IT CORPORATION
17605 Fabrica Way
Cerritos, California 90701
(213) 921-9831



# CERTIFICATE OF ANALYSIS

TO: IT CORPORATION
4575 Pacheco Blvd.
Martinez, CA 94553
Attn: Krys Sanchez

DATE REPORTED: April 20, 1984
PROJECT CODE: 29270/rjc
ORDER NUMBER: 80593
PAGE 1 OF 1



Two (2) soil samples and two (2) water samples.

The samples were analyzed for methanol, acetone, isopropanol, ethylene glycol, petroleum naptha, xylene, heptane, hexane, toluene, and isopropyl ether.

The samples were extracted using appropriate extraction techniques and then analyzed by direct injection into a Varian gas chromatograph equipped with a flame ionization detector. The results are as follows:

| | 1017 | 1018 | 1019 | 1020 |
|---|---|---|---|---|
| | Micrograms/gram (ppm) | | Micrograms/milliliter (ppm) | |
| Methanol | ND<100 | ND<100 | ND<10 | ND<10 |
| Isopropanol | ND<50 | ND<50 | ND<5 | ND<5 |
| Acetone | ND<50 | ND<50 | ND<5 | ND<5 |
| Ethylene glycol | ND<2500 | ND<2500 | ND<250 | ND<250 |
| Xylenes | ND<250 | ND<250 | ND<50 | ND<50 |
| Heptane | ND<130 | ND<130 | ND<25 | ND<25 |
| Hexane | ND<130 | ND<130 | ND<25 | ND<25 |
| Toluene | ND<130 | ND<130 | ND<25 | ND<25 |
| Isopropyl ether | ND<130 | ND<130 | ND<25 | ND<25 |
| Petroleum naphtha | ND<500 | ND<500 | ND<100 | ND<100 |

ND - This compound was not detected; the limit of detection for this analysis is less than the amount stated in the table above.

FROM
STATE OF CALIFORNIA
DEPARTMENT OF TOXIC SUBSTANCES CONTROL
REGION 2
700 HEINZ AVE., SUITE 200
BERKELEY, CA 94710-2737

To: Jennifer Eberle
Alameda Co. Health Agency
Dept. of Envt'l Health
1131 Harbor Bay Parkway
Alameda, CA 94502

Maribeth Webber
Maribeth Webber
Senior Chemist
Title

Approved By

IT CORPORATION

May 1, 1984

Mr. Mac McCulloch
Hazardous Materials Control Officer
Southern Pacific Transportation Company
One Market Plaza
San Francisco, California 94105

Dear Mr. McCulloch:

SUBJECT: SOIL AND WATER SAMPLES
AMCO CHEMICAL
3rd and Cypress Streets
Oakland, California

Attached are sample results for two soil samples, 1017 and 1018, and two water samples, 1019 and 1020. Samples were collected at your direction on April 3, 1984 at the subject facility.

All of the compounds analyzed were below the limits of detection and quantification for the analysis. If you have any questions about these analytical results, please call me at our Martinez office, (415) 228-8400.

Very truly yours,

John W. Schweizer
Manager, Chemical Engineering

JWS:emh
Attachments

ES ENGINEERING-SCIENCE

600 BANCROFT WAY • BERKELEY, CALIFORNIA 94710 • 415/548-7970

8 April 1986
Ref: 66256.00

Lou Nagy
Amco Chemical Co.
3rd and Cypress Streets
Oakland, CA 94607

SUBJECT: Site Investigation and Soil Sampling in Outside Yard Area

Dear Mr. Nagy:

Engineering-Science (ES) completed an initial site reconnaissance at the AMCO Chemical Co. in March 1986. Mr. Lou Nagy, president of AMCO, accompanied Mr. Richard Makdisi and Mr. Eric Storrs of ES on a site visit. During the site visit and discussion of the history of chemical compounds stored on site it was determined that oil and grease, heavy metals, and volatile organic compounds (VOCs) were potential site contaminants.

