, deleted from the inventory, or if the information previously submitted is being revised. NOTE: You may choose to leave this blank if you resubmit your entire inventory annually.
201. CHEMICAL LOCATION Enter the building or outside/ adjacent area where the hazardous material is handled. A chemical that is stored at the same pressure and temperature, in multiple locations within a building, can be reported on a single page. NOTE: This information is not subject to public disclosure pursuant to HSC § 25506.
202. CHEMICAL LOCATION CONFIDENTIAL - EPCRA All businesses which are subject to the Emergency Planning and Community Right to Know Act (EPCRA) must check "Yes" to keep chemical location information confidential; otherwise, check "No".
203. MAP NUMBER If a map is included, enter the number of the map on which the location of the hazardous material is shown.
204. GRID NUMBER If grid coordinates are used, enter the grid coordinates of the map that correspond to the location of the hazardous material.
205. CHEMICAL NAME Enter the proper chemical name associated with the Chemical Abstract Service (CAS) number of the hazardous material. This should be the International Union of Pure and Applied Chemistry (IUPAC) name found on the Material Safety Data Sheet (MSDS). NOTE: If the chemical is a mixture, do not complete this field; instead, complete the "COMMON NAME" field.
206. TRADE SECRET - Check "Yes" if the information in this section is declared a trade secret, or "No" if it is not.
State requirement: If yes, and the business is not subject to EPCRA, disclosure of trade secret information is bound by HSC § 25511.
Federal requirement: If yes, and the business is subject to EPCRA, disclosure of the designated Trade Secret information is bound by 40 CFR, and the business must submit a "Substantiation to Accompany Claims of Trade Secrecy" form (40 CFR 350.27) to U.S. EPA.
207. COMMON NAME Enter the common name or trade name of the hazardous material or mixture containing a hazardous material.
208. EHS Check "Yes" if the hazardous material is an Extremely Hazardous Substance (EHS), as defined in 40 CFR, Part 355, Appendix A. If the material is a mixture containing an EHS, leave this section blank and complete the section on hazardous components below.
209. CAS # Enter the Chemical Abstract Service number for the hazardous material. For mixtures, enter the CAS number of the mixture only if it has a number; otherwise, leave this blank and report CAS numbers of the individual hazardous components in the appropriate section below.
210. FIRE CODE HAZARD CLASSES This information shall be provided if the local fire chief deems it necessary and requests the CUPA or PA to collect it. A list of the hazard classes and instructions on how to determine which class a material falls under are found in the appendices of Article 80 of the Uniform Fire Code. If a material has more than one hazard class, include all. Contact CUPA or PA for guidance.
211. HAZARDOUS MATERIAL TYPE Check the one box that best describes the type of hazardous material: pure, mixture or waste. If the substance is a waste, check only that box. If the substance is a mixture or waste, complete the hazardous components section.
212. RADIOACTIVE Check "Yes" if the hazardous material is radioactive or "No" if it is not.
213. CURIES. If the material is radioactive, report the activity in curies; use up to nine digits with a floating decimal point to report activity in curies.
214. PHYSICAL STATE Check the one box that best describes the state in which the hazardous material is handled: solid, liquid or gas.
215. LARGEST CONTAINER Enter the total capacity of the largest container in which the material is stored.
216. FEDERAL HAZARD CATEGORIES Check all categories that describe the physical and health hazards associated with the hazardous material.
Fire: Flammable Liquids and Solids, Combustible Liquids, Pyrophorics, and Oxidizers.
Pressure Release: Explosives, Compressed Gases, and Blasting Agents.
Acute Health (Immediate): Highly Toxic, Toxic, Irritants, Sensitizers, Corrosives, and other chemicals with an adverse effect with short term exposure.
Reactive: Unstable Reactive, Organic Peroxides, Water Reactive, and Radioactive.
Chronic Health (Delayed): Carcinogens, Teratogens, Mutagens, and other chemicals with an adverse effect with long term exposure.
217. AVERAGE DAILY AMOUNT Calculate the average daily amount of the hazardous material or mixture containing a hazardous material, in each building or adjacent/ outside area. Calculations shall be based on the previous year's inventory of the material reported on this page.
218. MAXIMUM DAILY AMOUNT Enter the maximum amount of each hazardous material or mixture containing a hazardous material, which is handled in a building or adjacent/outside area at any one time over the course of the year.
219. ANNUAL WASTE AMOUNT If the hazardous material being inventoried is a waste, provide an estimate of the annual amount handled.
220. STATE WASTE CODE If the material is a waste, enter the California 3-digit hazardous waste code from the Uniform Hazardous Waste Manifest.
221. UNITS Check the unit of measure that is most appropriate for the material being reported on this page: gallons, pounds, cubic feet or tons. NOTE: If the material is a federally defined Extremely Hazardous Substance (EHS), all amounts must be reported in pounds. If material is a mixture containing an EHS, report the units that the material is stored in (gallons, pounds, cubic feet, or tons).
222. DAYS ON SITE List the total number of days during the year that the material is on site.
223. STORAGE CONTAINER Check all boxes that describe the type of storage containers in which the hazardous material is stored. NOTE: If appropriate, you may choose more than one.
224. STORAGE PRESSURE Check the one box that best describes the pressure at which the hazardous material is stored.
225. STORAGE TEMPERATURE Check the one box that best describes the temperature at which the hazardous material is stored.
226. HAZARDOUS COMPONENTS 1-5 (% BY WEIGHT) Enter the percentage weight of the hazardous component in a mixture. If a range of percentages is available, report the highest percentage in that range. (Report components 2 - 5 in boxes 230, 234, 238, and 242.)
227. HAZARDOUS COMPONENTS 1-5 NAME When reporting a hazardous material mixture, list up to five chemical names of hazardous components in that mixture by percent weight (refer to MSDS or, in the case of trade secrets, refer to manufacturer). All hazardous components in the mixture present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, should be reported. If more than five hazardous components are present above these percentages, attach an additional sheet of paper to capture the required information. When reporting waste mixtures, list mineral and chemical composition. (Report components 2 - 5 in boxes 231, 235, 239, and 243.)
228. HAZARDOUS COMPONENTS 1-5 EHS Check "Yes" if the component of the mixture is considered an Extremely Hazardous Substance as defined in 40 CFR, Part 355, or "No" if it is not. (Report components 2 - 5 in boxes 232, 236, 240, and 244.)
229. HAZARDOUS COMPONENTS 1-5 CAS List Chemical Abstract Service numbers of the hazardous components in the mixture. (Repeat for 2-5.)
246. NFPA 704 Hazard Identification System numbers can be found on the MSDS for a particular material, from the supplier or from the NFPA 704 Standard. This identification system specifies the hazards associated with materials. The blue, red, and yellow fields (health, flammability, and reactivity) all use a numbering scale ranging from 0 to 4. A value of zero means that the material poses essentially no hazard; a rating of four indicates extreme danger. The fourth value (associated with white) tends to be more variable, both in meaning and in what letters or numbers are written there.
247. Specify how this material is used in your facility.

UNIFIED PROGRAM CONSOLIDATED FORM HAZARDOUS MATERIALS INVENTORY - CHEMICAL DESCRIPTION

(one page per material per building or area)

ADD DELETE REVISE REPORTING YEAR 201 | Page 4 of 4

I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As) **AIR LIQUIDE AMERICA CORPORATION** 3

CHEMICAL LOCATION 201 **9756 SANTA FE SPRINGS RD. SANTA FE SPRINGS, CA.** 202
 CHEMICAL LOCATION CONFIDENTIAL (EPCRA) YES NO

FACILITY ID # 1 203 MAP# (optional) **2** 204 GRID# (optional) **SHOP BLDG.**

II. CHEMICAL INFORMATION

CHEMICAL NAME 205 **NITROGEN, GASEOUS** 206 TRADE SECRET Yes No
If Subject to EPCRA, refer to instructions

COMMON NAME 207 **NITROGEN** 206 EHS* Yes No

CAS# 209 **7727-37-9** 209 *If EHS is "Yes", all amounts below must be in lbs.

FIRE CODE HAZARD CLASSES (Complete if required by CUPA) **0-0-0-SA** 210

HAZARDOUS MATERIAL TYPE (Check one item only) 211 a. PURE b. MIXTURE c. WASTE 212 RADIOACTIVE Yes No 213 CURIES

PHYSICAL STATE (Check one item only) 214 a. SOLID b. LIQUID c. GAS 215 LARGEST CONTAINER

FED HAZARD CATEGORIES (Check all that apply) 216 a. FIRE b. REACTIVE c. PRESSURE RELEASE d. ACUTE HEALTH e. CHRONIC HEALTH

AVERAGE DAILY AMOUNT 217 **3,600** 219 MAXIMUM DAILY AMOUNT **4,200** 219 ANNUAL WASTE AMOUNT **N/A** 220 STATE WASTE CODE **N/A**

UNITS* (Check one item only) 221 a. GALLONS b. CUBIC FEET c. POUNDS d. TONS 222 DAYS ON SITE: **365**

STORAGE CONTAINER 225
 a. ABOVE GROUND TANK e. PLASTIC/NONMETALLIC DRUM i. FIBER DRUM m. GLASS BOTTLE q. RAIL CAR
 b. UNDERGROUND TANK f. CAN j. BAG n. PLASTIC BOTTLE r. OTHER
 c. TANK INSIDE BUILDING g. CARBOY k. BOX o. TOTE BIN
 d. STEEL DRUM h. SILO l. CYLINDER p. TANK WAGON

STORAGE PRESSURE 224 a. AMBIENT b. ABOVE AMBIENT c. BELOW AMBIENT

STORAGE TEMPERATURE 225 a. AMBIENT b. ABOVE AMBIENT c. BELOW AMBIENT d. CRYOGENIC

#	%WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS #
1	226		<input type="checkbox"/> Yes <input type="checkbox"/> No 228	229
2	230		<input type="checkbox"/> Yes <input type="checkbox"/> No 232	235
3	234		<input type="checkbox"/> Yes <input type="checkbox"/> No 236	237
4	238		<input type="checkbox"/> Yes <input type="checkbox"/> No 240	241
5	242		<input type="checkbox"/> Yes <input type="checkbox"/> No 244	245

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information.

HOW IS MATERIAL USED (stored, welding, lubricant, etc.) 246
STORED / EQUIP DICE 00790

If EPCRA, Please Sign Here
 (Facilities reporting Chemicals subject to EPCRA reporting thresholds must sign each Chemical Description page for each EPCRA reported chemical.)

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UNIFIED PROGRAM CONSOLIDATED FORM HAZARDOUS MATERIALS INVENTORY - CHEMICAL DESCRIPTION

(one page per material per building or area)

 ADD

 DELETE

 REVISE

REPORTING YEAR

200

Page 2 of 3

I. FACILITY INFORMATION

 BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As) **AIR LIQUIDE AMERICA CORPORATION**

 CHEMICAL LOCATION **9756 SANTA FE SPRINGS RD. SANTA FE SPRINGS, CA**

 CHEMICAL LOCATION CONFIDENTIAL (EPCRA) YES NO

 FACILITY ID # _____ MAP# (optional) **1**

 GRID# (optional) **MAINTENANCE GARAGE**

II. CHEMICAL INFORMATION

 CHEMICAL NAME **OXYGEN, GASEOUS**

 TRADE SECRET Yes No
If Subject to EPCRA, refer to instructions

 COMMON NAME **OXYGEN**

 EHS* Yes No

 CAS# **7782-44-7**

*If EHS is "Yes", all amounts below must be in lbs.

 FIRE CODE HAZARD CLASSES (Complete if required by CUPA) **0-0-0-0X**

 HAZARDOUS MATERIAL TYPE (Check one item only) a. PURE b. MIXTURE c. WASTE

 RADIOACTIVE Yes No

CURIES

 PHYSICAL STATE (Check one item only) a. SOLID b. LIQUID c. GAS

 LARGEST CONTAINER **200**

 FED HAZARD CATEGORIES (Check all that apply) a. FIRE b. REACTIVE c. PRESSURE RELEASE d. ACUTE HEALTH e. CHRONIC HEALTH

 AVERAGE DAILY AMOUNT **400**

 MAXIMUM DAILY AMOUNT **800**

 ANNUAL WASTE AMOUNT **N/A**

 STATE WASTE CODE **N/A**

 UNITS* (Check one item only) a. GALLONS b. CUBIC FEET c. POUNDS d. TONS
* If EHS, amount must be in pounds

 DAYS ON SITE: **365**

 STORAGE CONTAINER: a. ABOVE GROUND TANK b. UNDERGROUND TANK c. TANK INSIDE BUILDING d. STEEL DRUM e. PLASTIC/NONMETALLIC DRUM f. CAN g. CARBOY h. SILO i. FIBER DRUM j. BAG k. BOX l. CYLINDER m. GLASS BOTTLE n. PLASTIC BOTTLE o. TOTE BIN p. TANK WAGON q. RAIL CAR r. OTHER

 STORAGE PRESSURE a. AMBIENT b. ABOVE AMBIENT c. BELOW AMBIENT

 STORAGE TEMPERATURE a. AMBIENT b. ABOVE AMBIENT c. BELOW AMBIENT d. CRYOGENIC

#	%WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS #
1	226		<input type="checkbox"/> Yes <input type="checkbox"/> No	229
2	230		<input type="checkbox"/> Yes <input type="checkbox"/> No	235
3	234		<input type="checkbox"/> Yes <input type="checkbox"/> No	237
4	238		<input type="checkbox"/> Yes <input type="checkbox"/> No	241
5	242		<input type="checkbox"/> Yes <input type="checkbox"/> No	245

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information.

 HOW IS MATERIAL USED (stored, welding, lubricant, etc.) **WELDING**

If EPCRA, Please Sign Here
(Facilities reporting Chemicals subject to EPCRA reporting thresholds must sign each Chemical Description page for each EPCRA reported chemical.)

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**UNIFIED PROGRAM CONSOLIDATED FORM
HAZARDOUS MATERIALS INVENTORY - CHEMICAL DESCRIPTION**

(one page per material per building or area)

ADD

DELETE

REVISE

REPORTING YEAR

200 | Page 3 of 3

I. FACILITY INFORMATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As) **AIR LIQUIDE AMERICA CORPORATION**

CHEMICAL LOCATION

9756 SANTA FE SPRINGS RD. SANTA FE SPRINGS, CA

CHEMICAL LOCATION CONFIDENTIAL (EPCRA) YES NO

FACILITY ID #

MAP# (optional)

GRID# (optional)

MAINTENANCE GARAGE

II. CHEMICAL INFORMATION

CHEMICAL NAME

ARGON GASEOUS

TRADE SECRET

Yes No

If Subject to EPCRA, refer to instructions

COMMON NAME

ARGON

EHS*

Yes No

CAS#

7440-37-1

*If EHS is "Yes", all amounts below must be in lbs

FIRE CODE HAZARD CLASSES (Complete if required by CUPA)

0-0-0 SA

HAZARDOUS MATERIAL TYPE (Check one item only)

a. PURE b. MIXTURE c. WASTE

RADIOACTIVE

Yes No

CURIES

PHYSICAL STATE (Check one item only)

a. SOLID b. LIQUID c. GAS

LARGEST CONTAINER

200

FED HAZARD CATEGORIES (Check all that apply)

a. FIRE b. REACTIVE c. PRESSURE RELEASE d. ACUTE HEALTH e. CHRONIC HEALTH

AVERAGE DAILY AMOUNT

800

MAXIMUM DAILY AMOUNT

1,000

ANNUAL WASTE AMOUNT

N/A

STATE WASTE CODE

N/A

UNITS*

a. GALLONS b. CUBIC FEET c. POUNDS d. TONS

(Check one item only)

* If EHS, amount must be in pounds

DAYS ON SITE:

365

STORAGE CONTAINER

a. ABOVE GROUND TANK e. PLASTIC/NONMETALLIC DRUM i. FIBER DRUM m. GLASS BOTTLE q. RAIL CAR
 b. UNDERGROUND TANK f. CAN j. BAG n. PLASTIC BOTTLE r. OTHER
 c. TANK INSIDE BUILDING g. CARBOY k. BOX o. TOTE BIN
 d. STEEL DRUM h. SILO l. CYLINDER p. TANK WAGON

STORAGE PRESSURE

a. AMBIENT b. ABOVE AMBIENT c. BELOW AMBIENT

STORAGE TEMPERATURE

a. AMBIENT b. ABOVE AMBIENT c. BELOW AMBIENT d. CRYOGENIC

%WT	HAZARDOUS COMPONENT (For mixture or waste only)	EHS	CAS #
1		<input type="checkbox"/> Yes <input type="checkbox"/> No	
2		<input type="checkbox"/> Yes <input type="checkbox"/> No	
3		<input type="checkbox"/> Yes <input type="checkbox"/> No	
4		<input type="checkbox"/> Yes <input type="checkbox"/> No	
5		<input type="checkbox"/> Yes <input type="checkbox"/> No	

If more hazardous components are present at greater than 1% by weight if non-carcinogenic, or 0.1% by weight if carcinogenic, attach additional sheets of paper capturing the required information.

HOW IS MATERIAL USED (stored, welding, lubricant, etc.)

WELDING

If EPCRA, Please Sign Here

(Facilities reporting Chemicals subject to EPCRA reporting thresholds must sign each Chemical Description page for each EPCRA reported chemical.)

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**Unified Program (UP) Form
CONSOLIDATED CONTINGENCY PLAN**

SECTION I: EMERGENCY RESPONSE PLANS AND PROCEDURES

EMERGENCY CONTACTS			
The name(s) and title(s) of the person(s) responsible for authorizing any work necessary under this response plan.			
PRIMARY		SECONDARY	
NAME	123	NAME	128
JERRY BEESON		DAVE JONES	
TITLE	124	TITLE	129
EMERGENCY RESPONDER		FIELD SERVICE MANAGER	
BUSINESS PHONE	125	BUSINESS PHONE	130
		502-906-8738	
FOIA ex 6, Personal Privacy		FOIA ex 6, Personal Privacy	

A. Notifications

Your business is required by State Law to provide an immediate verbal report of any release or threatened release of a hazardous material to local fire emergency response personnel, this Unified Program Agency (CUPA or PA), and the Office of Emergency Services. If you have a release or threatened release of hazardous materials, immediately call:
 FIRE/PARAMEDICS/POLICE/SHERIFF
 PHONE: 911

AFTER the local emergency response personnel are notified, you shall then notify this office and the Office of Emergency Services.

Santa Fe Springs Fire Department: (562) 944-9715
 State Office of Emergency Service: (800) 852-7550 or (916) 262-1621
 National Response Center: (800) 424-8802 (for quantities greater than their reportable quantities)

Information to be provided during Notification:

- ❖ Your name and the telephone number from where you are calling.
- ❖ Exact address of the release or threatened release.
- ❖ Date, time, cause, and type of incident (e.g. fire, air release, spill etc.)
- ❖ Material and quantity of the release, to the extent known.
- ❖ Current condition of the facility.
- ❖ Extent of injuries, if any.
- ❖ Possible hazards to public health and/ or the environment outside of the facility.

B. Emergency Medical Facility

List the local emergency medical facility that will be used by your business in the event of an accident or injury caused by a release or threatened release of hazardous material

HOSPITAL/CLINIC: HEALTH FIRST MEDICAL	PHONE NO: -
ADDRESS: 11817 EAST TELEGRAPH	
CITY: SANTA FE SPRING, CA	ZIP CODE: 90607

DICE 00793

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**Unified Program (UP) Form
CONSOLIDATED CONTINGENCY PLAN**

SECTION I: EMERGENCY RESPONSE PLANS AND PROCEDURES

C. Private Emergency Response			
DOES YOUR BUSINESS HAVE A PRIVATE ON-SITE EMERGENCY RESPONSE TEAM? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, provide an attachment that describes what policies and procedures your business will follow to notify your on-site emergency response team in the event of a release or threatened release of hazardous materials.			
DOES YOUR BUSINESS HAVE A CLEANUP/DISPOSAL CONTRACTOR? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, list the contractor(s) that will provide cleanup/disposal services.			
Contractor		Contractor	
Address	City	Address	
Phone ()	24 Hr Phone ()	Phone ()	24 Hr Phone ()
D. Arrangements With Emergency Responders			
If you have made special (i.e. contractual) arrangements with any police department, fire department, hospital, contractor, or State or local emergency response team to coordinate emergency services, describe those arrangements on the lines below:			
ALTHOUGH WE HAVE NO CONTRACTURAL ARRANGEMENT WITH POLICE OR FIRE DEPARTMENT, WE HAVE ASSUMED THAT THESE AGENCIES WILL RESPOND IN THE EVENT OF AN EMERGENCY			
E. Evacuation Plan			
1. The following alarm signal(s) will be used to begin evacuation of the facility (check all which apply): <input checked="" type="checkbox"/> Verbal <input type="checkbox"/> Telephone (including cellular) <input type="checkbox"/> Alarm System <input type="checkbox"/> Public Address System <input type="checkbox"/> Intercom <input type="checkbox"/> Pagers <input type="checkbox"/> Portable Radio <input type="checkbox"/> Other (specify):			
2. <input checked="" type="checkbox"/> Evacuation map is prominently displayed throughout the facility.			
3. <input checked="" type="checkbox"/> Individual(s) responsible for coordinating evacuation including spreading the alarm and confirming the business has been evacuated: DAVE JONES, STEVE LONG			
F. Earthquake Vulnerability			
Identify areas of the facility where releases could occur or would require immediate inspection or isolation because of the vulnerability to earthquake related ground motion. (check all which apply):			
<input type="checkbox"/> Hazardous Waste/ Hazardous Materials Storage Areas	<input type="checkbox"/> Production Floor	<input type="checkbox"/> Process Lines	
<input type="checkbox"/> Bench/ Lab	<input type="checkbox"/> Waste Treatment	<input type="checkbox"/> Other:	
Identify mechanical systems where releases could occur or would require immediate inspection or isolation because of the vulnerability to earthquake related ground motion. (check all which apply):			
<input checked="" type="checkbox"/> Utilities	<input type="checkbox"/> Sprinkler Systems	<input type="checkbox"/> Cabinets	<input type="checkbox"/> Shelves
<input type="checkbox"/> Racks	<input type="checkbox"/> Pressure Vessels	<input type="checkbox"/> Gas Cylinders	<input type="checkbox"/> Tanks
<input type="checkbox"/> Process Piping	<input type="checkbox"/> Shutoff Valves	<input type="checkbox"/> Other:	

DICE 00794

Unified Program (UP) Form
CONSOLIDATED CONTINGENCY PLAN

SECTION I: EMERGENCY RESPONSE PLANS AND PROCEDURES

G. Emergency Procedures
Briefly describe your business standard operating procedures in the event of a release or threatened release of hazardous materials:
1. PREVENTION (prevent the hazard) – Describe what is done to prevent a release or threatened release of hazardous materials (e.g. discussion of safety and storage procedures)
A COMPLETE MONTHLY FACILITY SAFETY INSPECTION IS CONDUCTED
TO ENSURE ALL CYLINDER GASES AND OPERATING EQUIPMENT ARE
SECURED AND MAINTAINED
2. MITIGATION (reduce the hazard) – What is your immediate response to a leak, spill, fire, explosion, or airborne release (e.g. absorbent on spills, use of fire extinguisher, closing of valves, etc.)
ALL EMPLOYEES MUST EVACUATE THE FACILITY WHEN THE ALARM IS
SOUNDED. EMPLOYEES MUST RESPOND TO THE DESIGNATED ASSEMBLY AREA TO
AWAIT FURTHER INSTRUCTIONS
OUTSIDE EMERGENCY AGENCIES SHALL BE CONTACTED IMMEDIATELY IF AN EVACUATION
IS REQUIRED DURING THE EMERGENCY
3. ABATEMENT (remove the hazard) – Describe what you would do to remove any released material (e.g. clean up company, absorb spill and containerize)
AIR LIQUIDE AMERICA TRAINED EMERGENCY RESPONSE TEAM WILL WORK IN
CONJUNCTION WITH THE APPROPRIATE HAZARDOUS MATERIAL AGENCIES TO
PROPERLY REMOVE, DISPOSE OF ANY MATERIAL FOUND TO BE CONTAMINATED
AT THE SCENE

DICE 00795

**Unified Program (UP) Form
CONSOLIDATED CONTINGENCY PLAN**

SECTION I: EMERGENCY RESPONSE PLANS AND PROCEDURES

Emergency Equipment			
22 CCR, Section 66265.52(e) [as referenced by Section 66262.34(a)(3)] requires that emergency equipment at the facility be listed. Completion of the following Emergency Equipment Inventory Table meets this requirement.			
EMERGENCY EQUIPMENT INVENTORY TABLE			
1. Equipment Category	2. Equipment Type	3. Location *	4. Description**
Personal Protective, Equipment, Safety Equipment, and First Aid Equipment	<input type="checkbox"/> Cartridge Respirators		
	<input type="checkbox"/> Chemical Monitoring Equipment (describe)		
	<input type="checkbox"/> Chemical Protective Aprons/Coats		
	<input type="checkbox"/> Chemical Protective Boots		
	<input type="checkbox"/> Chemical Protective Gloves		
	<input type="checkbox"/> Chemical Protective Suits (describe)		
	<input type="checkbox"/> Face Shields		
	<input checked="" type="checkbox"/> First Aid Kits/Stations (describe)	OFFICE	LOCATED WITHIN ADMIN. OFFICE
	<input type="checkbox"/> Hard Hats		
	<input type="checkbox"/> Plumbed Eye Wash Stations		
	<input type="checkbox"/> Portable Eye Wash Kits (i.e. bottle type)		
	<input type="checkbox"/> Respirator Cartridges (describe)		
	<input type="checkbox"/> Safety Glasses/Splash Goggles		
	<input type="checkbox"/> Safety Showers		
Fire Extinguishing Systems	<input type="checkbox"/> Self-Contained Breathing Apparatuses (SCBA)		
	<input type="checkbox"/> Other (describe)		
	<input type="checkbox"/> Automatic Fire Sprinkler Systems		
	<input type="checkbox"/> Fire Alarm Boxes/Stations		
Spill Control Equipment and Decontamination Equipment	<input checked="" type="checkbox"/> Fire Extinguisher Systems (describe)	OFFICE	LOCATED THROUGHOUT FACILITY
	<input type="checkbox"/> Other (describe)		
	<input type="checkbox"/> Absorbents (describe)		
	<input type="checkbox"/> Berms/Dikes (describe)		
	<input type="checkbox"/> Decontamination Equipment (describe)		
	<input type="checkbox"/> Emergency Tanks (describe)		
	<input type="checkbox"/> Exhaust Hoods		
	<input type="checkbox"/> Gas Cylinders Leak Repair Kits (describe)		
	<input type="checkbox"/> Neutralizers (describe)		
	<input type="checkbox"/> Overpack Drums		
Communications and Alarm Systems	<input type="checkbox"/> Sumps (describe)		
	<input type="checkbox"/> Other (describe)		
	<input type="checkbox"/> Chemical Alarms (describe)		
	<input type="checkbox"/> Intercoms/ PA Systems		
	<input type="checkbox"/> Portable Radios		
Additional Equipment (Use Additional Pages if Needed.)	<input checked="" type="checkbox"/> Telephones	OFFICE	THROUGHOUT OFFICES
	<input type="checkbox"/> Underground Tank Leak Detection Monitors		
	<input type="checkbox"/> Other (describe)		
NOTE: AIR LIQUIDE AMERICA EMERGENCY RESPONSE EQUIPPED TRAILER IS NOW LOCATED AT: 8832 DICE ROAD SANTA FE SPRINGS, CA.			

DICE 00796

* Use the Location Codes (LC) from the Site Map(s) prepared for your Contingency Plan.

** Describe the equipment and its capabilities. If applicable, specify any testing/maintenance procedures/intervals. Attach additional pages, numbered appropriately, if needed.

**Unified Program (UP) Form
CONSOLIDATED CONTINGENCY PLAN**

SECTION II: TRAINING

EMPLOYEE TRAINING

All facilities that handle hazardous materials must have a written employee training plan. A blank plan has been provided below for you to complete and submit. The items listed below are required per Health and Safety Code Section 25504 (c) and Title 19 Section 2732.

Facility personnel are trained as follows:

❖	Familiarity with all plans and procedures specified in the Contingency Plan.
❖	Methods for Safe Handling of Hazardous Materials.
❖	Safety procedures in the event of a release or threatened release of a hazardous material.
❖	Use of Emergency Response equipment and supplies under the control of the business.
❖	Procedures for Coordination with local Emergency Response Organizations.

Training shall be provided:

- ❖ Initially for all new employees.
- ❖ Annually, including refresher courses, for all employees.

Note: These training programs may take into consideration the position of each employee.

Additional training should include:

- ❖ Internal alarm/notification procedures.
- ❖ Evacuation/re-entry procedures and assembly point locations.
- ❖ Material Safety Data Sheet (MSDS) training including specific hazard(s) of each chemical to which employees may be exposed, including routes of exposure (*i.e. inhalation, ingestion, absorption*).

HAZARDOUS WASTE GENERATOR TRAINING

If your business is a hazardous waste generator, you are required to provide training in hazardous waste management for all workers who handle hazardous waste at your site (22 CCR §66265.16). You are also required to document training. The items below are required.

EMPLOYEE TRAINING	
❖	Facility personnel will successfully complete training within six months after the date of their employment or assignment to a facility or to a new position at a facility.
❖	Employees will not handle hazardous wastes without supervision until trained.
TRAINING DOCUMENTATION	
The owner or operator must maintain the following documents and records at the facility:	
❖	Job title for each position at the facility that is related to hazardous waste management, and the names of the employee(s) filling the position(s).
❖	Description for each position listed above (must include required skill, education, or other qualifications as well as duties of employees assigned to the position).
❖	Description of <i>type</i> and <i>amount</i> of both introductory and continuing training given to each employee.
❖	Records that document that the requirements for training or job experience have been met.
❖	Current employees' training records (to be retained until closure of the facility).
❖	Former employees' training records (to be retained at least three years after termination of employment).

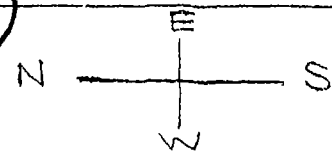
DICE 00797

SITE MAP 1 of 1

BUSINESS NAME AIR LIQUIDE AMERICA

SITE ADDRESS 9756 SANTA FE SPRINGS RD
SANTA FE SPRINGS, CA

DATE 12-07-0



NO LONGER OCCUPIED
BY AIR LIQUIDE AMERICA



PARKING

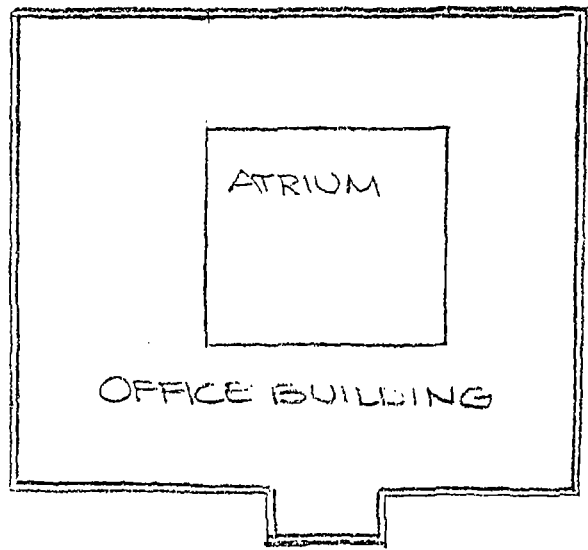
PARKING

CRYOGENIC
TRANSPORT
TRAILERS

E/S
EVACUATION AND
STAGING AREA

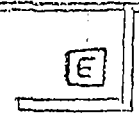
PARKING

PARKING



OFFICE BUILDING

PARKING



CYLINDERS
OXYGEN



ACETYLENE

SHOP
BUILDING

000
CYLINDERS

ENTRANCE

FACILITY MAP # 1

ENTRANCE

SANTA FE SPRINGS ROAD

AIR LIQUIDE AMERICA
9756 SANTA FE SPRINGS R
SANTA FE SPRINGS

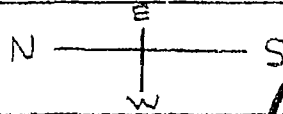
DICE 00798

SITE MAP 1 of ____

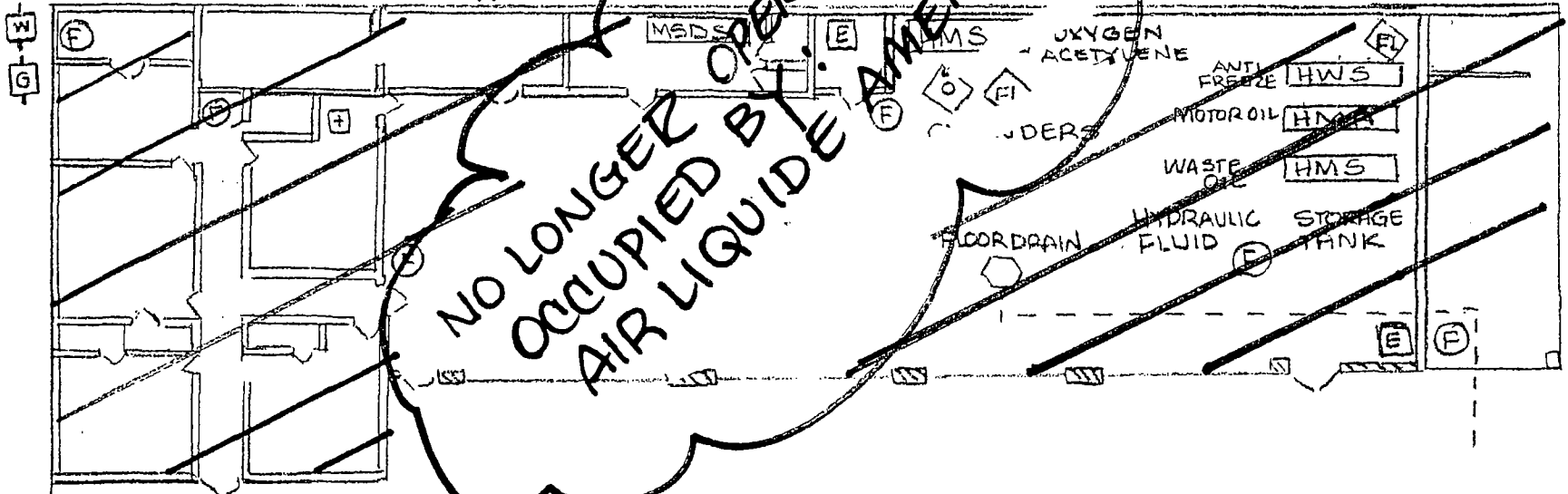
BUSINESS NAME

SITE ADDRESS 9756 SANTA FE SPRINGS RD
SANTA FE SPRINGS, CA

DATE 12-07-0



NO LONGER OPERATED OR
OCCUPIED BY
AIR LIQUIDE AMERICA



PARKING

FACILITY MAP #2

E/S

EVACUATION
AND STAGING
AREA

ENTRANCE



PARKING
CRYOGENIC TRANSPORT TRAILERS

PARKING
CRYOGENIC TRANSPORT TRAILERS

SCALE 1" = 15'

SANTA FE SPRINGS ROAD

DICE 00799

**AIR LIQUIDE AMERICA CORPORATION
9756 SANTA FE SPRINGS ROAD
SANTA FE SPRINGS, CA. 90670**

EMERGENCY EVACUATION/ CONTINGENCY PLAN

Date: December 11, 2000

1. PURPOSE

The purpose of this plan is to provide employees, the community, and the environment with prompt and safe emergency procedures designed to reduce the risk of injury, property, and/or environmental loss due to natural phenomenon, and industrial incidents, such as a fire or an unplanned release of hazardous material. This plan ensures facility compliance with elements contained in the California's Hazardous Materials Business Plan and Cal-OSHA's Emergency Action Plan. Key elements of the Plan include preventative measures, the emergency response team and their responsibilities, emergency response procedures and other relevant information

At no time will an employee be expected to perform activities that put themselves or other's health and safety in jeopardy. At all times, personal safety will take precedence over the protection of company property.

2. FACILITY EMERGENCY ACTION PLAN

The Santa Fe Springs facility has prepared and implemented a written facility emergency response plan readily available for reference, with employees thoroughly trained in it's application. The plan defines all responsibilities and lines of authority with the most qualified individual on the site in ultimate control of all responders. The plan also provides for integration of outside emergency response and should the need arise, the handing over and subsequent control of the incident to outside sources (i.e. local fire chief).

Copies of the Plan shall be located and/or posted at the Reception Area, Plant Area, with the Emergency Coordinator and Plant Manager, and others as designated.

3. EMERGENCY RESPONSE TEAM AND RESPONSIBILITIES

3.1 Emergency Coordinator (EC)

The EC has overall responsibility for coordinating all emergency control measures and shall receive reports of all pertinent events and/or circumstances from other emergency response members. The EC manages the incident command post and is in charge of directing specific, appropriate emergency actions, including evacuation, response, communication procedures, and shutdown of plant operations when necessary.

The EC shall have competency in the following areas:

- 1) Know how to implement the facility's Emergency Response Plan.
- 2) Know and be able to implement the facility's incident command post.

DICE 00800

- 6) Turn off electrical equipment if time permits, including shutting down ventilation system to prevent spread of fire and smoke to other areas.

3.4 **Employee Responsibilities**

- 1) Know how to identify emergency situations in your work area.
- 2) Know in-house emergency telephone numbers and how to report.
- 3) Know how to use alarms or warning systems.
- 4) Know your evacuation coordinator.
- 5) Know primary and alternate evacuation routes.
- 6) Know location of evacuation assembly area.
- 7) Know locations of fire extinguishers and how to use them.

In the event of an emergency, all employees not designated as having responsibility for the facility's Emergency Response Plan shall immediately stop what they are doing and evacuate to the assembly area and remain there until told otherwise by authorized personnel.

3.5 **First Aid/CPR trained Personnel**

- 1) All medically trained personnel shall have received and completed training from medically qualified and certified institutions within the last year.
- 2) Prior to an emergency, CPR/First Aid trained personnel should be familiar with the location and types of first aid supplies present at the facility.
- 3) In the event of an emergency, CPR/First Aid responders will be expected to attend injured personnel.

3.6 **Fire Suppression Personnel**

- 1) Personnel shall have received and completed training on the proper use of fire suppression equipment, such as fire extinguishers.
- 2) Personnel shall be thoroughly familiar with location of fire suppression equipment at the facility.
- 3) Personnel shall be aware of the types of fires that can be "safely" controlled and those that cannot.

3.7 **Production Personnel to Shutdown Equipment/Processes**

DICE 00801

- 3) Determining whether or not an emergency requiring activation of emergency action procedures exists.
- 4) Know the locations, quantities, and hazards of hazardous materials/wastes at the facility.
- 5) Know how to assess the possible hazards to human health or the environment that may result from a chemical release, fire, or explosion.
- 6) Know of the facility's fire suppression systems capabilities and limitations.

In the event off-site assistance is required, the EC shall order that assistance and be prepared to facilitate its completion. The emergency coordinator shall also be prepared to hand over emergency response activities to local, state, and federal agencies, as the situation dictates.

3.2 **Communication Coordinator/Dispatch (CC)**

The role of the CC is essentially to ensure effective communication between emergency response personnel and incident command post, EC and outside emergency personnel.

- 1) The CC shall maintain a phone number listing of all emergency response agencies and company emergency response team members and place calls as instructed by the EC.
- 2) The CC shall be stationed at the incident command post and will interface with all external parties in an emergency, including the fire department, paramedics, police department, and others.
- 3) The CC must be reliable, constantly available, and have immediate access to outside phone lines.

3.3 **Evacuation Coordinator (EvC)**

The EvC will have responsibilities as follows:

- 1) Maintain roster of all personnel in their designated area of responsibility (i.e. Office Area or Plant Area).
- 2) Be familiar with facility's Emergency Response Plan.
- 3) Ensure safe and proper evacuation of personnel in designated area.
- 4) Verify headcount against roster at assembly area and account for any missing personnel. Report missing personnel to emergency coordinator.
- 5) Maintain personnel at assembly area, until instructed otherwise by incident command post.