Figure 1 shows a plan view of the AMCO Chemical Company. The warehouse area is used to store drums, both empty and full, and for transferring chemicals into various sized containers. It has a concrete floor and there were no obvious signs of chemical leaks. The "partially burned building" is also used to store empty and full drums. Again no obvious signs of leakage were noted. Much of the outside yard area is covered with concrete or asphalt, but areas of soil could be found (as shown on Figure 1). Numerous 55-gallon drums in various states of decay were noted in the yard area. Most of these drums were empty, but many were full.

Twelve above-ground chemical storage tanks are located in the yard as shown in Figure 1. These tanks are used as temporary storage between the time chemicals are unloaded from railroad tank cars and are put in smaller containers. The tanks appeared in good condition. Two 10,000 gallon steel undergound storage tanks are located in the area between the shed and tanks number 2 and 3. These were installed about 25 years ago and are no longer in use.

Sampling Procedure

On 17 March 1986, ES personnel took six surface soil samples for metals, oil and grease, and for VOC analysis. The oil and grease and metals samples were collected in 1-quart Mason jars, and the VOC samples in VOA vials. Clean trowels were used at each site. Figure 1 shows the location of each sampling site.

Sample location "A" was between the railroad tracks and storage tank #1. The sample was very gravelly with some fine material between. Because of this, the VOC sample was taken about twelve feet away in front of tanks #1 and #2. This sample consisted of a finer material scraped from the top of a harder surface, possibly asphalt.

Sample "B" was taken in front of tank #4 in the vicinity of the connection between the tank and a railroad car that would be unloading into the tank. The soil was dry and dark brown with an "earthy" smell.

Sample "C" was collected in front of tank #6. A tan-colored layer was noted directly below the darker surface, and the hole filled with water shortly after digging. An oily sheen was noted on the surface of the water. The water pH was 6.0.

Sample location "D" was in front of tank #9 from beneath two inches of water. This water was probably the surface collection from recent rains. The sample was black, fine-grained, and oily looking. The surface water had a pH of 7.5

Sample "E" was collected from soil beneath an empty 55-gallon drum storage rack. This rack was near a stack of drums filled with Trichloroethene (TCE). While the drums showed some signs of rust, there was no indication of leaking. The soil beneath the empty rack had patches of vegetation (grasses) and barren patches. Sample "E" was taken from the barren patch closest to the northeast corner of the shed. The sample was dry, black, and oily looking.

Sample "F", taken in front of tanks #11 and 12, was collected from beneath about three inches of water. Again, this water was probably an accumulation from recent rains. The water had a pH of 8.5, and an oil sheen was noted. The soil sample was black and sticky, and had a noxious odor suggesting anerobic reducing conditions. VOC analysis was not performed for this site becuase the sample was broken during transport.

## Analytical Results

All analytical results from ES Laboratories are given in the Appendix. Table 1 summarizes soil contaminants found in samples A through F along with California State Total Threshold Limit Concentrations (TTLC). TTLC is defined as "...the concentration of a solubilized, extractable, and non-exractable bioaccumulative or persistent toxic substance which, if equaled or exceeded in a waste, renders the waste hazardous." (Title 22, California Administrative Code, Section 66206). The California Department of Health Services (DOHS) may determine that the TTLC for a given constitutent can be exceeded and still be within their "action levels" if the environmental conditions of the site are deemed appropriate.

### Metals

As shown on Table 1, the only metal contaminants exceeding TTLC are arsenic in Sample F and lead in Sample E. Sample F had 540 mg/kg of arsenic, which has TTLC of 500 mg/kg. Sample E, with 1300 mg/kg of lead, exceeded TTLC by 300 mg/kg. All other metals tested for were below TTLC. Figures 2 and 3 show concentrations for arsenic and lead.

VOCs

Samples A through E were analyzed for purgeable halocarbons using EPA Method 601 (GC/Hall). The only two compounds identified in any sample were 1,1,1-Trichloroethane (TCA) and 1,1-Dichloroethane. Concentrations found for these two contaminants are shown on Table 1. There are no DOHS guidelines or published standards at this time for these compounds, and evaluation is currently carried out on a site-by-site basis. However, Dr. Paul Williams of DOHS (verbal communication, 7 April 1986) indicated that a 1982 evaluation of TCA "action levels" gave it a concentration of 100,000 ppb. Thus, the highest sample concentration recorded, at 25,000 ppb, is below this "action level".