- 1) Any employee operating equipment when an emergency occurs shall cease work and shut down equipment or process if necessary and safe to do so, and then evacuate to the designated assembly area.
- 2) Employees shall be familiar with location of emergency disconnects and alarm/ shutdown systems.
- 3) Employees shall be familiar with the Emergency Response Plan.

4.0 EMERGENCY RESPONSE PROCEDURES

As soon as an emergency situation arises which could compromise the health and safety of personnel or cause significant environmental or property damage, the individual who first identifies the problem should notify their shift supervisor. The shift supervisor will then notify the emergency coordinator and the communication coordinator whom will then initiate the Emergency Response Plan.

Note: All employees are authorized to activate the emergency shutdown alarm if they deem it necessary to protect employees, in the event of an earthquake, explosion, fire in acetylene plant, or toxic gas release.

The Emergency Coordinator will direct specific, appropriate emergency actions.

The Communication Coordinator will contact necessary outside emergency personnel as instructed by the Emergency Coordinator. The CC will then proceed to the location entrance to control access and direct emergency response personnel (i.e. fire department, etc.).

The CC will maintain the visitors' log, which will be used by the Office Area Evacuation Coordinator to take headcount.

4.1.1 Evacuation Plan

In the event the alarm sound, all employees whom are not part of the emergency response team are to evacuate the facility via the safest, pre-designated exit routes to the assembly area, located at the front entrance. Contractors and visitors will also evacuate to the assembly area.

Employees shall wait at the assembly area until a headcount is taken by the evacuation coordinator. Any employee not accounted for will immediately be reported to the emergency coordinator and outside emergency personnel who will attempt to locate missing personnel.

Employees may not leave assembly area until they have been accounted for and are authorized to leave by the emergency coordinator and/or outside emergency personnel.

Note: Any employee who leaves the assembly area without being accounted for may be responsible for emergency personnel attempting a dangerous search and rescue on their behalf.

4.1.2 Shelter-In-Place Evacuation

Shelter-in-place evacuation will be used when emergencies, such as a toxic chemical release, prevent a safe evacuation to exterior areas. This will be determined by the Emergency Coordinator who will direct location personnel to report to the Front Office. Personnel already in a safe refuge, such as in the Production Office, may remain there to avoid additional exposure.

During shelter-in-place evacuation, exterior doors to the Office Areas should remain closed. Ventilation equipment is to be shutdown by the Evacuation Coordinator.

4.2 Fire Suppression/Explosions

Should a fire occur, the emergency coordinator shall be notified and the emergency response plan implemented.

Only trained personnel will attempt to control or extinguish fires using location's fire fighting equipment (i.e. fire extinguishers).

Trained personnel shall not attempt to control any fire that cannot be safely fought. This includes the following:

- * Interior structural fires.
- * A fire which demands use of personal protective and respiratory equipment.
- * Any fire where there is no clear path of egress from the affected area.
- * Chemical fires.
- * Fire that may result in explosion.
- * Any other fire that cannot be safely fought.

Again, the Evacuation Plan would be carried out if the alarm sounds or if directed by the EC.

In the event of a fire, designated personnel shall shut off gas, electricity, and any product pumps if required.

Endangered vehicles and equipment should be moved to a safe area if this can be done without endangering personnel.

4.3 Medical Emergency

The EC and the CC will be contacted should a medical emergency occur.

Note: Any employee may use their discretion to contact 911 in a medical emergency if they deem necessary.

Numerous personnel at the facility have been trained and certified in CPR and First Aid procedures to effectively respond to the needs of injured personnel or medical emergencies. A list of trained personnel is posted with the Emergency Response Plan.

Trained personnel will administer CPR or first aid as necessary using first aid supplies provided.

In the event of a medical emergency, outside assistance will be requested by contacting 911.

Injured personnel not in imminent danger should not be moved. Wait for outside medical assistance to arrive.

4.4 Toxic Gas or Chemical Release/Spill

- 1) Ensure that the employee assembly area selected is upwind of the toxic gas leak to protect personnel. If necessary, evacuate all personnel to a safe area outside of the facility using routes and exits that avoid the hazard area.
- 2) Rescuing an unconscious person in a leak area should only be attempted by trained personnel wearing an SCBA and necessary protective equipment.
- 3) Contact Air Liquide's emergency response network via CHEMTREC at 1-800-424-9300 and the local emergency response agency at 562-944-9713 (local fire dept.)
- 4) Never re-enter affected area until it is ventilated and determined to be safe by qualified personnel. A list of Air Liquide's emergency response team members is included with the Plan and will be maintained by the CC

Note: Only qualified and trained personnel can attempt to respond to a toxic gas release.

- 5) Spills of liquid hazardous materials, such as oil, fuel, and solvents, will be cleaned up by trained personnel using absorbent material and necessary personal protective equipment. Absorbent materials would be used to dike and contain spilled materials

and spilled material and absorbent would be disposed of according to federal and state hazardous waste disposal requirements.

4.5 Flammable Gas Release

- 1) Remove all sources of ignition from area of leak.
- 2) Shut off source of gas, if possible.
- 3) If a flammable gas cylinder is leaking, move it to an open area away from sources of ignition, oxygen or other flammable if this can be done safely.

4.6 Earthquake

Preventative and preparedness, response, and recovery procedures are outlined in Air Liquide America Corporation's Region Safety Manual, Section 51. Employees are trained regarding these procedures.

5.0 PREVENTION AND PREPAREDNESS

Emergency Coordinator or designate personnel shall ensure that all emergency equipment is inspected and maintained so that they will function properly in an emergency.

Fire extinguishers shall be inspected monthly and serviced annually.

Fire sprinkler systems shall be inspected, maintained, and serviced in accordance with applicable regulations to ensure proper operation should a fire occur.

Alarm and shutdown systems shall be maintained in accordance with applicable regulations to ensure that they operate properly in an emergency.

First aid and disaster supplies shall be inspected and maintained to ensure that they are readily adequate and readily available in an emergency.

A monthly safety inspection will be conducted to ensure that any safety hazards or defects regarding safety and emergency equipment are identified and corrected in a timely manner.

Cylinders shall be secured in a manner that will not prevent personnel from evacuating the site and accessing emergency equipment.

Plant personnel are instructed to adhere to standard operating procedures at all times. Personnel are encouraged to work safely and monthly safety meetings are held to provide on-going safety training and maintain safety awareness and address safety concerns and issues present at the facility.

Plant personnel are trained in proper handling of hazardous materials and wastes. Personnel are familiar with requirement to maintain separation of incompatible materials, such as oxidizers and flammables.

Plant personnel are informed of the importance of good housekeeping towards preventing accidents and spills.

Safety equipment, such as eye wash/safety showers, spill containment equipment, monitoring devices, crash posts, warning signs, proper labeling, etc., are located throughout the facility. A list of the types of safety and fire suppression equipment is included in this Plan.

Note: Facility utilizes Air Liquide America Corporation's Region Safety Manual which outlines various safety procedures, such as handling and storage of compressed and liquefied gases and other hazardous materials, maintenance and inspection of safety and fire suppression equipment, and other safe operating procedures that all employees must adhere to.

6.0 EMPLOYEE TRAINING

- 1) All employees shall receive and complete training, at least annually, regarding their role and responsibilities in the implementation of the location's Emergency Response Plan. Training shall also include evacuation plans, alarm systems, reporting procedures, shutdown procedures, and types of potential emergencies.
- 2) All employees shall be familiar with the location's Emergency Response Plan.
- 3) All employees shall participate in emergency drills that will be conducted annually.
- 4) Employees with designated roles on the Emergency Response Team will receive training to ensure competency.
- 5) Training on the Plan will be conducted initially when new employees are hired.
- 6) Additional training will be provided whenever new equipment, materials, or processes are introduced or when procedures are updated or revised or when emergency exercises show that employee performance is inadequate.
- 7) Employees shall be familiar with locations and associated hazards involved with hazardous materials present at the facility.
- 8) Employees receive training regarding the company's Hazard Communication program, including labeling requirements and use and location of material safety data sheets for hazardous materials located at the facility.

7.0 POST EMERGENCY PROCEDURES

Contact Area Health, Safety & Environmental Specialist and Corporate HSE Department, if this has not already been done.

An investigation of an incident, if appropriate, will be conducted by the Area HSE Specialist and the facility's Emergency Response Team. A written report of the incident will be prepared and distributed to affected personnel (i.e. location personnel, Plant Manager, MSC Department, Corporate HSE Department).

The Area HSE Specialist or designated personnel will notify and report to local, state, and federal agencies as required by law, following an emergency incident.

The Emergency Coordinator shall inspect and inventory emergency equipment used and request replacement items as necessary.

The Emergency Response Team and the Area HSE Specialist shall meet in order to critique the response and determine what changes or improvements, if any, need to occur in the system to ensure a more effective response in the future.



County of Los Angeles Department of Health Services
 Public Health Programs & Services-Environmental Health
 Cross-Connection & Water Pollution Control Program
 5050 Commerce Drive, Baldwin Park, CA 91706-1423
 (626) 430-5290 FAX (626) 813-3025

January 15, 2003

AIR LIQUIDE CORPORATION
 INDUSTRIAL GASES DIVISION
 PLANT MANAGER
 8832 S. DICE ROAD
 SANTA FE SPRINGS, CA 90670

*PA 1/24/03
 PC CK # 1964*

FIRM #. 59

On September 2, 2002 the Los Angeles County Board of Supervisors passed an ordinance amending Title 8 of the Los Angeles County Code which approves the establishment of a Department of Health Services fee of \$14 per device to recover costs associated with the monitoring of backflow prevention devices by the Environmental Health's Cross-Connection and Water Pollution Control Program. The Cross-Connection and Water Pollution Control Program monitors backflow prevention devices installed on public water systems, which ensures the exclusion of contaminants from entering the local water supply.

Questions regarding this bill can be directed to the office of the Cross-Connection and Water Pollution Control Program at (626) 430-5292 between 8:00 a.m. and 5:00 p.m.

Please remit by check

\$42.00 payable to the **County of Los Angeles**
 and mail to:

3 Device(s) @ \$14.00 per device = \$42.00
 Late penalty assessed if not received by due date 10.50
 Total due if received after due date \$52.50

Los Angeles County Department of Health Services
 Fiscal Services
 5555 Ferguson Dr., Suite 100-50
 Commerce, CA 90022

PLEASE WRITE **FIRM #: 59** ON CHECK

Due Date: March 31, 2003

Please cut off at dotted line and send upper portion of this page with remittance.

FIRM #: 59

FIRM NAME: AIR LIQUIDE CORPORATION

3 Device(s) @ \$14.00 per device = \$42.00

#	DEVICE #	MANUFACTURER	SERIAL #	LOCATION ADDRESS	CITY	DEV LOC
1	276	FEBCO	AC1045	8832 DICE ROAD	SANTA FE SPRINGS	FRONT OF PROPERTY AT PARKWAY-IRRIGATION
2	68942	FEBCO	AD-5014	8832 DICE ROAD	SANTA FE SPRINGS	INDUSTRIAL GAS PRODUCTION BUILDING-NORTH SIDE
3	68943	FEBCO	AB-4395	8832 DICE ROAD	SANTA FE SPRINGS	HYDROSTATIC TESTING/PAINT BOOTH-SOUTH SIDE OF PAINT SHOP

DICE 00809

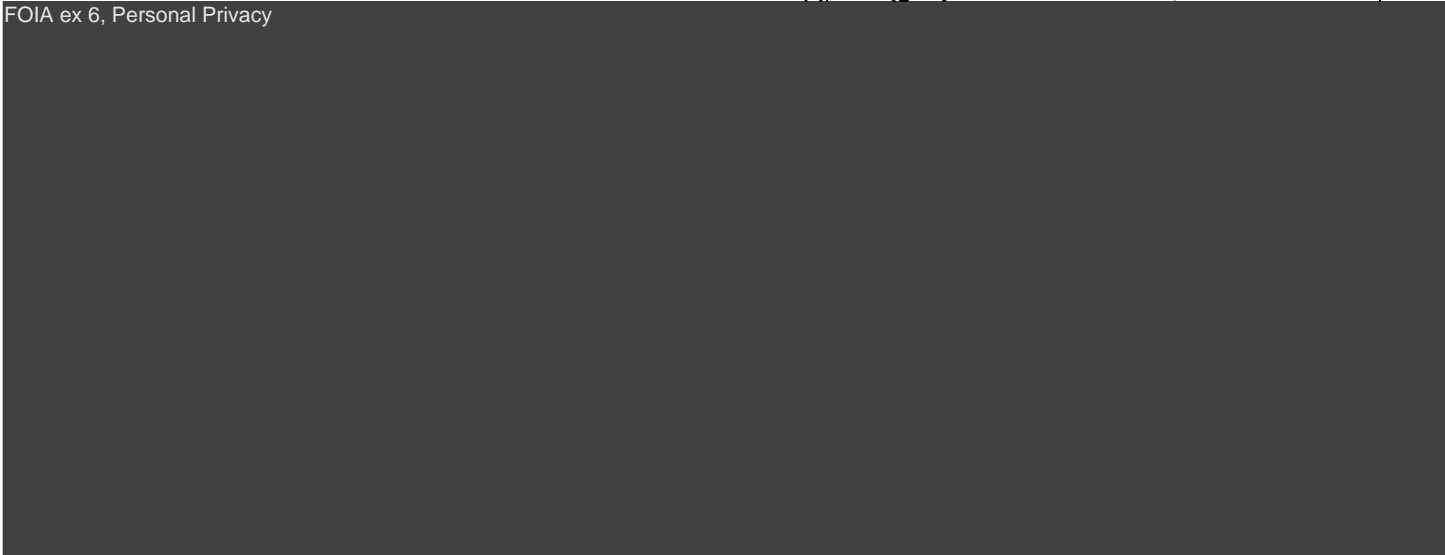


County of Los Angeles Department of Health Services
 Public Health Programs & Services-Environmental Health
 Cross-Connection & Water Pollution Control Program
 5050 Commerce Drive, Baldwin Park, CA 91706-1423
 (626) 430-5290 FAX (626) 813-3025

January 15, 2003

102
104

FOIA ex 6, Personal Privacy



Please remit by check

\$42.00 payable to the **County of Los Angeles**
 and mail to:

Los Angeles County Department of Health Services
 Fiscal Services
 5555 Ferguson Dr., Suite 100-50
 Commerce, CA 90022

3 Device(s) @ \$14.00 per device = \$42.00
 Late penalty assessed if not received by due date 10.50
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DICE 00810

NO 87551

STATE OF CALIFORNIA
DEPARTMENT OF INDUSTRIAL RELATIONS
DIVISION OF OCCUPATIONAL SAFETY AND HEALTH
PRESSURE VESSEL UNIT

P.O. Box 420603, SAN FRANCISCO, CA 94142

Permit to Operate Air Pressure Tank

TANK NO. 21808-92
NB 40549

Owner or User	Location of Tank
Air Liquide America Corp SANTA FE Springs Fill Plant	Yard- Bulk Storage Area

This Permit to Operate shall be kept conspicuously posted under glass on or near the tank or at a convenient location near the tank, and shall be made available to any authorized person.

This Permit expires

- three years from date of inspection
- five years from date of inspection

July 26, 2002
DATE OF INSPECTION

Labor Code, Division 5, Part 6

NAME OF INSPECTOR

Deborah M. Adams

EMPLOYED BY

ACE-USA

(NAME OF INSPECTION AGENCY)

THIS IS TO CERTIFY that the above described Air Pressure Tank has been inspected by the Division of Industrial Safety and may be operated at a pressure not to exceed 547.1 pounds per square inch.

DICE 00811

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
21865 East Copley Drive, Diamond Bar, CA 91765

PERMIT TO OPERATE

page 1
Permit No.
P15616
A/N 343310

This instrument is issued under the authority of the Air Quality Management District. It is subject to the terms and conditions of the permit and the District's rules and regulations.

LEGAL OWNER
OR OPERATOR:

AIR LIQUIDE AMERICAN CORP
8832 DICE RD
SANTA FE SPRINGS, CA 90670-2540

ID 055690

Equipment Location: 8832 DICE RD, SANTA FE SPRINGS, CA 90670-2540

Equipment Description:

SPRAY BOOTH, SPRAYLINE TECHNOLOGIES, FLOOR TYPE, 8'-0" W. X 8'-0" L. X 7'-0" H., WITH SIXTEEN 20" X 20" EXHAUST FILTERS AND ONE 2 HP EXHAUST FAN.

Conditions:

- 1) OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
- 2) THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
- 3) THIS SPRAY BOOTH SHALL NOT BE OPERATED UNLESS ALL EXHAUST AIR PASSES THROUGH FILTER MEDIA AT LEAST 2 INCHES THICK.
- 4) THE TOTAL QUANTITY OF VOLATILE ORGANIC COMPOUND (VOC) EMISSIONS FROM THIS EQUIPMENT SHALL NOT EXCEED 30 POUNDS IN ANY ONE DAY.
- 5) THE OPERATOR SHALL COMPLY WITH RULE 109 (RECORDKEEPING FOR VOLATILE ORGANIC COMPOUND EMISSIONS).
- 6) IN ADDITION TO THE REQUIREMENTS OF RULE 109, THE OPERATOR SHALL KEEP ADEQUATE RECORDS FOR THIS EQUIPMENT TO VERIFY DAILY VOLATILE ORGANIC COMPOUND (VOC) EMISSIONS IN POUNDS AND THE VOC CONTENT OF EACH MATERIAL AS APPLIED (INCLUDING WATER AND EXEMPT COMPOUNDS). ALL RECORDS SHALL BE PREPARED IN A FORMAT WHICH IS ACCEPTABLE TO THE DISTRICT.
- 7) THIS EQUIPMENT SHALL BE OPERATED IN COMPLIANCE WITH RULES 1107 AND 1171.
- 8) COATINGS, ADHESIVES, INKS, REDUCERS, THINNERS, AND CLEAN-UP SOLVENTS USED IN THIS EQUIPMENT SHALL NOT CONTAIN ANY COMPOUNDS IDENTIFIED AS CARCINOGENIC AIR CONTAMINANTS IN RULE 1401 AS AMENDED DECEMBER 7, 1990.

1171 = solvent cleaning operations - N/A for SFS

Post-it® Fax Note	7671	Date	# of PAGES
To	<i>Josh</i>	From	
Co./Dept.		Co.	
Phone #		Phone #	
Fax #		Fax #	

DICE 00812



SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
21865 East Copley Drive, Diamond Bar, CA 91765
PERMIT TO OPERATE

page 2
Permit No
F15616
A/N 343310

CONTINUED ON PERMIT TO OPERATE

- 9) MATERIAL SAFETY DATA SHEETS FOR ALL COATINGS AND SOLVENTS USED AT THIS FACILITY SHALL BE KEPT CURRENT AND MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST.
- 10) CLEANUP MATERIAL USED IN THIS EQUIPMENT SHALL NOT CONTAIN ANY VOLATILE ORGANIC COMPOUNDS (VOC).
- 11) POWDER COATING SHALL NOT BE APPLIED IN THIS EQUIPMENT.

NOTICE

IN ACCORDANCE WITH RULE 206, THIS PERMIT TO OPERATE OR COPY SHALL BE POSTED ON OR WITHIN 8 METERS OF THE EQUIPMENT.

THIS PERMIT DOES NOT AUTHORIZE THE EMISSION OF AIR CONTAMINANTS IN EXCESS OF THOSE ALLOWED BY DIVISION 26 OF THE HEALTH AND SAFETY CODE OF THE STATE OF CALIFORNIA OR THE RULES OF THE AIR QUALITY MANAGEMENT DISTRICT. THIS PERMIT CANNOT BE CONSIDERED AS PERMISSION TO VIOLATE EXISTING LAWS, ORDINANCES, REGULATIONS OR STATUTES OF OTHER GOVERNMENT AGENCIES.

EXECUTIVE OFFICER

Dorris M. Bailey

By Dorris M. Bailey/lp
8/25/1998

FILE COPY

DICE 00813



South Coast
AIR QUALITY MANAGEMENT DISTRICT

21865 E. Copley Drive, Diamond Bar, CA 91765-4182 (909) 396-2000

NOVEMBER 16, 1993

ID - 096813
LIQUID AIR CORP
8832 DICE RD
SANTA FE SPRINGS CA 90670

OFFICIAL DOCUMENT

ANNUAL VALIDATION OF PERMIT TO OPERATE

Dear Permit Holder:

This letter is the official notice of renewal and acknowledgement of payment for the attached list of Permit(s) To Operate. Operation under this letter and the permit(s) which it renews must be conducted in compliance with all information included with the annual application as well as the initial permit conditions. The equipment must be maintained and kept in good condition at all times. Unless otherwise specifically stated, the original Permit To Operate remains in full force and effect, and must be retained in accordance with the rules and regulations of the South Coast Air Quality Management District.

For further information, or if you have any questions regarding this letter, please call Customer Service at (909) 396-2900.

Sincerely,

James M. Lents, Ph.D.
Executive Officer

Renewal(s) attached



SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

INVOICE

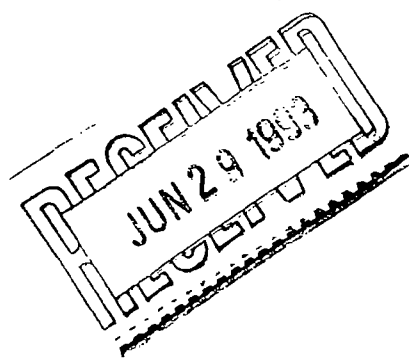
INVOICE NO. 055690-02-93

For Information Call - 909-396-2900
Mail Remittance To: P.O. Box 4943 Diamond Bar Ca. 91765-0943

California Health and Safety Code Section 40510 and South Coast Air Quality Management District Rule 30.1 authorizes the District to charge permit fees on the equipment identified below.

EQUIPMENT LOCATED AT: 8832 DICE RD
SANTA FE SPRINGS CA 90670-2540
INVOICE DATE: 06/23/93
ANNUAL BILL MONTH: JULY
LEGAL OWNER OR OPERATOR: LIQUID AIR CORP
CO. ID. 055690
8832 DICE RD
SANTA FE SPRINGS CA 90670-2540

Table with 6 columns: TRANSACTION NUMBER, TRANSACTION DATE, REFERENCE NUMBER, DESCRIPTION, TRANSACTION AMOUNT, TRANSACTION BALANCE. Rows include items like STORAGE TANK ACETONE, SPRAY BOOTH PAINT AND SOLVENT, ACETYLENE REACTION, ABRASIVE BLASTING, and DRY FILTER.



DICE 00815

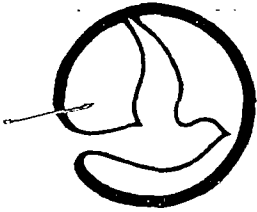
PLEASE RETURN THE DUPLICATE COPY OF THIS INVOICE WITH YOUR REMITTANCE TO ENSURE PROPER CREDIT TO YOUR ACCOUNT. IF YOU HAVE ANY QUESTIONS, PLEASE CALL (909) 396-2900.

BALANCE NOW DUE

\$1,407.00

Permit not received by 09/01/93 application/permit will be delinquent.
Permit not received by 10/01/93 application/permit will expire. Operation of equipment without a subjects owner or operator to misdemeanor or civil penalties for each day of operation.

duplicate copy with remittance. "Make check payable to South Coast A.Q.M.D."



South Coast
AIR QUALITY MANAGEMENT DISTRICT

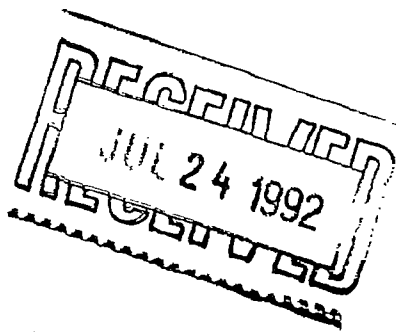
HEADQUARTERS, 9150 FLAIR DR., EL MONTE, CA 91731

JULY 16, 1992

ID - 055690
LIQUID AIR CORP
8832 DICE RD
SANTA FE SPRINGS CA 90670-2540

PERMIT RENEWALS

PERMIT NUMBER	DESCRIPTION	APPLIC NUMBER	EXPIRATION DATE
D13808	STORAGE TANK ACETONE	204680	07/16/93





South Coast
AIR QUALITY MANAGEMENT DISTRICT

HEADQUARTERS, 9150 FLAIR DR., EL MONTE, CA 91731

JULY 16, 1992

ID - 055690
LIQUID AIR CORP
8832 DICE RD
SANTA FE SPRINGS CA 90670-2540

OFFICIAL DOCUMENT

ANNUAL VALIDATION OF PERMIT TO OPERATE

DEAR PERMIT HOLDER:

THIS LETTER IS THE OFFICIAL NOTICE OF RENEWAL AND ACKNOWLEDGEMENT OF PAYMENT FOR THE ATTACHED LIST OF PERMIT(S) TO OPERATE. OPERATION UNDER THIS LETTER AND THE PERMIT(S) WHICH IT RENEWS MUST BE CONDUCTED IN COMPLIANCE WITH ALL INFORMATION INCLUDED WITH THE INITIAL APPLICATION AS WELL AS THE INITIAL PERMIT CONDITIONS. THE EQUIPMENT MUST BE MAINTAINED AND KEPT IN GOOD CONDITION AT ALL TIMES. UNLESS OTHERWISE SPECIFICALLY STATED, THE ORIGINAL PERMIT TO OPERATE REMAINS IN FULL FORCE AND EFFECT, AND MUST BE RETAINED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT.

FOR FURTHER INFORMATION, OR IF YOU HAVE ANY QUESTIONS REGARDING THIS LETTER, PLEASE CALL CUSTOMER SERVICE AT (714) 396-2900.

SINCERELY,

JAMES M. LENTS, PH.D.
EXECUTIVE OFFICER

RENEWAL(S) ATTACHED



PERMIT TO OPERATE

This initial permit must be renewed ANNUALLY unless the equipment is moved or changes ownership.
If the billing for annual renewal fee (Rule 301.1) is not received by the expiration date, contact the District.

LEGAL OWNER
OR OPERATOR:

AIR LIQUIDE AMERICAN CORP
8832 DICE RD
SANTA FE SPRINGS, CA 90670-2540

*09-05-98*1
09-03-98

ID:055690

Equipment Location: 8832 DICE RD, SANTA FE SPRINGS, CA 90670-2540

Equipment Description:

SPRAY BOOTH, SPRAYLINE TECHNOLOGIES, FLOOR TYPE, 8'-0" W. X 8'-0" L. X 7'-0" H., WITH SIXTEEN 20" X 20" EXHAUST FILTERS AND ONE 2 HP EXHAUST FAN.

Conditions:

- 1) OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN ACCORDANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
- 2) THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
- 3) THIS SPRAY BOOTH SHALL NOT BE OPERATED UNLESS ALL EXHAUST AIR PASSES THROUGH FILTER MEDIA AT LEAST 2 INCHES THICK.
- 4) THE TOTAL QUANTITY OF VOLATILE ORGANIC COMPOUND (VOC) EMISSIONS FROM THIS EQUIPMENT SHALL NOT EXCEED 30 POUNDS IN ANY ONE DAY.
- 5) THE OPERATOR SHALL COMPLY WITH RULE 109 (RECORDKEEPING FOR VOLATILE ORGANIC COMPOUND EMISSIONS).
- 6) IN ADDITION TO THE REQUIREMENTS OF RULE 109, THE OPERATOR SHALL KEEP ADEQUATE RECORDS FOR THIS EQUIPMENT TO VERIFY DAILY VOLATILE ORGANIC COMPOUND (VOC) EMISSIONS IN POUNDS AND THE VOC CONTENT OF EACH MATERIAL AS APPLIED (INCLUDING WATER AND EXEMPT COMPOUNDS). ALL RECORDS SHALL BE PREPARED IN A FORMAT WHICH IS ACCEPTABLE TO THE DISTRICT.
- 7) THIS EQUIPMENT SHALL BE OPERATED IN COMPLIANCE WITH RULES 1107 AND 1171.
- 8) COATINGS, ADHESIVES, INKS, REDUCERS, THINNERS, AND CLEAN-UP SOLVENTS USED IN THIS EQUIPMENT SHALL NOT CONTAIN ANY COMPOUNDS IDENTIFIED AS CARCINOGENIC AIR CONTAMINANTS IN RULE 1401 AS AMENDED DECEMBER 7, 1990.

DICE 00818

COPY
ORIGINAL



SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
21 East Copley Drive, Diamond Bar, CA 91765

PERMIT TO OPERATE

page 2
Permit No. F15616
A/N 343310

CONTINUATION OF PERMIT TO OPERATE

- 9) MATERIAL SAFETY DATA SHEETS FOR ALL COATINGS AND SOLVENTS USED AT THIS FACILITY SHALL BE KEPT CURRENT AND MADE AVAILABLE TO DISTRICT PERSONNEL UPON REQUEST.
- 10) CLEANUP MATERIAL USED IN THIS EQUIPMENT SHALL NOT CONTAIN ANY VOLATILE ORGANIC COMPOUNDS (VOC)
- 11) POWDER COATING SHALL NOT BE APPLIED IN THIS EQUIPMENT.

NOTICE

IN ACCORDANCE WITH RULE 206, THIS PERMIT TO OPERATE OR COPY SHALL BE POSTED ON OR WITHIN 8 METERS OF THE EQUIPMENT.

THIS PERMIT DOES NOT AUTHORIZE THE EMISSION OF AIR CONTAMINANTS IN EXCESS OF THOSE ALLOWED BY DIVISION 26 OF THE HEALTH AND SAFETY CODE OF THE STATE OF CALIFORNIA OR THE RULES OF THE AIR QUALITY MANAGEMENT DISTRICT THIS PERMIT CANNOT BE CONSIDERED AS PERMISSION TO VIOLATE EXISTING LAWS, ORDINANCES, REGULATIONS OR STATUTES OF OTHER GOVERNMENT AGENCIES.

EXECUTIVE OFFICER

Dorris M. Bailey

By Dorris M. Bailey/lp
8/25/1998

COPY

DICE 00819

ORIGINAL



SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

EMISSIONS FEES INVOICE

INVOICE
1393271

COPY

PAGE: 1

California Health and Safety Code Section 40510 and South Coast Air Quality Management District Rule 301(e) authorize AQMD to charge the fee described below.

EQUIPMENT LOCATED AT: 8832 DICE RD
SANTA FE SPRINGS, CA, 90670

INVOICE DATE: 05/16/02

FACILITY ID: 55690

LEGAL OWNER OR OPERATOR: AIR LIQUIDE AMERICAN CORP
8832 DICE RD
SANTA FE SPRINGS, CA, 90670

ORIGINAL INVOICE

TRANSACTION NUMBER	TRANSACTION DATE	REFERENCE NUMBER	DESCRIPTION	TRANSACTION AMOUNT	TRANSACTION BALANCE
6303636	05/16/02	FY02-03	Flat Annual Emissions Fee 30600 0002 43511 533 [Signature] 5/28	75.00	75.00

REMARKS
PLEASE RETURN THE DUPLICATE COPY OF THIS INVOICE WITH YOUR REMITTANCE TO ENSURE PROPER CREDIT TO YOUR ACCOUNT. RETURNED CHECKS MAY BE SUBJECT TO A \$27.74 SERVICE CHARGE.

INVOICE TOTAL: \$75.00

If payment not received by 07/16/02 a 5% late payment penalty will be imposed.

Please return duplicate copy with remittance. Make check payable to South Coast A.Q.M.D.

For Information: Inside California Call Our Toll-Free Number (866) 888-8838 Or Call (909) 396-2900. Outside California Call (909) 396-2900 Only.
Mail Remittance to: P.O. Box 4943 Diamond Bar CA, 91765-0943

DICE 00820



SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ANNUAL OPERATING FEES INVOICE

copy

INVOICE NO.
1392060

PAGE 1

California Health and Safety Code Section 40510 and South Coast Air Quality Management District Rule 301 authorizes AQMD to charge permit fees on the equipment identified below.

EQUIPMENT: 8832 DICE RD
LOCATED AT: SANTA FE SPRINGS, CA, 90670

INVOICE DATE: 05/16/02

FACILITY ID: 55690

LEGAL OWNER: AIR LIQUIDE AMERICAN CORP
OR OPERATOR: 8832 DICE RD
SANTA FE SPRINGS, CA, 90670

DUPLICATE COPY

TRANSACTION NUMBER	TRANSACTION DATE	REFERENCE NUMBER	DESCRIPTION	TRANSACTION AMOUNT	TRANSACTION BALANCE
6301492	05/16/02	F15616	SPRAY BOOTH PAINT AND SOLVENT	195.89	195.89
6301491	05/16/02	D13808	STORAGE TANK ACETONE	195.89	195.89
<p>30600 0002 43511 933</p> <p><i>Whitcomb</i> 5/28</p> <p>ACETONE TANK WAS REMOVED!</p>					

REMARKS

PLEASE RETURN THE DUPLICATE COPY OF THIS INVOICE WITH YOUR REMITTANCE TO ENSURE PROPER CREDIT TO YOUR ACCOUNT. RETURNED CHECKS MAY BE SUBJECT TO A \$27.74 SERVICE CHARGE.

INVOICE TOTAL: ~~\$391.78~~ ^{195.89}

DICE 00821

If payment not received by 07/16/02 application/permit will be delinquent.
If payment not received by 08/16/02 application/permit will expire. Operation of equipment without a permit subjects owner or operator to misdemeanor or civil penalties for each day of operation.

Please return duplicate copy with remittance. Make check payable to South Coast A.Q.M.D.

For Information: Inside California Call Our Toll-Free Number (866) 888-8838 Or Call (909) 396-2900. Outside California Call (909) 396-2900 Only.

Mail Remittance to: P.O. Box 4943 Diamond Bar CA, 91765-0943



SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

EMISSIONS FEES INVOICE

INVOICE NO:
1222080

PAGE: 1

California Health and Safety Code Section 40510 and South Coast Air Quality Management District Rule 301(e) authorize AQMD to charge the fee described below.

EQUIPMENT 8832 DICE RD
LOCATED AT: SANTA FE SPRINGS, CA, 90670
FACILITY ID: 55690

INVOICE
DATE: 06/13/01

LEGAL OWNER AIR LIQUIDE AMERICAN CORP
OR OPERATOR: 8832 DICE RD
SANTA FE SPRINGS, CA, 90670

EXOS-2

ORIGINAL INVOICE

TRANSACTION NUMBER	TRANSACTION DATE	REFERENCE NUMBER	DESCRIPTION	TRANSACTION AMOUNT	TRANSACTION BALANCE																
5962164	06/13/01	EmiFlat	Flat Annual Emissions Fee	37.50	37.50																
70-401392-57SR																					
<table border="1"> <thead> <tr> <th>LOCATION</th> <th>ACTIVITY</th> <th>NATURAL ACCOUNT</th> <th>PRODUCT LINE</th> </tr> </thead> <tbody> <tr> <td>30600</td> <td>0002</td> <td>43511</td> <td>933</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>						LOCATION	ACTIVITY	NATURAL ACCOUNT	PRODUCT LINE	30600	0002	43511	933								
LOCATION	ACTIVITY	NATURAL ACCOUNT	PRODUCT LINE																		
30600	0002	43511	933																		
APPROVAL:																					

REMARKS

PLEASE RETURN THE DUPLICATE COPY OF THIS INVOICE WITH YOUR REMITTANCE TO ENSURE PROPER CREDIT TO YOUR ACCOUNT. RETURNED CHECKS MAY BE SUBJECT TO A \$26.75 SERVICE CHARGE.

INVOICE TOTAL: \$37.50

If payment not received by 08/16/01 a 5% late payment penalty will be imposed.

Please return duplicate copy with remittance. Make check payable to South Coast A.Q.M.D.

For Information: Inside California Call Our Toll-Free Number (866) 888-8838 Or Call (909) 396-2900. Outside California Call (909) 396-2900 Only.

Mail Remittance to: P.O. Box 4943 Diamond Bar CA, 91765-0943

DICE 00822



Certified Mail Receipt:
7002 3150 0001 8451 1097

September 26, 2006

South Coast Air Quality Management District
2004-2005 Annual Emissions Report
File No-54493
Los Angeles, CA 90074-4493
Attn: Ali Ghasemi

Re: 2nd Notice of Delinquency

Dear Mr. Ghasemi:

Please find enclosed, the required reporting forms for the Air Liquide facility located at 8832 Dice Road, Sante Fe Springs, CA.

Thank you for your assistance if filing this information. Should you have any questions regarding the information submitted, please feel free to contact me at

FOIA ex 6, Personal Privacy

Sincerely,

Russell W. Kiesling
HSE Specialist

7002 3150 0001 8451 1097

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

For delivery information visit our website at www.usps.com

OFFICIAL USE

Postage	\$	Postmark Here
Certified Fee	\$	
Return Receipt Fee (Endorsement Required)	\$	
Restricted Delivery Fee (Endorsement Required)	\$	
Total Postage & Fees	\$	

Sent To: SC AQMD
Street, Apt. No., or PO Box No.: File # 54493
City, State, ZIP+4: LA CA - 90074-4493

PS Form 3800, June 2002 See Reverse for Instructions

AIR LIQUIDE AMERICA L.P.
2700 Post Oak Blvd., Suite 1800, Houston, TX 77056
Mailing Address: P. O. Box 460229; Houston, TX 77056-8229
Phone: 713/624-8000; Fax: 713/402-2096

DICE 00823

Fees Due Summary

	Submittal Date: No later than September 30, 2005	Total Permitted Emissions from Form C, Line 7 (tons)	Total Non-Permitted Emissions from Form CU, Line 7 (tons)	Total Emissions from Form CR (tons)	Total Emissions	Emission Fees Due
1	ORGANIC GASES	0.62	0.00		0	\$0.00
2	SPECIFIC ORGANICS	0.00			0	\$0.00
3	NITROGEN OXIDES	0.00			0	\$0.00
4	SULFUR OXIDES	0.00			0	\$0.00
5	CARBON MONOXIDE	0.00			0	\$0.00
6	PARTICULATE MATTER	0.04			0	\$0.00
1	TOTAL EMISSION FEES FOR ALL CRITERIA POLLUTANTS					\$0.00
2	TOXIC AIR CONTAMINANTS/OZONE DEPLETER FEES					\$0.00
3	TOTAL FEES DUE					\$0.00
4	Installments Paid For FY 2004-2005 (if any) -- All Criteria Pollutants					\$0.00
5	Installments Paid For FY 2004-2005 (if any) -- Toxic Air Contaminants/Ozone Depleters					\$0.00
6	Balance Due (Line 3 - Line 4 - Line 5)					\$0.00
7	Late Fee (if any)					\$0.00
8	Amount Due (Line 6 + Line 7)					\$0.00
9	Amount Enclosed (please write Facility ID#(s) and 2004-2005 AER on the check)					\$0.00

DICE 00824

Software Submittal Signature Sheet
Submittal Date : No later than 9/30/2005

Facility ID : 055690
SIC Code : 5169

EQUIPMENT LOCATION
Facility Name : Air Liquide America
Equipment Location : 8832 Dice Road
City : Sante Fe Springs

MAILING INFORMATION

Ilya Kazhokin
Plant Manager
Air Liquide America LP
8832 Dice Road
Sante Fe Springs, CA 90670-
Contact Telephone : 562 4641205 Ext:
Contact Fax : 562 4645262
Contact Email :
FOIA ex 6, Personal Privacy

BRIEF DESCRIPTION OF OPERATION

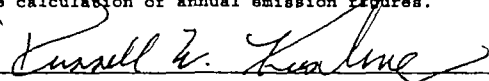
Industrial gas cylinder filling and bulk material handling

BUSINESS OPERATING HOURS

Hours per day : 16
Days per week : 5
Weeks per year : 52

I declare under penalty of perjury that the data submitted truly represents throughput and emissions for this reporting period, and that the emission factors represent the best available data for my company in the calculation of annual emission figures.