Oil and Grease

Soil samples A through F were analyzed for total oil and grease, and concentrations ranging form 7,700 to 170,000 mg/kg were reported. Reported concentrations are shown on Table 1. Again, there are no formal DOHS standards for oil and grease contamination, and evaluation is carried out on a site-by-site basis. However, Dr. Williams (verbal communication, 7 April 1986) indicated that DOHS takes 1,000 mg/kg as a concentration above which they will scrutinize the site conditions. Thus, the range of concentrations at the AMCO site will warrant a site evaluation. Some of the materials may be required to be removed, or if they are determined to be relatively immobile, DOHS may allow the oil and grease laden soils to remain on site but require a clay cap over the area of high concentration. The California Regional Water Quality Control Board (RWQCB) has guidelines for oil and grease concentrations which indicate that if there is sufficient oil and grease to cause an oil layer in water when a soil samples is placed in a bucket of water (the so-called "bucket test"), then the RWQCB requires vertical and horizontal definition of the extent of the contamination. If however, the oil and grease are confined to the unsaturated soil zone and no direct water infiltration of the soil occurs, then the RWQCB does not require removal of the soil (Robin Breuer, RWQCB, personal communication, 1985).

Conclusions

Of the six surface soil samples taken, all had oil and grease concentrations that may be of concern to regulatory agencies. In addition, sample D, which showed a TCA concentration of 25,500 ppb and a 1,1-Dichloroethane level of 2,100 ppb, may also be of some concern to the RWQCB. Sample E had 1,300 mg/kg of lead and 93,000 mg/kg of oil and grease, and Sample F showed a concentration of 540 mg/kg of arsenic. In addition, although relatively lower than the others, Samples A, B, and F showed oil and grease concentrations that may also be of concern.

Recommendations

Additional sampling is recommended to determine the vertical and lateral extent of TCA, 1,1-Dichloroethane, arsenic, lead, and oil and grease. This sampling should be carried out only in the areas where high

levels were found (see Figures 2,3,4,5, and 6). Specifically, two additional samples from depths of 1-1/2 feet and 3 feet should be collected from Sites C,D, E, And F. These samples should be analyzed for the constituents which were determined to exceed regulatory standards.

It has been a pleasure to provide you with the requested services, and should you have any questions, please call.

Very truly yours,

Eric N. Storrs
Environmental Analyst

Richard Makdisi
Project Manager

ES/RM/jh/282.2

TABLE 1

ANALYTICAL RESULTS COMPARED WITH REGULATORY STANDARDS
(mg/kg unless otherwise indicated)

| Constituents | TTLC | Station Number | | | | | |
|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F |
| 1,1,1-Trichloroethane (ppb) | * | 466 | ND | 662 | 25,500 | 294 | NA |
| 1,1-Dichloroethane (ppb) | * | ND | ND | ND | 2,100 | ND | NA |
| Arsenic (As) | 500 | 5.5 | 12 | 4 | 5.7 | 74 | 540 |
| Barium (Ba) | 10,000 | 81 | 170 | 200 | 170 | 240 | 310 |
| Cadmium (Cd) | 100 | 1.8 | 3 | 4.5 | 2 | 2.5 | 2 |
| Chromium (Cr) | 2,500 | 89 | 350 | 260 | 350 | 710 | 120 |
| Lead (Pb) | 1,000 | 96 | 290 | 340 | 370 | 1,300 | 290 |
| Mercury (Hg) | 20 | <0.2 | 0.33 | 2.11 | <0.28 | 0.93 | <0.23 |
| Selenium (Se) | 100 | <.5 | 0.65 | <0.5 | <0.5 | <0.5 | <0.5 |
| Silver (Ag) | 500 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| Oil and Grease | * | 20,000 | 7,700 | 170,000 | 140,000 | 93,000 | 30,000 |

*TTLC not established at this time.

SOURCE: TTLC from Title 22, California Administrative Code, Section 66699.