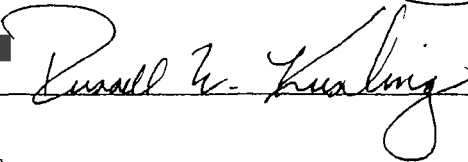
Authorized Signature



Date 9/26/06

Authorized Name : Kiesling Russell
Title : HSE Specialist
Phone : 713 4022111 Ext:
Fax : 713 8037051
Email :

Preparer Signature



Date 9/26/06

Preparer Name : Russell Kiesling
Preparer Title : HSE Specialist
Preparer Organization : Air Liquide America LP
Preparer Phone : 713 4022111 Ext:
Preparer Fax : 713 8037051
Preparer Email :

S.C.A Q.M.D reserves the right to audit the reported emissions. All records and calculations used in completing this summary are recommended to be retained a minimum of five years.

DICE 00825

List of Emission Sources

Row	Reference #	Emission Source Category Description	Contains TAC/ODC
1	B3-1	Material 991-Sher-Cryl HPA Acrylic	No
2	B4-1	Activity Code-36. Spraybooth - Particulate emissions	No
3			
4			
5			
6			
7			
8			
9			
10			

DICE 00826

Form A - Status Update, Exemption Request, and Refund Request

AGMD 2004-2005 AER

Facility ID : 055690
Facility Name : Air Liquide America

STATUS UPDATES

Shutdown Facility : not applicable
Change Of Ownership : not applicable
Change in Equipment Location : not applicable
Variance/Abatement Case Number : not applicable
Other Reason for Zero Emissions : not applicable

REFUND REQUEST

Request refund for overpayment : NO

EXEMPTION REQUEST

Request for exemption : Yes

USE OF ALTERNATIVE EMISSION FACTORS OR CALCULATION METHODOLOGIES

Not Applicable

CONTRACTOR INFORMATIONS

Not Applicable

DICE 00827

Annual Emissions Summary - Permitted

Row		Organic Gases (tons)	Methane (tons)	Specific Organics (tons)	Nitrogen Oxides (tons)	Sulfur Oxides (tons)	Carbon Monoxide (tons)	Particulate Matter (tons)
1	Form B1, DCB or AB							
2	Form B2							
3	B3 - W	0.31		0.00				
4	Form B4	0.31		0.00	0.00	0.00	0.00	0.04
5	Form E1							
6	Form R1							
7	Total Permitted Emissions	0.62	0.00	0.00	0.00	0.00	0.00	0.04

Organic Gases Emission Credit(s) :

Form B3 (pounds) = 620.16 lbs
 Form W (pounds) = 0.00 lbs

Form B3 (pounds) - Form W (pounds)
 620.16 - 0.00 = 620.16 lbs or 0.31 tons

DICE 00828

Annual Emissions Summary - Non-Permitted

Row		Organic Gases (tons)	Methane (tons)	Specific Organics (tons)	Nitrogen Oxides (tons)	Sulfur Oxides (tons)	Carbon Monoxide (tons)	Particulate Matter (tons)
1	Form B1U, DCB or AB							
2	Form B2U							
3	B3U - WU							
4	Form B4U							
5	Form E1U							
6	Form R1U							
7	Total Non-Permitted Emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Organic Gases Emission Credit(s) :

Form B3U (pounds) = 0.00 lbs
 Form WU (pounds) = 0.00 lbs

Form B3U (pounds) - Form WU (pounds)
 0.00 - 0.00 = 0.00 lbs or 0.00 tons

DICE 00829

Annual Emissions Summary from Refinery, Oil/Gas Production, Marketing and Chemical Plants - Permitted

Row		Organic Gases (tons)	Methane (tons)	Nitrogen Oxides (tons)	Sulfur Oxides (tons)	Carbon Monoxide (tons)	Particulate Matter (tons)
1	Form B6						
2	Form B7						
3	Form B8						
4	Form R2						
5	Form R3						
6	Form R4						
7	Form R5						
8	Form R6						
9	Form R7						
10	Form P1						
11	Form P2						
12	Form T1						
13	TOTAL EMISSIONS	0.00	0.00	0.00	0.00	0.00	0.00

DICE 00830

Annual Emissions Summary from Refinery, Oil/Gas Production, Marketing and Chemical Plants -
Non-Permitted

Row		Organic Gases (tons)	Methane (tons)
1	Form B7U		
2	Form B8U		
3	Form P1U		
4	Form P2U		
5	TOTAL EMISSIONS	0.00	0.00

DICE 00831

Toxic Air Contaminants and Ozone Depleters Emissions / Fee Summary

Row	TAC Code	Toxic Air Contaminants (TAC)/Ozone Depleters (ODC)	References	Annual Gross Emissions (lbs)	Recycling Credit (lbs)	Annual Net Emissions (lbs)	Fee (\$/lb)	Fee Due
1	32	Ammonia					\$0.02	
2	01	Asbestos					\$4.07	
3	02	Benzene					\$1.36	
4	03	Beryllium					\$4.07	
5	04	1,3-Butadiene					\$4.07	
6	05	Cadmium					\$4.07	
7	06	Carbon Tetrachloride					\$1.36	
8	07	Chlorinated Dioxins & Dibenzofurans					\$6.77	
9	08	1,4-Dioxane					\$0.29	
10	09	Ethylene Dibromide					\$1.36	
11	10	Ethylene Dichloride					\$1.36	
12	11	Ethylene Oxide					\$1.36	
13	12	Formaldehyde					\$0.29	
14	13	Hexavalent Chromium					\$5.42	
15	14	Inorganic Arsenic					\$4.07	
16	15	Lead					\$1.36	
17	16	Methylene Chloride					\$0.06	
18	17	Nickel					\$2.69	
19	18	Perchloroethylene					\$0.29	
20	19	Polynuclear Aromatic Hydrocarbons (PAHs)					\$4.07	
21	20	Trichloroethylene					\$0.12	
22	21	Vinyl Chloride					\$1.36	
23	22	Chlorofluorocarbons (CFCs/Freons)					\$0.25	
24	23	1,1,1-Trichloroethane (Methyl chloroform)					\$0.04	
TOTAL								\$0.00

DICE 00832

This form has no data.

DICE 00833

Permitted Annual Emissions from the Use of Organics

Row	Material Code	Activity Code	Material Description	Contains Organic TAC/ODC	Rule	Annual Usage	Units (lbs or gal)	Emission Factor	Use Default Emission Factor	Overall Control Efficiency	Organic Gases Emission	Specific Organics Emission
1	991	5. Metal Coating	Sher-Cryl HPA Acrylic	No	UNKNOWN	816.00	2. gallon	0.76	No		620.16	
2												
3												
4												
5												
6												
7												
8												
9												
10												
TOTAL												
lbs											620.16	0.00
tons											0.31	0.00

Organic Gases Emission	Specific Organics Emission
620.16 lbs	0.00 lbs
0.31 tons	0.00 tons

Organic Gases Emission Credit(s):

Form B3 = 620.16 lbs
 Form W = 0.00 lbs

Form B3 - Form W
 620.16 - 0.00 = 620.16 lbs or 0.31 tons

DICE 00834



Material Safety Data Sheet

The Sherwin-Williams Co.
101 Prospect Ave. N.W.
Cleveland, OH 44115

Emergency telephone number
Information telephone number
Date of preparation

(216) 566-2917
(216) 566-2902
August 22, 2002

©2002, The Sherwin-Williams Co

SHER-CRYL™ HPA High Performance Acrylic, Gloss

B66-300

— Section 2 — CAS No. Hazardous Ingredients (percent by weight)		ACGIH TLV <STEL>	OSHA PEL <STEL>	Units	LD50 (Rat-Oral) mg/kg	LC50 (Rat) ppm/4hr.	Vapor Pressure mm	B66W300 Ultra White	B66W311 Extra White	B66T304 Clear Tint Base	B66B300 Safety Black	B66E300 Safety Orange	B66R300 Safety Red	B66Y300 Safety Yellow	
111-77-3 ^S	2-(2-Methoxyethoxy)-ethanol	NAv	NAv		5500	NAv	1.0	2	1	2	2	2	2	2	%
1332-58-7	Kaolin	[2]	10[5]	mg/m3 as Dust [Resp. Fraction]	NAv	NAv				3	3	3	3	3	B
13463-67-7	Titanium Dioxide.	10	10[5]	mg/m3 as Dust [Resp. Fraction]	NAv	NAv		23	14	0 - 5		1		5	Y
1333-86-4	Carbon Black.	3.5	3.5	mg/m3	NAv	NAv		< 3% may be added due to tinting			1			5	W
	Weight per Gallon (lbs.)							10.30	9.61	8.76	8.80	8.98	8.87	9.29	T.
	Solids by Weight (%)							50.2	47.0	42.5	42.2	43.8	43.2	45.6	
	Solids by Volume (%)							37.4	37.8	38.6	38.0	38.5	38.6	38.4	
	Percent Water.							42.4	44.8	49.3	49.9	48.2	48.8	46.7	
	VOC (Volatile Organic Compounds) Emitted - lbs./gal.							0.73	0.76	0.70	0.68	0.70	0.68	0.68	
	VOC Less Water & Federally Exempt Solvents - lbs./gal.							1.57	1.59	1.47	1.45	1.47	1.44	1.45	
	Photochemically Reactive							No	No	No	No	No	No	No	
	Flash Point (°F)							None	None	None	None	None	None	None	
	HMIS (NFPA) Rating (health - flammability - reactivity)							2 - 0 - 0	2 - 0 - 0	2 - 0 - 0	2* - 0 - 0	2 - 0 - 0	2 - 0 - 0	2 - 0 - 0	

^S Ingredient subject to the reporting requirements of the Superfund Amendments and Reauthorization Act (SARA) Section 313; 40 CFR 372.65 C.

DICE 00836

➔➔➔ MSDS Text Page Follows ➔➔➔

Section 3 — Hazards Identification

ROUTES OF EXPOSURE - Exposure may be by INHALATION and/or SKIN or EYE contact, depending on conditions of use. To minimize exposure, follow recommendations for proper use, ventilation, and personal protective equipment.

EFFECTS OF OVEREXPOSURE - Irritation of eyes, skin and upper respiratory system. In a confined area vapors in high concentration may cause headache, nausea or dizziness.

SIGNS AND SYMPTOMS OF OVEREXPOSURE - Redness and itching or burning sensation may indicate eye or excessive skin exposure.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE - None generally recognized.

CANCER INFORMATION - For complete discussion of toxicology data refer to Section 11.

Section 4 — First Aid Measures

If INHALED: If affected, remove from exposure. Restore breathing. Keep warm and quiet.

If on SKIN: Wash affected area thoroughly with soap and water.

Remove contaminated clothing and launder before re-use.

If in EYES: Flush eyes with large amounts of water for 15 minutes. Get medical attention.

If SWALLOWED: Do not induce vomiting. Get medical attention immediately.

Section 5 — Fire Fighting Measures

FLASH POINT

LEL

UEL

See TABLE

N.A.

N.A.

FLAMMABILITY CLASSIFICATION - Not Applicable

EXTINGUISHING MEDIA - Carbon Dioxide, Dry Chemical, Alcohol Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS - Closed containers may explode when exposed to extreme heat.

During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SPECIAL FIRE FIGHTING PROCEDURES - Full protective equipment including self-contained breathing apparatus should be used. Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

Section 6 — Accidental Release Measures

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED - Remove all sources of ignition.

Ventilate the area. Remove with inert absorbent.

Section 7 — Handling and Storage

STORAGE CATEGORY - Not Applicable

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING - Keep container closed when not in use. Transfer only to approved containers with complete and appropriate labeling. Do not take internally. Keep out of the reach of children.

Section 8 — Exposure Controls/Personal Protection

PRECAUTIONS TO BE TAKEN IN USE - Use only with adequate ventilation. Avoid contact with skin and eyes. Avoid breathing vapor and spray mist. Wash hands after using.

These coatings may contain materials classified as nuisance particulates (listed "as Dust" in Section 2) which may be present at hazardous levels only during sanding or abrading of the dried film. If no specific dusts are listed in Section 2, the applicable limits for nuisance dusts are ACGIH TLV 10 mg./m³ (total dust), 3 mg./m³ (respirable fraction), OSHA PEL 15 mg./m³ (total dust), 5 mg./m³ (respirable fraction).

VENTILATION - Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section 2 is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.

RESPIRATORY PROTECTION - If personal exposure cannot be controlled below applicable limits by ventilation, wear a properly fitted organic vapor/particulate respirator approved by NIOSH/MSHA for protection against materials in Section 2.

When sanding or abrading the dried film, wear a dust/mist respirator approved by NIOSH/MSHA for dust which may be generated from this product, underlying paint, or the abrasive.

PROTECTIVE GLOVES - Wear gloves which are recommended by glove supplier for protection against materials in Section 2.

EYE PROTECTION - Wear safety spectacles with unperforated sideshields

Section 9 — Physical and Chemical Properties

PRODUCT WEIGHT

See TABLE

SPECIFIC GRAVITY

1.05 - 1.24

BOILING POINT

212 - 477 °F

VOLATILE VOLUME

61 - 62 %

pH

9.0

EVAPORATION RATE

Slower than ether

VAPOR DENSITY

Heavier than air

MELTING POINT

Not Available

SOLUBILITY IN WATER

Not Available

Section 10 — Stability and Reactivity

STABILITY - Stable

CONDITIONS TO AVOID - None known.

INCOMPATIBILITY - None known.

HAZARDOUS DECOMPOSITION PRODUCTS - By fire: Carbon Dioxide, Carbon Monoxide

HAZARDOUS POLYMERIZATION - Will not occur

Section 11 — Toxicological Information

CHRONIC Health Hazards - Carbon Black is classified by IARC as possibly carcinogenic to humans (group 2B) based on experimental animal data, however, there is insufficient evidence in humans for its carcinogenicity.

Rats exposed to titanium dioxide dust at 250 mg./m³ developed lung cancer, however, such exposure levels are not attainable in the workplace.

Section 12 — Ecological Information

No data available.

Section 13 — Disposal Considerations

WASTE DISPOSAL METHOD - Waste from these products is not hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261.

Incinerate in approved facility. Do not incinerate closed container. Dispose of in accordance with Federal, State/Provincial, and Local regulations regarding pollution.

Section 14 — Transport Information

No data available.

Section 15 — Regulatory Information

CALIFORNIA PROPOSITION 65 - WARNING: These products contain chemicals known to the State of California to cause cancer and birth defects or other reproductive harm

TSCA CERTIFICATION - All chemicals in these products are listed, or are exempt from listing, on the TSCA Inventory.

Section 16 — Other Information

These products have been classified in accordance with the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

The above information pertains to these products as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to these products may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

— Section 1 —
Product Identification



Material Safety Data Sheet

The Sherwin-Williams Co.
101 Prospect Ave. N.W.
Cleveland, OH 44115

Emergency telephone number
Information telephone number
Date of preparation

(216) 566-2917
(216) 566-2902
August 22, 2002

©2002, The Sherwin-Williams Co

SHER-CRYL™ HPA High Performance Acrylic, Semi-Gloss

B66-350

CAS No.	— Section 2 — Hazardous Ingredients (percent by weight)	ACGIH	OSHA	Units	LD50	LC50	Vapor Pressure mm	B66W350	B66W351	B66T354	
		TLV <STEL>	PEL <STEL>		(Rat-Oral) mg/kg	(Rat) ppm/4hr.		Ultra White	Extra White	Clear Tint Base	
111-77-3 §	2-(2-Methoxyethoxy)-ethanol	NAv	NAv		5500	NAv	1.0	1	1	1	%
14808-60-7	Quartz	0.05	0.1	mg/m ³ as Resp. Dust	NAv	NAv				0.1	B
1332-58-7	Kaolin	[2]	10[5]	mg/m ³ as Dust [Resp. Fraction]	NAv	NAv				3	Y
14807-96-6	Talc	2	2	mg/m ³ as Resp. Dust	NAv	NAv		8	10	11	W
13463-67-7	Titanium Dioxide	10	10[5]	mg/m ³ as Dust [Resp. Fraction]	NAv	NAv		21	12	0 - 5	E
1333-86-4	Carbon Black	3.5	3.5	mg/m ³	NAv	NAv		< 3% may be added due to tinting			I
Weight per Gallon (lbs.)								10.76	10.11	9.38	G
Solids by Weight (%)								53.9	51.4	47.1	H
Solids by Volume (%)								39.4	40.1	39.4	T
Percent Water								39.0	40.7	43.9	
VOC (Volatile Organic Compounds) Emitted - lbs./gal.								0.74	0.76	0.82	
VOC Less Water & Federally Exempt Solvents - lbs./gal.								1.51	1.53	1.64	
Photochemically Reactive								No	No	No	
Flash Point (°F)								None	None	None	
HMIS (NFPA) Rating (health - flammability - reactivity)								2 - 0 - 0	2 - 0 - 0	2* - 0 - 0	

§ Ingredient subject to the reporting requirements of the Superfund Amendments and Reauthorization Act (SARA) Section 313, 40 CFR 372.65 C

DICE 00838

→→→ MSDS Text Page Follows →→→

Section 3 — Hazards Identification

ROUTES OF EXPOSURE - Exposure may be by INHALATION and/or SKIN or EYE contact, depending on conditions of use. To minimize exposure, follow recommendations for proper use, ventilation, and personal protective equipment.

EFFECTS OF OVEREXPOSURE - Irritation of eyes, skin and upper respiratory system. In a confined area vapors in high concentration may cause headache, nausea or dizziness

SIGNS AND SYMPTOMS OF OVEREXPOSURE - Redness and itching or burning sensation may indicate eye or excessive skin exposure.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE - None generally recognized.

CANCER INFORMATION - For complete discussion of toxicology data refer to Section 11

Section 4 — First Aid Measures

If INHALED: If affected, remove from exposure. Restore breathing. Keep warm and quiet.

If on SKIN: Wash affected area thoroughly with soap and water.

Remove contaminated clothing and launder before re-use.

If in EYES: Flush eyes with large amounts of water for 15 minutes. Get medical attention.

If SWALLOWED: Do not induce vomiting. Get medical attention immediately

Section 5 — Fire Fighting Measures

FLASH POINT

See TABLE

LEL

N.A.

UEL

N.A.

FLAMMABILITY CLASSIFICATION - Not Applicable

EXTINGUISHING MEDIA - Carbon Dioxide, Dry Chemical, Alcohol Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS - Closed containers may explode when exposed to extreme heat.

During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SPECIAL FIRE FIGHTING PROCEDURES - Full protective equipment including self-contained breathing apparatus should be used. Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

Section 6 — Accidental Release Measures

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED - Remove all sources of ignition.

Ventilate the area. Remove with inert absorbent.

Section 7 — Handling and Storage

STORAGE CATEGORY - Not Applicable

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING - Keep container closed when not in use. Transfer only to approved containers with complete and appropriate labeling. Do not take internally. Keep out of the reach of children.

Section 8 — Exposure Controls/Personal Protection

PRECAUTIONS TO BE TAKEN IN USE - Use only with adequate ventilation. Avoid contact with skin and eyes. Avoid breathing vapor and spray mist. Wash hands after using.

These coatings may contain materials classified as nuisance particulates (listed "as Dust" in Section 2) which may be present at hazardous levels only during sanding or abrading of the dried film. If no specific dusts are listed in Section 2, the applicable limits for nuisance dusts are ACGIH TLV 10 mg./m3 (total dust), 3 mg./m3 (respirable fraction), OSHA PEL 15 mg./m3 (total dust), 5 mg./m3 (respirable fraction).

VENTILATION - Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section 2 is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.

RESPIRATORY PROTECTION - If personal exposure cannot be controlled below applicable limits by ventilation, wear a properly fitted organic vapor/particulate respirator approved by NIOSH/MSHA for protection against materials in Section 2.

When sanding or abrading the dried film, wear a dust/mist respirator approved by NIOSH/MSHA for dust which may be generated from this product, underlying paint, or the abrasive.

PROTECTIVE GLOVES - Wear gloves which are recommended by glove supplier for protection against materials in Section 2.

EYE PROTECTION - Wear safety spectacles with unperforated sideshields.

Section 9 — Physical and Chemical Properties

PRODUCT WEIGHT

See TABLE

SPECIFIC GRAVITY

1.13 - 1.30

BOILING POINT

212 - 477 °F

VOLATILE VOLUME

59 - 60 %

pH

9.0

EVAPORATION RATE

Slower than ether

VAPOR DENSITY

Heavier than air

MELTING POINT

Not Available

SOLUBILITY IN WATER

Not Available

Section 10 — Stability and Reactivity

STABILITY - Stable

CONDITIONS TO AVOID - None known.

INCOMPATIBILITY - None known.

HAZARDOUS DECOMPOSITION PRODUCTS - By fire: Carbon Dioxide, Carbon Monoxide

HAZARDOUS POLYMERIZATION - Will not occur

Section 11 — Toxicological Information

CHRONIC Health Hazards - Carbon Black is classified by IARC as possibly carcinogenic to humans (group 2B) based on experimental animal data, however, there is insufficient evidence in humans for its carcinogenicity.

Crystalline Silica (Quartz, Cristobalite) is listed by IARC and NTP. Long term exposure to high levels of silica dust which can occur only when sanding or abrading the dry film, may cause lung damage (silicosis) and possibly cancer.

Rats exposed to titanium dioxide dust at 250 mg./m3 developed lung cancer, however, such exposure levels are not attainable in the workplace.

Section 12 — Ecological Information

No data available.

Section 13 — Disposal Considerations

WASTE DISPOSAL METHOD - Waste from these products is not hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261

Incinerate in approved facility. Do not incinerate closed container. Dispose of in accordance with Federal, State/Provincial, and Local regulations regarding pollution.

Section 14 — Transport Information

No data available.

Section 15 — Regulatory Information

CALIFORNIA PROPOSITION 65 - WARNING: These products contain chemicals known to the State of California to cause cancer and birth defects or other reproductive harm

TSCA CERTIFICATION - All chemicals in these products are listed, or are exempt from listing, on the TSCA Inventory.

Section 16 — Other Information

These products have been classified in accordance with the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

The above information pertains to these products as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to these products may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

State of California – California Environmental Protection Agency
 Department of Toxic Substances Control
 P.O. Box 806
 Sacramento, CA 95812-0806

Generator Information Services Section
 1-877-454-4012 (Calif. Callers Only Toll Free)
 or 1-916-255-4439 (Outside Calif.)
 www.dtscc.ca.gov

2006 VERIFICATION QUESTIONNAIRE

(See back of this form for instructions.)

Complete and return all forms with appropriate fees not later than 30 days from the date of receipt. Failure to return all forms will lead to the suspension of your EPA Identification Number.

AIR LIQUIDE AMERICA CORP
 AIR LIQUIDE AMERICA LP
 8832 DICE RD
 SANTA FE SPRINGS, CA 90670-0000

If your mailing address has changed, please
PRINT or TYPE the correct address below: **Do not abbreviate.**

Address: _____

City/State/Zip: _____

DO NOT ALTER INFORMATION IN THIS AREA

- 1. EPA ID Number: CAL000021169
- 2. Location address: 8832 DICE ROAD
 SANTA FE SPRINGS, CA 90670-0000

If your business has moved, call GISS.

3. Federal Employer Number 58-0939059

4. BOE ID Number N/A

5. COMPANY OWNER INFO:

NOTE: California EPA ID numbers issued by DTSC may not be transferred to another owner. If the ownership of your organization has changed, please call GISS for assistance. Do NOT fill in new owner information below.

AIR LIQUIDE AMERICA LP
 2700 POST OAK BLVD
 HOUSTON, TX 77056-0000
 (713)624-8000
 (000)000-0000

Company owner or Corp. name: _____
 Address: _____
 City/State/Zip: _____
 Telephone: _____
 Fax Number: _____
 Date of ownership change: _____

6. My new EPA ID number is _____

7. COMPANY NAME:

If printed company name is incorrect, please provide correct name:

AIR LIQUIDE AMERICA CORP

Company name/ AKA: _____

8. CONTACT INFO:

If printed contact is incorrect or blank, please provide correct information:

ILYA KAZHOKIN
 8832 DICE RD
 CA, CA 90670-0000
 (562)464-5242
 (000)000-0000

Name/Title: _____
 Address: _____
 City/State/Zip: _____
 Telephone: _____
 Fax Number: _____

Business email address: _____

9. SIC CODE (4 digits):

If printed SIC Code is incorrect or blank, please provide correct information:

5199

10. If the business has moved you must **CANCEL** the EPA ID number listed on Line 1. (See reverse side.)
 Check here if you wish to **CANCEL** the EPA ID number.

Hazardous Waste Handlers:

This is your fee assessment for the Environmental Protection Agency Identification (EPA ID) Number Verification Fee and Manifest Fee as required by Health and Safety Code, Sections 25205.16 and 25205.15. The EPA ID Number Verification Fee is for all valid EPA ID numbers held by your organization during the fiscal year 2005/2006 (from July 1, 2005 through June 30, 2006). The Manifest Fee assessment is for all manifests used by your organization from January 1, 2005 through December 31, 2006.

Instructions are included to assist you in completing these forms and calculating the required fees, if applicable. Frequently asked questions and answers are available under "Managing Hazardous Waste" at our website www.dtsc.ca.gov. If you have any questions, please contact DTSC's Generator Information Services Section (GISS) toll free at 1-877-454-4012 if you are dialing within California, or 1-916-255-4439 if you are outside California. The GISS operating hours are 8:30 a.m. to 4:30 p.m. (Pacific Standard Time), Monday through Friday. (Note: The phone lines will be very busy. Please be prepared to be placed on hold.)

All forms and payment, if any, are due **30 days from the receipt of this assessment notice**. Checks are to be made payable to the Department of Toxic Substances Control or "DTSC". Return all forms and payment in the enclosed return envelope or to the following address:

Accounting Unit, EPA ID
Department of Toxic Substances Control
PO Box 806
Sacramento, CA 95812-0806

INSTRUCTIONS FOR COMPLETING THE VERIFICATION QUESTIONNAIRE

You are mandated by law to provide or verify the information on the verification questionnaire and return it to DTSC.

Printed organization name and mailing address:

Provide any correction to the organization's printed mailing address.

Lines 1 and 2 (shaded box):

Check your records to verify that the printed EPA ID number and location address are both correct. Do not change, strike out, or write over this information. If the information is incorrect, please call GISS for assistance. (NOTE: EPA ID numbers are site specific to the location to which they are originally issued. EPA ID numbers cannot be moved to another location. If the location address printed on Line 2 is no longer the address of your site, please call GISS for assistance. You may need a new EPA ID number.)

Lines 3 and 4:

Provide your Federal Employer Number and BOE ID Number, you may call BOE at (916) 322-9477 for more information

Lines 5 & 6

Provide any corrections and/or additions to the information pre-printed on this form. However, if there has been a change in ownership, call GISS. When there is a change in ownership, you must get a new EPA ID number. GISS staff will instruct you about Line 6 when you call.

Lines 7 and 8:

Provide any corrections and/or additions to the information pre-printed on this form. Please provide your business email address. This will be part of the facility record and can be used to send you information on the annual verification process. For security reasons, we do not accept personal Hotmail, Yahoo, or Juno email addresses.

Line 9:

Provide any corrections to your SIC (Standard Industrial Classification) Code for your primary business activity. If no SIC Code is pre-printed on Line 9, please provide the primary SIC Code for your business. The SIC Code is a four digit number that best describes your company's primary business activity. If your company's SIC Code is unknown, you can obtain the number on the Internet at: www.osha.gov/oshstate/sicser.html

Line 10:

Check this box ONLY if you wish to cancel the EPA ID number shown on Line 1. The cancellation date will be June 30, 2006. If your operations will continue after June 30, 2006, do not check the box at this time. Please notify DTSC when you cease operations. Please notify US EPA when canceling a US EPA ID number at (415) 495-8895.

If your organization has more than one EPA ID number, you should receive a Verification Questionnaire and a Schedule A - Manifest Calculation Sheet for each of your permanent EPA ID numbers. You must complete both forms for each EPA ID number assigned to your organization. (NOTE: The total dollar amount owed by your organization includes the manifest fees for all of your organization's EPA ID numbers. The total manifest fee dollar amount must be entered in Section B of the Schedule B - Fees Summary Sheet.)

State of California - California Environmental Protection Agency
Department of Toxic Substances Control
P.O. Box 806
Sacramento, CA 95812-0806

Generator Information Services Section
1-877-454-4012 (Call. Callers Only Toll Free)
or 1-916-255-4439 (Outside Calif.)
www.dtsc.ca.gov

SCHEDULE A - MANIFEST FEE CALCULATION SHEET (2005 Manifests)

(See back of this form for sample manifest form.)

EPA ID Number: CAL000021160 Name of organization: AIR LIQUIDE AMERICA CORP

From January 1, 2005 through December 31, 2005, the Department of Toxic Substances Control recorded the number of California Manifests shown at the right using the EPA ID printed above.	Non-recycled:	<u>0</u>
	Recycled:	<u>3</u>

(NOTE: There is no fee for solely recycled manifests.)

Manifest Fee Calculation:

- a. Enter the total number of non-recycled manifests from above... 0
 - b. How many of the non-recycled manifests listed on Line a. are non-recycled air compliance solvent manifests..... 0 X \$3.50 = \$ 0
 - c. Subtract the number of manifests on Line b. from Line a. 0 X \$7.50 = \$ 0
 - d. No fee due for recycled manifests.....\$ 0.00
 - e. Total of Line b. + Line c.= \$ 0.00
- Note: The manifest count on Lines b. and c. should equal the count on Line a.

INSTRUCTIONS FOR COMPLETING SCHEDULE A

1.
 - For lines a. - e. above, enter the numbers requested for each line.
 - For line b. multiply the number of manifests by \$3.50 and record the dollar amount.
 - For line c. multiply the number of manifests by \$7.50 and record the dollar amount.
 - For line e. add dollar amounts of lines b. and c. This total is the manifest fees due for the EPA ID number shown at the top of the page.
2. For this assessment there are three types of manifests: non-recycled, recycled and air compliance solvents manifests. Manifests used *solely* for recycled waste will have a handling code reported as "01" or "R01" in item K on the manifest form (see circled area on manifest sample on the back of this form). All wastes listed on a manifest must have handling codes of "01" or "R01" to be counted as a solely recycled manifest. You need to pay manifest fees only for non-recycled manifests. There is no fee for recycled manifests.
3. If you believe the manifest totals shown in the box above are incorrect, you may use the manifest totals from your own files to calculate the fee. However, please be aware that any difference between the amount you report and the amount printed above is subject to audit by DTSC.
4. On January 1, 1999 many businesses were required to switch from petroleum-based solvents to air compliance solvents (also called water-based cleaners). The fee for manifests used solely for hazardous waste derived from air compliance solvents was reduced from \$7.50 to \$3.50. Most air compliance solvent waste is now recyclable. Manifests used to ship air compliance solvents that were recycled should not be charged \$3.50. The Manifest Fee Calculation above includes air compliance solvent manifests as part of the non-recycled manifest count. Businesses that do not recycle their air compliance solvent waste who desire to use the reduced \$3.50 fee must use their internal records to identify manifests used solely for air compliance solvent wastes.

State of California—Environmental Protection Agency
Form Approved OMB No. 2030-0039 (Expires 9-30-96)
Please print or type. Form designed for use on nine (12-inch) typewriter.

See instructions on back of page 6.

Department of Toxic Substances Control
Sacramento, California

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. _____ Manifest Document No. _____
2. Page 1 of _____
Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address _____

A. State Manifest Document Number
95302045

4. Generator's Phone () _____

B. State Generator's ID _____

5. Transporter 1 Company Name _____

6. US EPA ID Number _____

C. State Transporter's ID _____

7. Transporter 2 Company Name _____

8. US EPA ID Number _____

D. Transporter's Phone _____

E. State Transporter's ID _____

9. Designated Facility Name and Site Address _____

10. US EPA ID Number _____

F. Transporter's Phone _____

G. State Facility's ID _____

H. Facility's Phone _____

11. US DOT Classification (including Proper Shipping Name, Hazard Class, and ID Number) _____

12. Name _____

13. Total Quantity _____

14. Unit _____

15. Waste Number _____

SAMPLE ONLY!
DO NOT FILL OUT!

This is a sample manifest included for your information only.

J. Additional Descriptions for Materials Listed Above: _____

K. Handling Codes for Wastes Listed Above:

a. _____
b. _____
c. _____
d. _____

15. Special Handling Instructions and Additional Information _____

In order to determine if your waste was recycled or non-recycled, look at the handling codes in Item K. (circled above) on your manifest copy(s).

GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name _____ Signature _____ Month _____ Day _____ Year _____

17. Transporter 1 Acknowledgment of Receipt of Materials
Printed/Typed Name _____ Signature _____ Month _____ Day _____ Year _____

18. Transporter 2 Acknowledgment of Receipt of Materials
Printed/Typed Name _____ Signature _____ Month _____ Day _____ Year _____

19. Discrepancy Indication Space _____

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19
Printed/Typed Name _____ Signature _____ Month _____ Day _____ Year _____

DO NOT WRITE BELOW THIS LINE.



IN CASE OF EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802. WITHIN CALIFORNIA, CALL 1-800-892-7550

State of California – California Environmental Protection Agency
 Department of Toxic Substances Control
 P.O. Box 806
 Sacramento, CA 95812-0806

Generator Information Services Section
 1-877-454-4012 (Calif. Callers Only Toll Free)
 or 1-916-255-4439 (Outside Calif.)
 www.dtsc.ca.gov
 2008

SCHEDULE B – FEES SUMMARY SHEET

(See back of this form for complete instructions.)

All completed forms and appropriate fees must be submitted **not later than 30 days** from the date of receipt.

A. EPA ID NUMBER VERIFICATION FEE (July 1, 2005 through June 30, 2006)

- Name of your organization: Air Liquide L.P.
- Enter the total number of California employees in your entire organization: 283
 (Please read instructions for Line 2 on the back of this form.)

Number of Employees	1 – 49	50 – 74	75 – 99	100 – 249	250 – 499	500 or more
EPA ID Fee Rate	NO FEE	\$150	\$175	\$200	\$225	\$250

(Total EPA ID Number Verification Fees not to exceed \$5000)

- Enter the EPA ID Number Verification Fee rate from the table above: \$ 225
- Enter the total number of **permanent** EPA ID numbers held by your organization: 1
 (NOTE: Attach a VQ form and Schedule A for **each** permanent EPA ID number you are reporting. Numbers that begin with "CAC" should not be included in your total on Line 4. See instructions.)
- Multiply Line 3 by Line 4: =\$ 225
- TOTAL** EPA ID Number Verification Fee due (Enter the dollar amount from Line 5 above OR \$5000, whichever amount is less.): \$ 225

B. MANIFEST FEE (January 1, 2005 through December 31, 2005)

- Enter the dollar amount from Line e on your Schedule A – Manifest Fee Calculation Sheet.
 (If you are reporting more than one ID number, enter the **TOTAL** of the dollar amounts from Line e on all of your Schedule A – Manifest Fee Calculation Sheets.) \$ 0

C. GRAND TOTAL OF EPA ID NUMBER VERIFICATION FEES AND MANIFEST FEES

- Add Line A6 and Line B1, enter the total dollar amount.
 It is not uncommon to not owe fees. You are still required to complete and submit all forms.
 If fee is due, please make your check payable to "DTSC" for the total amount on this line: =\$ 225
 *** **Please write one of your EPA ID numbers on your check.**

To pay your fees via **credit card**, complete the enclosed "EPA ID and Manifest Fee Credit Card Payment Form".

I hereby certify under penalty of perjury that the information on the Verification Questionnaire(s), Schedule A(s) and Schedule B is true and correct.

Signature of Preparer: [Signature]
 Name (please print): Tara Wozniak

Title: Plant Manager
 Date: 6/19/06 Phone: [Redacted] FOIA ex 6, Personal Privacy

THIS SECTION FOR DEPARTMENT USE ONLY			
Check No:	SAMOUNT	DATE:	CID NO:
12560053:	12560092:	12560065:	
12560035:	12560091:	AMOUNT DUE:	
12560075:	12560096:	PRIMARY ID #:	

INSTRUCTIONS FOR COMPLETING SCHEDULE B – FEES SUMMARY SHEET

SECTION A (EPA ID Number Verification Fee for 2005/2006)

NOTE: Health and Safety Code, Section 25205.16 requires DTSC to verify the accuracy of information related to generators, transporters and facilities authorized to treat, dispose of, store, or recycle hazardous waste. DTSC captures this data through the Verification Questionnaire and uses the collected information to ensure that the Hazardous Waste Information Network database is current and accurate. The EPA ID Number Verification Fee, which has been established by State legislation, funds this effort.

Line 1: Enter the **full** name of your organization. Do not abbreviate.

Line 2: Enter the total number of individuals employed in California by your organization. An employee must have worked more than 500 hours during the calendar year 2005 to be included in your calculation. ("Organization" is defined as a registered corporation, sole proprietor, partnership, or company. For public agencies, "organization" is defined as a city, county, commission, agency, department or district.)

Line 3: Based on the number of employees entered on Line 2, determine your EPA ID Number Verification Fee rate by using the table shown and then enter that rate on Line 3.

Line 4: Enter the total number of **permanent** EPA ID numbers assigned to your organization. Do not include "CAC" numbers in your total, as they are temporary and not subject to the EPA ID Number Verification Fee. If you indicated on the Verification Questionnaire that you wish to deactivate a permanent EPA ID number, **you must still include that number in this total**. The fee is required because that EPA ID number was active during the billing period (July 1, 2005 through June 30, 2006).

Line 5: Enter the EPA ID Number Verification Fee. This fee is determined by multiplying the fee rate (reported on Line 3) by the total of permanent EPA ID numbers assigned to your organization (reported on Line 4).

Line 6: Enter **either** the amount shown on Line 5, **OR** \$5000 (whichever amount is **less**). The maximum EPA ID Number Verification Fee is \$5000 per organization.

SECTION B (Manifest Fees for January 1, 2005 through December 31, 2005)

Line 1: Enter the **total** manifest fees due. This amount is shown on Line e on the **Schedule A – Manifest Fee Calculation Sheet**. If your organization has more than one EPA ID number, enter the **total** of the dollar amounts from **all** your Schedule A – Manifest Fee Calculation Sheets.

SECTION C (Grand total of all EPA ID Number Verification Fees and Manifest Fees owed)

Line 1: Add Line A6 and B1. The sum of these two amounts is the total fee due from your organization. Please make your check payable to "DTSC" or use the credit card payment form. Please write one of your EPA ID numbers on your check.

IMPORTANT: YOU MUST RETURN THE ORIGINAL OF THE FOLLOWING DOCUMENTS WITHIN 30 DAYS:

- ✓ **Verification Questionnaire** (one form for **each** EPA ID number)
- ✓ **Schedule A – Manifest Fee Calculation Sheet** (one form for **each** EPA ID number)
- ✓ **Schedule B – Fee Summary Sheet** (only **ONE** of these forms is needed for your entire organization)

State of California - California Environmental Protection Agency
Department of Toxic Substances Control
P.O. Box 808
Sacramento, CA 95812-0808

Generator Information Services Section
1-877-454-4012 (Calif. Callers Only Toll Free)
or 1-916-255-4439 (Outside Calif.)
www.dtsc.ca.gov

EPA ID AND MANIFEST FEE CREDIT CARD PAYMENT FORM

To pay your EPA ID number fee and manifest fees by credit card, complete this form and return it with your completed:

- Verification Questionnaire(s) - one for each EPA ID number reported in this packet;
 - Manifest Fee Calculation Sheet Schedule A(s) - one for each EPA ID number reported in this packet; and
 - Fees Summary Sheet Schedule B - only one is required for your entire organization.
- If you prefer to pay by check, please discard this form.

- 1) Company Name: Air Liquide L.P.
- 2) Name on Credit Card: _____



- 6) Total Amount of Fee Being Paid: \$ 225
(Should match the amount reported as grand total on the Fees Summary Sheet Schedule B)
- 7) Signature: Anita Macias
(The authorized credit card holder's original signature must be present in order for your payment request to be processed.)
- 8) Telephone Number: (562) 464-5236

Send completed forms and payment to the following address:

Accounting Unit, EPA ID
Department of Toxic Substances Control
P.O. Box 876
Sacramento, CA 95812-0876

If you want to ensure the confidentiality of your credit card information, please send all completed forms to this address. Do not use the envelope provided.