FIGURE 1

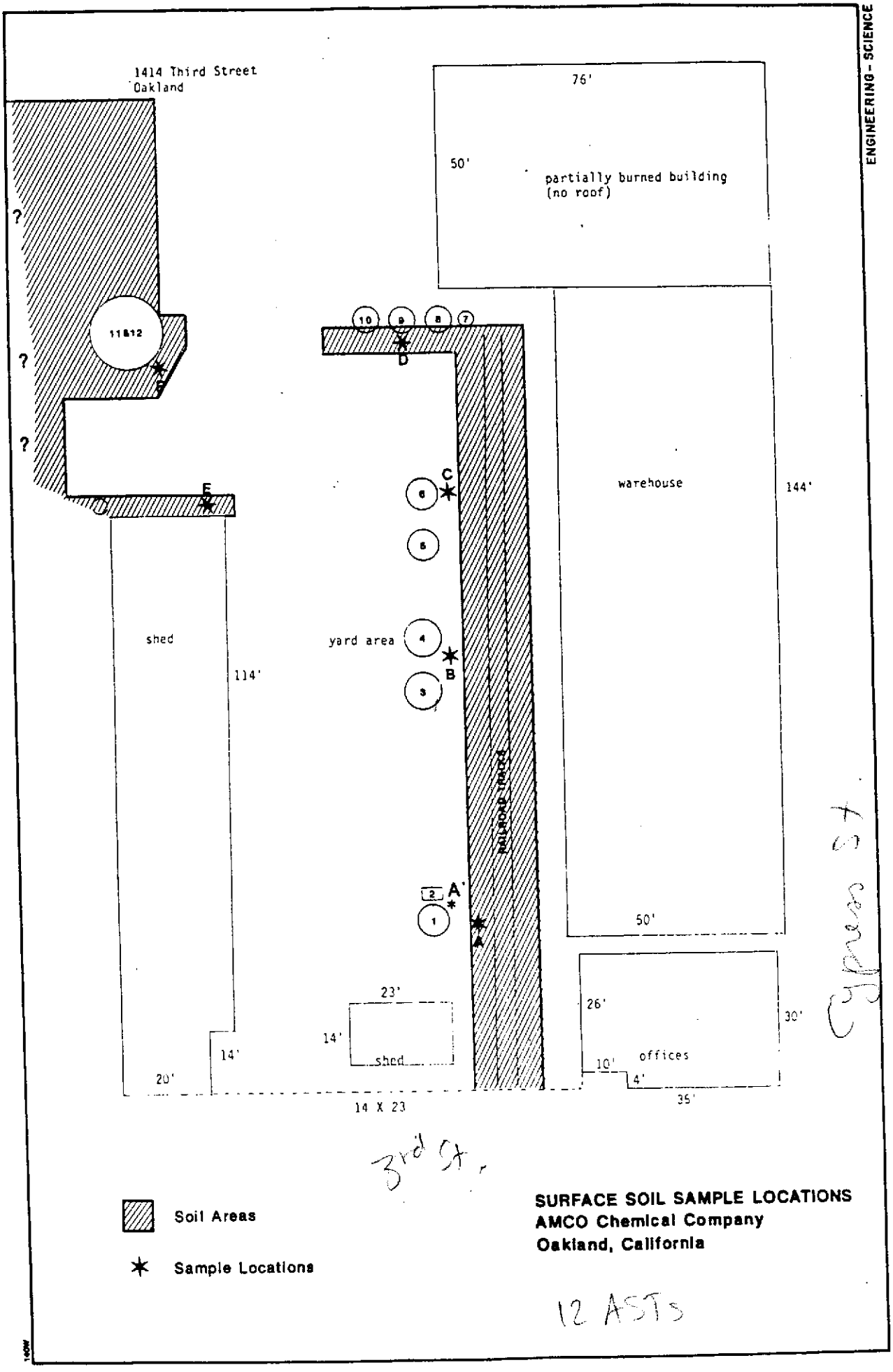
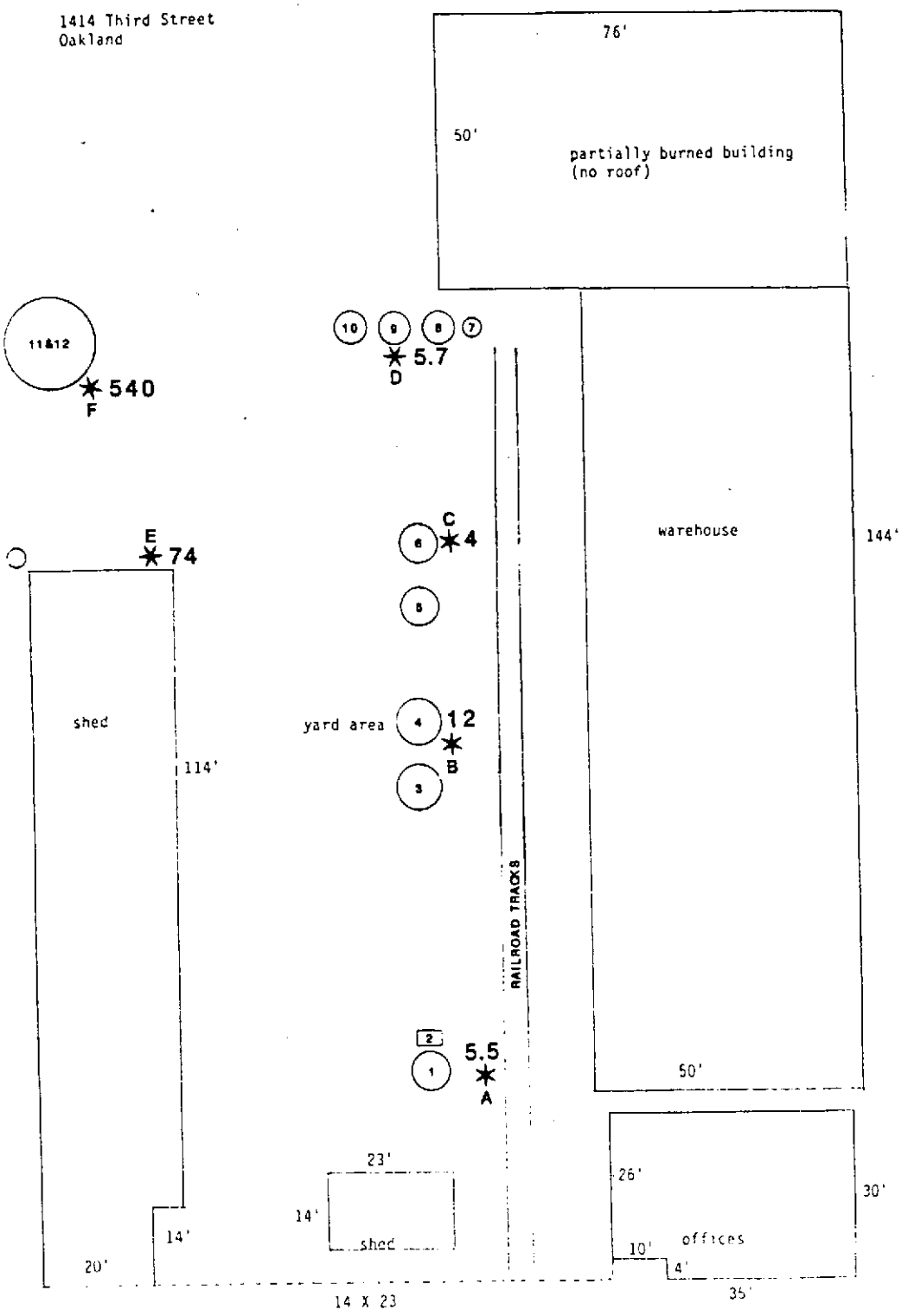