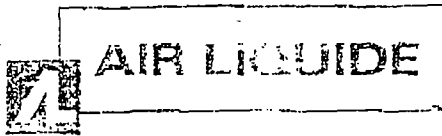
IMPORTANT: By completing and signing this form, you are authorizing DTSC to request funds from the credit card company you have indicated. If the request is denied by your credit card company, DTSC will contact you and require payment by another acceptable means.

PRIVACY STATEMENT: The information on this form is requested by the Department of Toxic Substances Control, Accounting Unit. All information is voluntary. The purpose of this information is to verify the authenticity of the credit card you wish to use to pay your EPA ID Number and Manifest Fees. Failure to provide answers to any of the questions may cause your credit card payment request to be denied. For more information or access to this record, please contact the DTSC Accounting Unit at (918) 327-8514 or you may write to the address shown above.

THIS SECTION FOR DEPARTMENT USE ONLY

PRIMARY ID NO: _____ CID NO: _____

APPROVED
NOT APPROVED



Air Liquide America L.P.
8832 Dice Road
Santa Fe Springs, CA 90670
Fax 562-693-1156

Fax Cover

Date: 6/19/06 Pages: 10 (including cover)

To: Taming Davis From: Ilya Kazhokov

Company: _____ Company: Air Liquide

Fax: _____ Fax: 562-693-1156

Phone: _____ Phone: _____

Re: _____

Urgent For Review Please Comment As requested

Comments:

*Answers
from SF
6/19/06*

PROPERTY OF AIR LIQUIDE AMERICA CORPORATION. The information in this facsimile message is intended only for the use of the individual or entity named above and may be confidential. Any unauthorized dissemination, distribution or duplication of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone. Thank you.

State of California - California Environmental Protection Agency
Department of Toxic Substances Control
P.O. Box 806
Sacramento, CA 95812-0806

Generator Information Services Section
1-877-454-4012 (Calif. Callers Only Toll Free)
or 1-916-255-4439 (Outside Calif.)
www.dtsc.ca.gov

2006 VERIFICATION QUESTIONNAIRE

(See back of this form for instructions.)

Complete and return all forms with appropriate fees not later than 30 days from the date of receipt. Failure to return all forms will lead to the suspension of your EPA Identification Number.

AIR LIQUIDE AMERICA CORP
AIR LIQUIDE AMERICA LP
8832 DICE RD
SANTA FE SPRINGS, CA 90670-0000

If your mailing address has changed, please
PRINT or TYPE the correct address below: Do not abbreviate.

Address: _____
City/State/Zip: _____

DO NOT ALTER INFORMATION IN THIS AREA	
1. EPA ID Number:	CAL000021160
2. Location address:	8832 DICE ROAD SANTA FE SPRINGS, CA 90670-0000
If your business has moved, call GISS.	

3. Federal Employer Number 58-0939059
4. BOEID Number N/A

*Fed Tax ID Number per Business
Generator Fee Amt # > 5 T/yr.
of waste*

ok

5. COMPANY OWNER INFO:

NOTE: California EPA ID numbers issued by DTSC may not be transferred to another owner. If the ownership of your organization has changed, please call GISS for assistance. Do NOT fill in new owner information below.

AIR LIQUIDE AMERICA LP
2700 POST OAK BLVD
HOUSTON, TX 77056-0000
(713)824-8000
(000)000-0000

Company owner or Corp. name: _____
Address: _____
City/State/Zip: _____
Telephone: _____
Fax Number: _____
Date of ownership change: _____

ok

6. My new EPA ID number is _____

ok

7. COMPANY NAME:

If printed company name is incorrect, please provide correct name:

AIR LIQUIDE AMERICA CORP

Company name/ AKA: _____

ok

8. CONTACT INFO:

If printed contact is incorrect or blank, please provide correct information:

ILYA KAZHOKIN
8832 DICE RD
CA, CA 90670-0000
(562)464-5242
(000)000-0000

Name/Title: _____
Address: _____
City/State/Zip: _____
Telephone: _____
Fax Number: _____
Business email address: _____

ok

9. SIC CODE (4 digits):

If printed SIC Code is incorrect or blank, please provide correct information:

5169

ok

10. If the business has moved you must CANCEL the EPA ID number listed on Line 1. (See reverse side.)
Check here if you wish to CANCEL the EPA ID number.

Hazardous Waste Handlers:

This is your fee assessment for the Environmental Protection Agency Identification (EPA ID) Number Verification Fee and Manifest Fee as required by Health and Safety Code, Sections 25205.16 and 25205.15. The EPA ID Number Verification Fee is for all valid EPA ID numbers held by your organization during the fiscal year 2005/2006 (from July 1, 2005 through June 30, 2006). The Manifest Fee assessment is for all manifests used by your organization from January 1, 2005 through December 31, 2005.

Instructions are included to assist you in completing these forms and calculating the required fees, if applicable. Frequently asked questions and answers are available under "Managing Hazardous Waste" at our website www.dtsc.ca.gov. If you have any questions, please contact DTSC's Generator Information Services Section (GISS) toll free at 1-877-454-4012 if you are dialing within California, or 1-916-255-4439 if you are outside California. The GISS operating hours are 8:30 a.m. to 4:30 p.m. (Pacific Standard Time), Monday through Friday. (Note: The phone lines will be very busy. Please be prepared to be placed on hold.)

All forms and payment, if any, are due 30 days from the receipt of this assessment notice. Checks are to be made payable to the Department of Toxic Substances Control or "DTSC". Return all forms and payment in the enclosed return envelope or to the following address:

Accounting Unit, EPA ID
Department of Toxic Substances Control
PO Box 806
Sacramento, CA 95812-0806

INSTRUCTIONS FOR COMPLETING THE VERIFICATION QUESTIONNAIRE

You are mandated by law to provide or verify the information on the verification questionnaire and return it to DTSC.

Printed organization name and mailing address:

Provide any correction to the organization's printed mailing address.

Lines 1 and 2 (shaded box):

Check your records to verify that the printed EPA ID number and location address are both correct. Do not change, strike out, or write over this information. If the information is incorrect, please call GISS for assistance. (NOTE: EPA ID numbers are site specific to the location to which they are originally issued. EPA ID numbers cannot be moved to another location. If the location address printed on Line 2 is no longer the address of your site, please call GISS for assistance. You may need a new EPA ID number.)

Lines 3 and 4:

Provide your Federal Employer Number and BOE ID Number, you may call BOE at (916) 322-9477 for more information

Lines 5 & 6

Provide any corrections and/or additions to the information pre-printed on this form. However, if there has been a change in ownership, call GISS. When there is a change in ownership, you must get a new EPA ID number. GISS staff will instruct you about Line 6 when you call.

Lines 7 and 8.

Provide any corrections and/or additions to the information pre-printed on this form. Please provide your business email address. This will be part of the facility record and can be used to send you information on the annual verification process. For security reasons, we do not accept personal Hotmail, Yahoo, or Juno email addresses.

Line 9:

Provide any corrections to your SIC (Standard Industrial Classification) Code for your primary business activity. If no SIC Code is pre-printed on Line 9, please provide the primary SIC Code for your business. The SIC Code is a four digit number that best describes your company's primary business activity. If your company's SIC Code is unknown, you can obtain the number on the Internet at: www.osha.gov/oshstats/sicser.html

Line 10:

Check this box ONLY if you wish to cancel the EPA ID number shown on Line 1. The cancellation date will be June 30, 2006. If your operations will continue after June 30, 2006, do not check the box at this time. Please notify DTSC when you cease operations. Please notify US EPA when canceling a US EPA ID number at (415) 495-8895.

If your organization has more than one EPA ID number, you should receive a Verification Questionnaire and a Schedule A - Manifest Calculation Sheet for each of your permanent EPA ID numbers. You must complete both forms for each EPA ID number assigned to your organization. (NOTE: The total dollar amount owed by your organization includes the manifest fees for all of your organization's EPA ID numbers. The total manifest fee dollar amount must be entered in Section B of the Schedule B - Fees Summary Sheet.)

State of California - California Environmental Protection Agency
Department of Toxic Substances Control
P.O. Box 808
Sacramento, CA 95812-0808

Generator Information Services Section
1-877-454-4012 (Calif. Callers Only Toll Free)
or 1-916-255-4439 (Outside Calif.)
www.dtsc.ca.gov

SCHEDULE A - MANIFEST FEE CALCULATION SHEET (2005 Manifests)

(See back of this form for sample manifest form.)

EPA ID Number: CAL000021160 Name of organization: AIR LIQUIDE AMERICA CORP

From January 1, 2005 through December 31, 2005, the Department of Toxic Substances Control recorded the number of California Manifests shown at the right using the EPA ID printed above.

Non-recycled: 02

Recycled: 87

(NOTE: There is no fee for solely recycled manifests.)

Manifest Fee Calculation:

*(Used oil
used filters)*

- a. Enter the total number of non-recycled manifests from above... _____
- b. How many of the non-recycled manifests listed on Line a. are non-recycled air compliance solvent manifests..... _____ X \$3.50 = \$ _____
- c. Subtract the number of manifests on Line b. from Line a. _____ X \$7.50 = \$ _____
- d. No fee due for recycled manifests..... \$ 0.00
- e. Total of Line b. + Line c. = \$ _____

Note: The manifest count on Lines b. and c. should equal the count on Line a.

INSTRUCTIONS FOR COMPLETING SCHEDULE A

1.
 - For lines a. - e. above, enter the numbers requested for each line.
 - For line b. multiply the number of manifests by \$3.50 and record the dollar amount.
 - For line c. multiply the number of manifests by \$7.50 and record the dollar amount.
 - For line e. add dollar amounts of lines b. and c. This total is the manifest fees due for the EPA ID number shown at the top of the page.
2. For this assessment there are three types of manifests: non-recycled, recycled and air compliance solvents manifests. Manifests used solely for recycled waste will have a handling code reported as "01" or "R01" in item K on the manifest form (see circled area on manifest sample on the back of this form). All wastes listed on a manifest must have handling codes of "01" or "R01" to be counted as a solely recycled manifest. You need to pay manifest fees only for non-recycled manifests. There is no fee for recycled manifests.
3. If you believe the manifest totals shown in the box above are incorrect, you may use the manifest totals from your own files to calculate the fee. However, please be aware that any difference between the amount you report and the amount printed above is subject to audit by DTSC.
4. On January 1, 1999 many businesses were required to switch from petroleum-based solvents to air compliance solvents (also called water-based cleaners). The fee for manifests used solely for hazardous waste derived from air compliance solvents was reduced from \$7.50 to \$3.50. Most air compliance solvent waste is now recyclable. Manifests used to ship air compliance solvents that were recycled should not be charged \$3.50. The Manifest Fee Calculation above includes air compliance solvent manifests as part of the non-recycled manifest count. Businesses that do not recycle their air compliance solvent waste who desire to use the reduced \$3.50 fee must use their internal records to identify manifests used solely for air compliance solvent wastes.

State of California—Environmental Protection Agency
Form Approved OMB No. 2030-0039 (Expires 9-30-96)
Please print or type Form designed for use on *electronic typewriter*.

See Instructions on back of page 6

Department of Toxic Substances Control
Sacramento, California

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

Manifest Document No.

2. Page 1 of 1

Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address

A. State Manifest Document Number

95302045

4. Generator's Phone ()

B. State Generator's ID

5. Transporter 1 Company Name

6. US EPA ID Number

C. State Transporter's ID

7. Transporter 2 Company Name

8. US EPA ID Number

D. Transporter's Phone

E. State Transporter's ID

9. Designated Facility Name and Site Address

10. US EPA ID Number

F. Transporter's Phone

G. State Facility's ID

H. Facility's Phone

11. US DOT Hazard Class (including Proper Shipping Name, Hazard Class, and ID Number)

12. Containers

13. Total Quantity

14. Unit (Lb/Vol)

15. Waste Number

SAMPLE ONLY!
DO NOT FILL OUT!

This is a sample manifest included for your information only.

d.

J. Additional Descriptions for Materials Listed Above

K. Handling Codes for Wastes Listed Above

a. b.
c. d.

15. Special Handling Instructions and Additional Information

In order to determine if your waste was recycled or non-recycled, look at the handling codes in Item K. (circled above) on your manifest copy(s).

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this container are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name

Signature

Month Day Year

17. Transporter 1 Acknowledgment of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

18. Transporter 2 Acknowledgment of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19

Printed/Typed Name

Signature

Month Day Year

DO NOT WRITE BELOW THIS LINE.

IN CASE OF EMERGENCY OR SPILL, CALL THE NATIONAL RESPONSE CENTER 1-800-424-8802; WITHIN CALIFORNIA, CALL 1-800-852-7350



State of California – California Environmental Protection Agency
 Department of Toxic Substances Control
 P.O. Box 806
 Sacramento, CA 95812-0806

Generator Information Services Section
 1-877-454-4012 (Calif. Callers Only Toll Free)
 or 1-916-255-4439 (Outside Calif.)
 www.dtsc.ca.gov
 2006

SCHEDULE B – FEES SUMMARY SHEET

(See back of this form for complete instructions.)

All completed forms and appropriate fees must be submitted **not later than 30 days** from the date of receipt.

A. EPA ID NUMBER VERIFICATION FEE (July 1, 2005 through June 30, 2006)

1. ~~Name of your organization:~~ _____
2. ~~Enter the total number of California employees in your entire organization:~~ _____
 (Please read instructions for Line 2 on the back of this form.)

Number of Employees	1 - 49	50 - 74	75 - 99	100 - 249	250 - 499	500 or more
EPA ID Fee Rate	NO FEE	\$150	\$175	\$200	\$225	\$250

(Total EPA ID Number Verification Fees not to exceed \$5000)

3. ~~Enter the EPA ID Number Verification Fee rate from the table above:~~ \$ _____
4. ~~Enter the total number of permanent EPA ID numbers held by your organization:~~ _____
 (NOTE: Attach a VQ form and Schedule A for each permanent EPA ID number you are reporting. Numbers that begin with "CAC" should not be included in your total on Line 4. See instructions.)
5. ~~Multiply Line 3 by Line 4:~~ =\$ _____
6. ~~TOTAL EPA ID Number Verification Fee due (Enter the dollar amount from Line 5 above OR \$5000, whichever amount is less.):~~ \$ _____

B. MANIFEST FEE (January 1, 2005 through December 31, 2005)

1. Enter the dollar amount from Line e on your Schedule A – Manifest Fee Calculation Sheet.
 (If you are reporting more than one ID number, enter the **TOTAL** of the dollar amounts from Line e on all of your Schedule A – Manifest Fee Calculation Sheets.) \$ _____

C. GRAND TOTAL OF EPA ID NUMBER VERIFICATION FEES AND MANIFEST FEES

1. Add Line A6 and Line B1, enter the total dollar amount.
 It is not uncommon to not owe fees. You are still required to complete and submit all forms.
 If fee is due, please make your check payable to "DTSC" for the total amount on this line: =\$ _____
- *** Please write one of your EPA ID numbers on your check.

To pay your fees via credit card, complete the enclosed "EPA ID and Manifest Fee Credit Card Payment Form".

I hereby certify under penalty of perjury that the information on the Verification Questionnaire(s), Schedule A(s) and Schedule B is true and correct.

Signature of Preparer: _____ Title: _____
 Name (please print): _____ Date: _____ Phone: _____

THIS SECTION FOR DEPARTMENT USE ONLY			
Check No	AMOUNT	DATE:	CID NO:
12560055:	12560092	12560065:	
12560035:	12560091:	AMOUNT DUE:	
12560075:	12560096:	PRIMARY ID #:	

INSTRUCTIONS FOR COMPLETING SCHEDULE B – FEES SUMMARY SHEET**SECTION A (EPA ID Number Verification Fee for 2005/2006)**

NOTE: Health and Safety Code, Section 25205.16 requires DTSC to verify the accuracy of information related to generators, transporters and facilities authorized to treat, dispose of, store, or recycle hazardous waste. DTSC captures this data through the Verification Questionnaire and uses the collected information to ensure that the Hazardous Waste Information Network database is current and accurate. The EPA ID Number Verification Fee, which has been established by State legislation, funds this effort.

Line 1: Enter the **full** name of your organization. Do not abbreviate.

Line 2: Enter the total number of individuals employed in California by your organization. An employee must have worked more than 500 hours during the calendar year 2005 to be included in your calculation. ("Organization" is defined as a registered corporation, sole proprietor, partnership, or company. For public agencies, "organization" is defined as a city, county, commission, agency, department or district.)

Line 3: Based on the number of employees entered on Line 2, determine your EPA ID Number Verification Fee rate by using the table shown and then enter that rate on Line 3.

Line 4: Enter the total number of **permanent** EPA ID numbers assigned to your organization. Do not include "CAC" numbers in your total, as they are temporary and not subject to the EPA ID Number Verification Fee. If you indicated on the Verification Questionnaire that you wish to deactivate a permanent EPA ID number, **you must still include that number in this total**. The fee is required because that EPA ID number was active during the billing period (July 1, 2005 through June 30, 2006).

Line 5: Enter the EPA ID Number Verification Fee. This fee is determined by multiplying the fee rate (reported on Line 3) by the total of permanent EPA ID numbers assigned to your organization (reported on Line 4).

Line 6: Enter **either** the amount shown on Line 5, **OR** \$5000 (whichever amount is **less**). The maximum EPA ID Number Verification Fee is \$5000 per organization.

SECTION B (Manifest Fees for January 1, 2005 through December 31, 2005)

Line 1: Enter the **total** manifest fees due. This amount is shown on Line e on the **Schedule A – Manifest Fee Calculation Sheet**. If your organization has more than one EPA ID number, enter the **total** of the dollar amounts from **all** your Schedule A – Manifest Fee Calculation Sheets.

SECTION C (Grand total of all EPA ID Number Verification Fees and Manifest Fees owed)

Line 1: Add Line **A6** and **B1**. The sum of these two amounts is the total fee due from your organization. Please make your check payable to "DTSC" or use the credit card payment form. Please write one of your EPA ID numbers on your check.

IMPORTANT: YOU MUST RETURN THE ORIGINAL OF THE FOLLOWING DOCUMENTS WITHIN 30 DAYS:

- ✓ **Verification Questionnaire** (one form for **each** EPA ID number)
- ✓ **Schedule A – Manifest Fee Calculation Sheet** (one form for **each** EPA ID number)
- ✓ **Schedule B – Fee Summary Sheet** (only **ONE** of these forms is needed for your entire organization)



Linda Adams
Agency Secretary
Cal/EPA

Department of Toxic Substances Control

Maureen F. Gorsen, Director
1001 "I" Street
P.O. Box 806
Sacramento, California 95812-0806



Arnold Schwarzenegger
Governor

May 19, 2006

CRITICAL HAZARDOUS WASTE MANIFEST CHANGES COMING SEPTEMBER 5, 2006

To All Hazardous Waste Handlers,

Federal and state hazardous waste manifest regulations change on September 5, 2006, and require you to use a new manifest form.

- **IF YOU MANIFEST HAZARDOUS WASTE, WE URGE YOU TO BECOME FAMILIAR WITH THESE NEW REQUIREMENTS TO DETERMINE HOW THEY AFFECT YOU AND YOUR BUSINESS.**
- **If you are a generator that uses a Consolidated Transporter and never directly manifest hazardous wastes, these changes will not affect you.**
- **If you only ship Universal Waste and do not manifest now, these changes do not affect you.**

What Are the Major Changes? U.S. EPA revised the Uniform Hazardous Waste Manifest and mandated its use throughout the nation, replacing all state versions. You cannot use current versions of California's manifest or manifests from other states for shipments that start after September 4, 2006.

However, the new six-page manifest form is different. It is not color-coded and does not include a copy for generators to submit to the state. You must purchase manifests printed by a U.S. EPA-approved printer for shipping wastes on and after September 5, 2006. DTSC will not print manifests.