1414 Third Street
Oakland
76'
50'
partially burned building
(no roof)
11&12
10
9
8
7
D
C
E
6
5
warehouse
144'
shed
yard area
4
B
3
114'
RAILROAD TRACKS
2
A'
1
A
50'
23'
26'
30'
14'
shed
10'
offices
4'
14'
20'
35'
14 X 23
3rd St.
Soil Areas
Sample Locations
SURFACE SOIL SAMPLE LOCATIONS
AMCO Chemical Company
Oakland, California
12 ASTs
ENGINEERING-SCIENCE

FIGURE 2




ARSENIC CONCENTRATIONS* IN
**SURFACE SOIL SAMPLES**
**AMCO Chemical Company**
**Oakland, California**

*mg/kg

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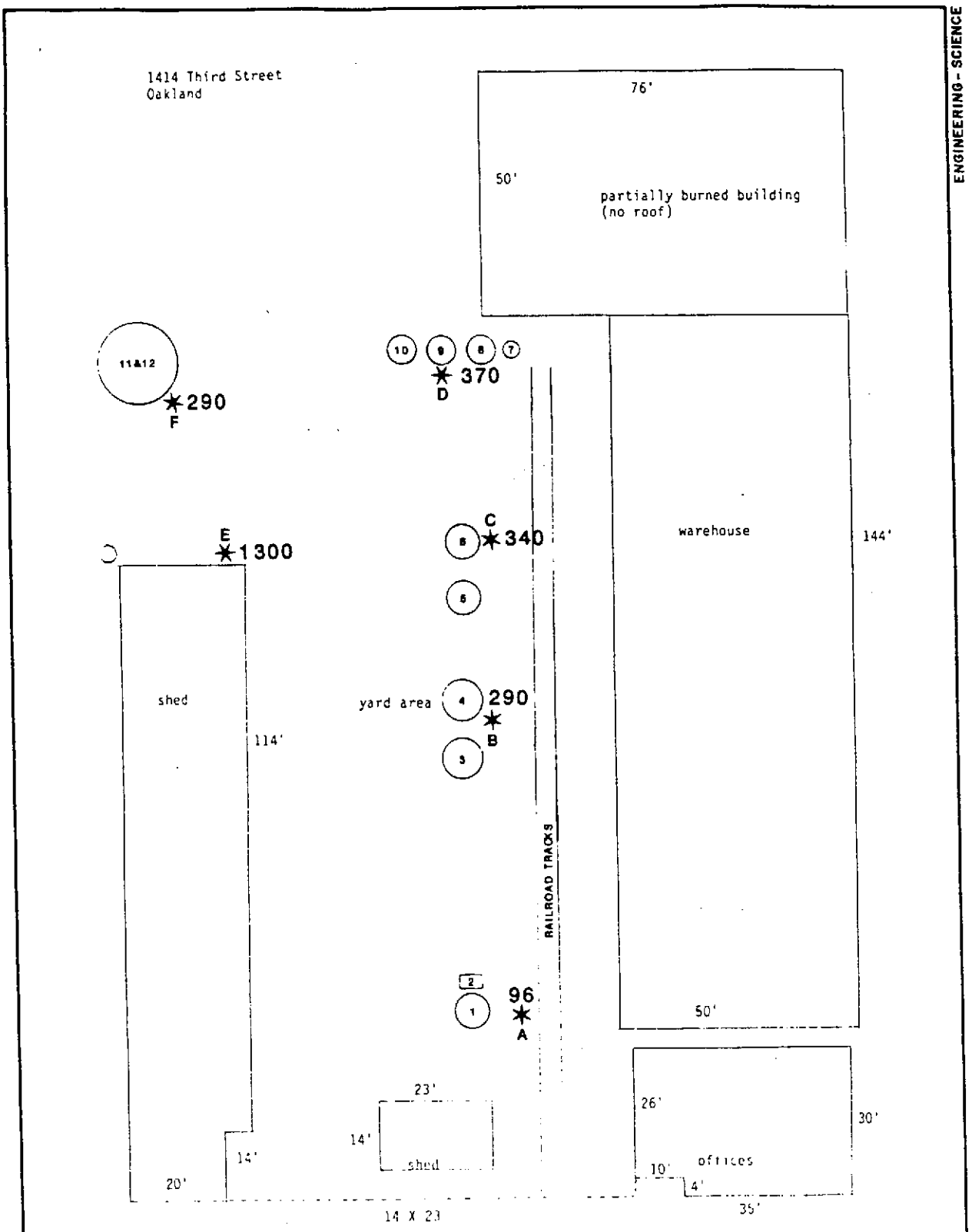
FIGURE 3

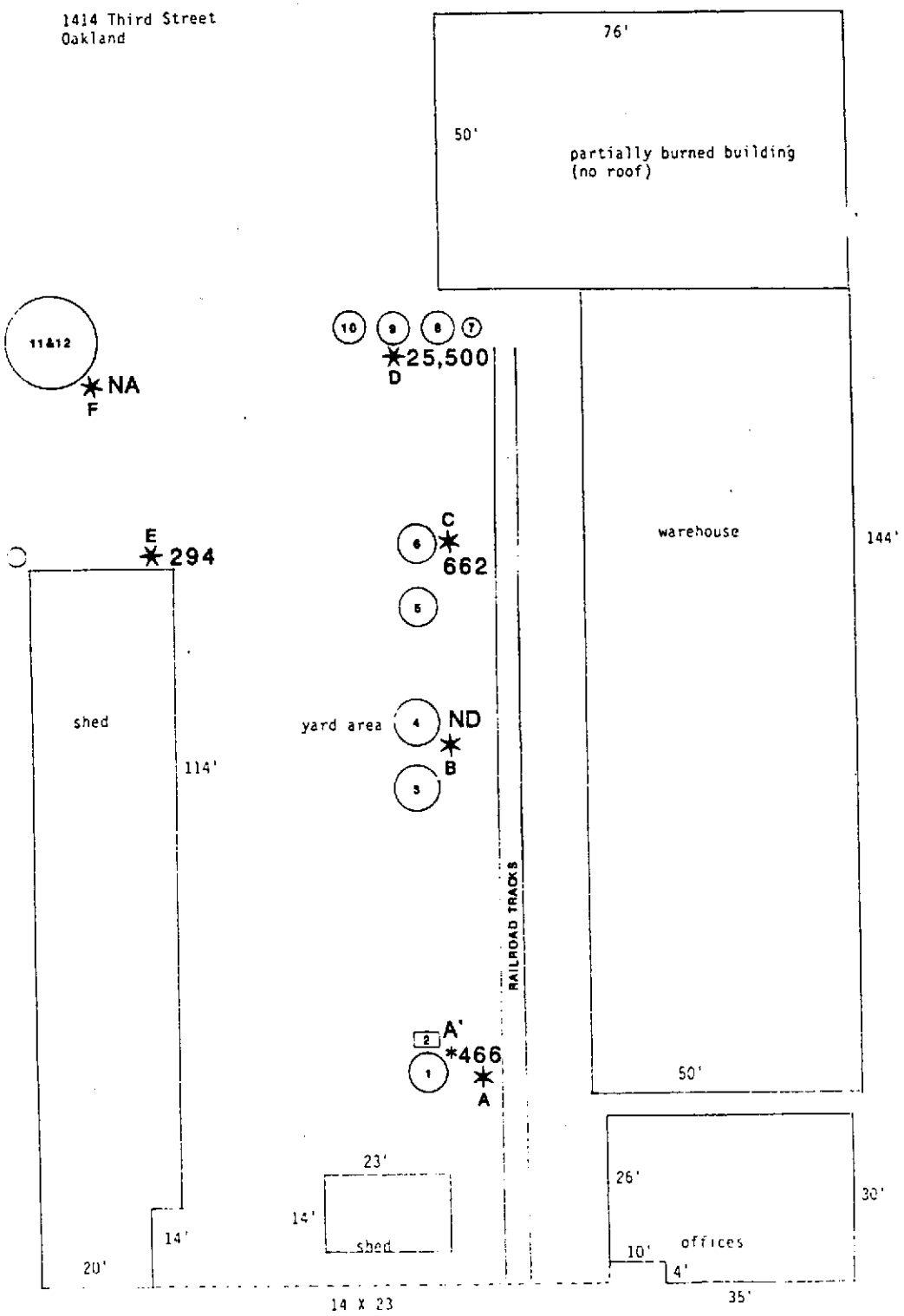



LEAD CONCENTRATIONS* IN
**SURFACE SOIL SAMPLES**
**AMCO Chemical Company**
**Oakland, California**

*mg/kg

ENGINEERING - SCIENCE

FIGURE 4




TCA CONCENTRATIONS* IN
**SURFACE SOIL SAMPLES**
**AMCO Chemical Company**
**Oakland, California**