The new U.S. EPA manifest rules also change the hazardous waste label but you can use your current supply of labels as long as it contains the Generator ID number. Please see the Supplemental Instructions (attached) and fact sheet (online) for detailed changes including new handling codes, now called HW Report Management Method codes. Carefully review the form and federal instructions on our website to determine how the changes impact you. **Supplemental California Manifest Instructions contain instructions that WILL NOT APPEAR on the new federal manifest. Retain these supplemental instructions!**

For More Information: Go to DTSC's webpage at www.dtsc.ca.gov/IDManifest. Send comments and questions to CAManRegs@dtsc.ca.gov or call the DTSC Public and Business Liaisons at 1-800-72-TOXIC. Your transporter and facility are also sources of manifest information.

Training Workshops This Summer: DTSC will present training workshops in coordination with the California Waste Association (CWA), the Independent Waste Oil Collectors and Transporters Association (IWOC) and other business groups. For only the CWA sessions (in June and July), register on line at www.go2cwa.org or call 562-983-8142. For dates and times, and for online copies of the training slides and handouts, check DTSC's website. Your local agencies (CUPAs) may also offer training. Please check with them.

Please print or type. (Form designed for use on alpha (12-pitch) typewriter.)

Form Approved, OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
5. Generator's Name and Mailing Address			Generator's Site Address (if different than mailing address)		
Generator's Phone:					
6. Transporter 1 Company Name				U.S. EPA ID Number	
7. Transporter 2 Company Name				U.S. EPA ID Number	
8. Designated Facility Name and Site Address				U.S. EPA ID Number	
Facility's Phone:					
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))		10. Containers No. Type		11. Total Quantity
					12. Unit Wt./Vol.
					13. Waste Codes
14. Special Handling Instructions and Additional Information					
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.22(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.					
Generator's/Offeror's Printed/Typed Name				Signature	
				Month Day Year	
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____					
Transporter signature (for exports only) _____ Date leaving U.S.: _____					
17. Transporter Acknowledgment of Receipt of Materials					
Transporter 1 Printed/Typed Name				Signature	
				Month Day Year	
Transporter 2 Printed/Typed Name				Signature	
				Month Day Year	
18. Discrepancy					
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection					
Manifest Reference Number: _____					
18b. Alternate Facility (or Generator)				U.S. EPA ID Number	
Facility's Phone: _____					
18c. Signature of Alternate Facility (or Generator)				Month Day Year	
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)					
1	2	3	4		
20. Designated Facility Owner or Operator. Certification of receipt of hazardous materials covered by the manifest except as noted in item 18a					
Printed/Typed Name				Signature	
				Month Day Year	



South Coast Air Quality Management District

21865 E. Copley Drive, Diamond Bar, CA 91765-4182
(909) 396-2000 • www.aqmd.gov

ACKNOWLEDGEMENT OF ANNUAL OPERATING PERMIT FEE PAYMENT

Dear Permit Holder:

This letter acknowledges your recent annual operating permit fee payment for the permits to operate or applications listed on the enclosed attachment. The next renewal date for each permit or application is stated on the attachment. For facilities that have been issued a RECLAIM facility permit, the facility permit serves as a comprehensive permit to operate the equipment listed on the facility permit.

This payment acknowledgment letter does NOT replace your original Permit to Operate, and you should NOT discard the original permit.

You are required by AQMD Rule 206 to affix the original Permit to Operate or a legible facsimile of the permit upon the equipment so that the permit number, equipment description, and the operating conditions are clearly visible.

If you have any questions about this permit renewal acknowledgement letter please call AQMD's Customer Service section. From inside California call our toll-free number (866) 888-8838 or call (909) 396-2900. Outside California call (909) 396-2900 only. If you need a photocopy of your permit to operate please contact the Public Records Request section at (909) 396-3700. You may request a certified copy of an active permit to operate by submitting the request in writing. A fee of \$15.89 must accompany your written request. (If your facility is a RECLAIM facility, you may request a certified copy of your RECLAIM facility permit by submitting the request in writing. A fee of \$15.89 for the first page and \$1.13 for each additional page in the facility permit must accompany your written request.) The written request and the fee for a certified copy of an active permit should be sent to SCAQMD, P.O. Box 4943, Diamond Bar, CA 91765-0943.

DICE 00857



South Coast Air Quality Management District



21865 E. Copley Drive, Diamond Bar, CA 91765-4182
(909) 396-2000 • www.aqmd.gov

DATE: 08-19-03

EQUIPMENT LOCATED AT: 8832 DICE RD
SANTA FE SPRINGS, CA 90670- 2540

LEGAL OWNER CO. ID: 55690
OR OPERATOR AIR LIQUIDE AMERICAN CORP
8832 DICE RD
SANTA FE SPRINGS, CA 90670- 2540

PERMIT/APPLICATION RENEWALS

PERMIT/ APPL NBR	EQUIPMENT DESCRIPTION	NEXT RENEWAL DATE
BILLING YEAR :	2003	
F15616	SPRAY BOOTH PAINT AND SOLVENT	07-31-04

RECEIVED

AUG 27 2003

BY: _____

DICE 00858



EMISSIONS FEES INVOICE

INVOICE NO. 1509231

California Health and Safety Code Section 40510 and South Coast Air Quality Management District Rule 301(e) authorize AQMD to charge the fee described below.

EQUIPMENT 8832 DICE RD
LOCATED AT: SANTA FE SPRINGS, CA, 90670
FACILITY ID: 55690

INVOICE DATE: 06/17/03

LEGAL OWNER OR OPERATOR: AIR LIQUIDE AMERICAN CORP
8832 DICE RD
SANTA FE SPRINGS, CA, 90670

DUPLICATE COPY

Table with 6 columns: TRANSACTION NUMBER, TRANSACTION DATE, REFERENCE NUMBER, DESCRIPTION, TRANSACTION AMOUNT, TRANSACTION BALANCE. Row 1: 6510235, 06/17/03, FY03-04, Flat Annual Emissions Fee, 75.00, 75.00. Includes handwritten note: 'Approved for payment 7/14/03'.

REMARKS PLEASE RETURN THE DUPLICATE COPY OF THIS INVOICE WITH YOUR REMITTANCE TO ENSURE PROPER CREDIT TO YOUR ACCOUNT. RETURNED CHECKS MAY BE SUBJECT TO TO A \$28.43 SERVICE CHARGE.

INVOICE TOTAL: \$75.00

If payment not received by 08/16/03 a 5% late payment penalty will be imposed.

DICE 00859

Please return duplicate copy with remittance. Make check payable to South Coast A.Q.M.D.

For Information: Inside California Call Our Toll-Free Number (866) 888-8838 Or Call (909) 396-2900. Outside California Call (909) 396-2900 Only.

Mail Remittance to: P.O. Box 4943 Diamond Bar CA, 91765-0943



ANNUAL OPERATING FEES INVOICE

INVOICE NO. 1508032

PAGE: 1

California Health and Safety Code Section 40510 and South Coast Air Quality Management District Rule 301 authorizes AQMD to charge permit fees on the equipment identified below.

EQUIPMENT 8832 DICE RD
LOCATED AT: SANTA FE SPRINGS, CA, 90670

INVOICE DATE: 06/17/03

FACILITY ID: 55690

LEGAL OWNER AIR LIQUIDE AMERICAN CORP
OR OPERATOR: 8832 DICE RD
SANTA FE SPRINGS, CA, 90670

DUPLICATE COPY

Table with 6 columns: TRANSACTION NUMBER, TRANSACTION DATE, REFERENCE NUMBER, DESCRIPTION, TRANSACTION AMOUNT, TRANSACTION BALANCE. Row 1: 6508095, 06/17/03, F15616, SPRAY BOOTH PAINT AND SOLVENT, 201.77, 201.77

Handwritten note: Approved for payment 7/14/03

REMARKS PLEASE RETURN THE DUPLICATE COPY OF THIS INVOICE WITH YOUR REMITTANCE TO ENSURE PROPER CREDIT TO YOUR ACCOUNT. RETURNED CHECKS MAY BE SUBJECT TO TO A \$28.43 SERVICE CHARGE.

INVOICE TOTAL: \$201.77

DICE 00860

If payment not received by 08/16/03 application/permit will be delinquent. If payment not received by 09/16/03 application/permit will expire. Operation of equipment without a permit subjects owner or operator to misdemeanor or civil penalties for each day of operation.

Please return duplicate copy with remittance. Make check payable to South Coast A.Q.M.D.

For Information Inside California Call Our Toll-Free Number (866) 888-8838 Or Call (909) 396-2900 Outside California Call (909) 396-2900 Only.

Mail Remittance to: P.O. Box 4943 Diamond Bar CA. 91765-0943

City of Santa Fe Springs Fire Department
 Fire Protection Division - Environmental Protection Division
 11300 Greenstone Avenue, Santa Fe Springs, CA 90670-4619
 (562) 944-9713 FAX (562) 941-1817 fire@santafesprings.org

INVOICE

30600.0002.43511.933

(K. Leach)
4/10/03

AIR LIQUIDE AMERICA L.P.
 8832 DICE
 SANTA FE SPRINGS CA 90670

Period Covered 07/01/2003-06/30/2004
 Permit No 600094
 Today's Date 11/05/2003
 Payment Due Date 12/05/2003

For Facility Located at 8832 DICE SANTA FE SPRINGS, CA 90670
--

**A PENALTY WILL BE ASSESSED FOR
 TOTAL FEES NOT RECEIVED BY THE DUE
 DATE ABOVE**

CUPA PROGRAM ELEMENTS		
Hazardous Materials Fee		\$3,290.00
Hazardous Materials Volume Fee		\$1,170.00
Hazardous Waste Generator Fee		\$830.00
Tier Permit Fee		\$0.00
Underground Storage Tank Fee		\$0.00
CalARP Fee		\$0.00
Aboveground Storage Tanks		\$0.00
STATE SERVICE FEES		
Underground Storage Tank Service Fee	<input type="checkbox"/> (Exempt)	\$0.00
CalARP Service Fee	<input type="checkbox"/> (Exempt)	\$0.00
Program Oversight Fee	<input type="checkbox"/> (Exempt)	\$24.00
OTHER		
Industrial Waste Permit Fee		\$408.00
Rain Diversion Fee		\$204.00
Fire Permit Fee		\$2,180.00
Stormwater Fee		\$53.00

This fee is due and payable upon receipt. Please indicate the permit number 600094 on your check. Make check payable to 'CITY OF SANTA FE SPRINGS' and remit to

City of Santa Fe Springs Fire Department
 11300 Greenstone Avenue
 Santa Fe Springs, CA 90670

Above Total: **\$8,159.00**
 Late Fee: **\$0.00**
 Amount Paid: **\$0.00**
TOTAL AMOUNT DUE: \$8,159.00

DICE 00861


STATE WATER RESOURCES CONTROL BOARD

INVOICE

Annual Fee for Storm Water Permit
Required by SECTION 13260 of the California Water Code

Facility ID (WDID): 4 191000389
Facility Name: LIQUID AIR
8832 DICE RD
SANTA FE SPRINGS, CA

Invoice No: 0318001
Billing Period: 04/01/04-03/31/05
Invoice Date: 04/09/04

 Total Amount Due by 05/09/04 \$830

AIR LIQUIDE AMERICA LP
ATTN: AARON TESCH
8832 DICE RD
SANTA FE SPRINGS, CA 90670

84306.4676.6381.199.600

Aaron Tesch
4/12


Invoice details are shown on the back

STATE WATER RESOURCES CONTROL BOARD
Annual Fee for Storm Water Permit
Required by SECTION 13260 of the California Water Code


Facility ID: 4 191000389 Billing Period: 04/01/04-03/31/05 Quarter: 04
Invoice No 0318001 Amount Due: \$830 Due By: Sunday, May 9 2004

PLEASE REMIT YOUR PAYMENT ON OR BEFORE THE DUE DATE SHOWN ABOVE.
LATE PAYMENT COULD RESULT IN PENALTIES UNDER PROVISIONS OF THE WATER CODE
SECTION 13261. THESE ACTIONS COULD INCLUDE DAILY PENALTIES IN ADDITION TO
YOUR FEE, OR OTHER ACTIONS DEEMED APPROPRIATE BY THE REGIONAL BOARD.


PLEASE NOTE THAT TRANSFER OF OWNERSHIP OR RELOCATION OF THE FACILITY
REQUIRE A NEW STORM WATER PERMIT. IF YOU FACILITY IS CLOSED OR PROJECT
COMPLETED, PLEASE FILE A NOTICE OF TERMINATION.

 Make your check payable to SWRCB FEES

If you have any questions about this invoice, please call Storm Water Unit at (916) 341-5247

 Retain this portion for your records
Please detach and return this portion with your payment

CHECK HERE FOR ADDRESS CORRECTION ON THE BACK

 Invoice No: 0318001
PLEASE PRINT THIS NUMBER ON
CHECK OR MONEY ORDER

AIR LIQUIDE AMERICA LP
ATTN: AARON TESCH
8832 DICE RD
SANTA FE SPRINGS, CA 90670
(502) 945-1383

SWRCB ACCOUNTING OFFICE
ATTN: AFRS
P. O. Box 1888
SACRAMENTO, CA 95812-1888

AMOUNT DUE: \$830
BILLING PERIOD: 04/01/04-03/31/05
DUE BY: 05/09/04
FACILITY ID (WDID): 4 191000389
FACILITY NAME: LIQUID AIR
8832 DICE RD
SANTA FE SPRINGS, CA

DICE 00862



Terry Tamminen
Secretary for
Environmental
Protection



Arnold Schwarzenegger
Governor

MOST FREQUENTLY ASKED QUESTIONS ABOUT SWRCB STORM WATER FEES

1. *What is this invoice for?*

Storm Water fee invoices are sent to every person who filed a Notice of Intent with the State Water Resources Control Board (SWRCB). The invoice is your bill for the twelve month period shown. Under state law, a fee is assessed annually for persons who may discharge industrial and/or construction storm water under a general permit.

2. *If I don't have any pollutants in my storm water discharge, am I still subject to an annual fee?*

Yes. As long as you discharge storm water, you are subject to this fee regardless of whether or not there are pollutants in the discharges. You must pay the fee no matter how often or long your discharge occurs.

3. *What is my fee going toward?*

The annual fee pays for the implementation and administration of the Storm Water Program.

4. *What is a Facility Identification Number or WDID Number?*

The facility identification number or WDID number is the number the SWRCB gives each permittee when they apply for an NOI. Consider it your account number with the SWRCB.

5. *What is the SWRCB's Federal Tax Identification Number?*

68-0281986

6. *If my construction project has been completed, or my facility is closed, am I still subject to the annual fee?*

You are subject to the annual fee until you (1) file a Notice of Termination (NOT) with the Regional Board, and (2) the Regional Board approves your NOT.

7. *Where are Notice Of Terminations sent to?*

DICE 00863

NOTs are sent to the Regional Board which has the jurisdiction over your site. Please refer to the last page of an NOT packet for Regional Board locations. If you have already submitted an NOT and still received an invoice, please contact the Regional Board.

8. *If a Notice of Termination has been submitted to the Regional Board, do I still have to pay the fee?*

Possibly. Send or fax us a copy of your NOT and we will place you on "billing hold" pending Regional Board decision. If the Regional Board approves your NOT, and (1) the project's completion date for construction activity is prior to the annual fee billing date, or (2) the

STATE WATER RESOURCES CONTROL BOARD

INVOICE DETAILS

INVOICE NO: 0318001 BILLING PERIOD: 04/01/04-03/31/05 FACILITY ID (WDID): 4 191000389

Program Type	Program Class	Region/Order No	Acreage	Annual Fee	Ambient Water Monitoring Surcharge	Credit Amount	Date of Adoption
SWIND	SWN	4/97-003	0	\$700	\$130	\$0	04/17/97

INVOICE TOTAL: \$830

If you have any questions about this invoice, please call Storm Water Unit at (916) 341-5247

NOTICE OF CHANGE IN FACILITY (WDID) ID NUMBERS

EFFECTIVE THIS YEAR, STORMWATER FACILITY ID NUMBERS HAVE BEEN MODIFIED TO DISTINGUISH BETWEEN CONSTRUCTION AND INDUSTRIAL PERMITS. THE "S" IDENTIFIER HAS CHANGED TO "C" FOR CONSTRUCTION OR "I" FOR INDUSTRIAL. FOR EXAMPLE, 8 00S000000 IS NOW 8 00C000000 OR 8 00I000000. IF YOUR ID NUMBER HAS NOT CHANGED PLEASE CONTACT US AT (916) 341-5247.

* Questions regarding the Ambient Water Monitoring surcharge can be answered by accessing the SWRCB's web site at: <http://www.swrcb.ca.gov/swamp/> or by contacting the fee unit at (916) 341-5247.

BILLING ADDRESS CORRECTIONS

Please print the new billing address information in the space provided below

FACILITY ID (WDID): 4 191000389 LIQUID AIR

BILLING NAME:

CONTACT PERSON:

STREET:

CITY:

STATE:

ZIP: -

PHONE: () -

REGION 4

Quarter: 04

sent
2/13/04

HAZARDOUS WASTE GENERATOR FEE RETURN

DUE ON OR BEFORE 02/29/04 FOR JANUARY - DECEMBER, 20

HWCA RVHG05

HA EF

YOUR ACC
36-02

BOARD OF EQUALIZATION
EXCISE TAXES AND FEES DIVISION
PO BOX 942879
SACRAMENTO CA 94279-6009

AIR LIQUIDE AMERICA CORPORATION
8832 DICE RD
SANTA FE SPRINGS CA 90670-2516

Kelly

BOARD USE ONLY		
RR-B/A	AUD	REG
RR-QS	FILE	REF
EFF		

MAKE CHANGES
IF NAME OR
ADDRESS
IS INCORRECT

8832 DICE RD
CAL000021160

COPY

**READ INSTRUCTIONS
BEFORE PREPARING**

If you are registered to make your payment by electronic funds transfer (EFT), you must still file your return timely. You can mail your return in the envelope provided or fax it to 916-327-0859. To register to make payments via EFT please contact us at 916-322-9534.

1. Please check this box if you no longer generate hazardous waste at this site. Enter the date of last generation _____ . Your account will be closed as of the date entered. For consolidated accounts, use the enclosed Schedule G to indicate the date each site last generated waste, if hazardous waste is no longer being generated at that site.



A CLASSIFICATION OF GENERATING SITES (Based on amounts of hazardous waste generated during the calendar year or portion thereof)	B NUMBER OF SITES (Do not list tonnage)	C AMOUNT OF FEES	D TOTAL FEES DUE (Column B x C)
2. Generators which generate less than 5 tons	2. 1	0.00	\$ 0
3. Generators which generate an amount equal to or more than 5 tons, but less than 25 tons	3.	163.00	
4. Generators which generate an amount equal to or more than 25 tons, but less than 50 tons	4.	1305.00	
5. Generators which generate an amount equal to or more than 50 tons, but less than 250 tons	5.	3262.00	
6. Generators which generate an amount equal to or more than 250 tons, but less than 500 tons	6.	16310.00	
7. Generators which generate an amount equal to or more than 500 tons, but less than 1,000 tons	7.	32620.00	
8. Generators which generate an amount equal to or more than 1,000 tons, but less than 2,000 tons	8.	48930.00	
9. Generators which generate an amount equal to or more than 2,000 tons	9.	65240.00	
10. Amount of fees (add lines 2 through 9 in Column D)	10.		\$
11. Less prepayment credit	11.		\$
12. Total fee due (subtract line 11 from line 10)	12.		\$
13. Penalty [multiply line 12 by 10% (.10) if payment is made after the due date shown above]	PENALTY 13.		\$
14. Interest of 08% per annum (0.006670 per month) is due if payment is made after the due date.	INTEREST 14.		\$
15. TOTAL AMOUNT DUE AND PAYABLE (add lines 12, 13 and 14)	15.		\$ 0

DICE 00866

I hereby certify that this return, including any accompanying schedules and statements, has been examined by me and to the best of my knowledge and belief is a true, correct and complete return.

PRINT/TYPED NAME AND TITLE: Kelly Davidson Env. Specialist
SIGNATURE: Kelly Davidson
PHONE NUMBER: [Redacted]
DATE: 2/13/04

MAKE CHECK OR MONEY ORDER PAYABLE TO STATE BOARD OF EQUALIZATION.

Always write your account number on your check or money order. Make a copy of this document for your records.