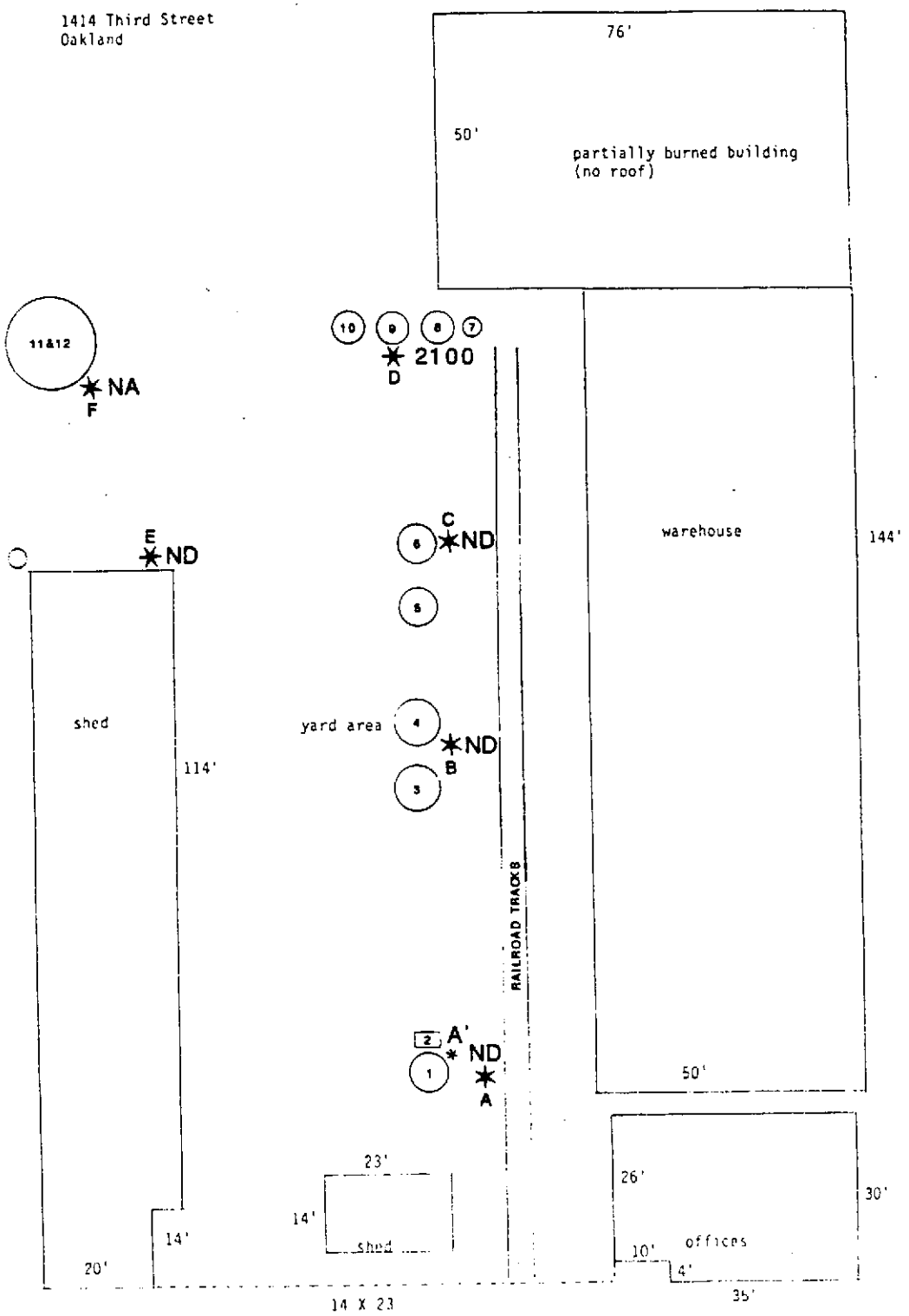
NA = NOT ANALYZED

ND = NOT DETECTED (BELOW DETECTION LIMIT)

*parts per billion

ENGINEERING-SCIENCE

FIGURE 5




1,1-DICHLOROETHANE CONCENTRATIONS* IN
**SURFACE SOIL SAMPLES**
**AMCO Chemical Company**
**Oakland, California**

NA = NOT ANALYZED

ND = NOT DETECTED (BELOW DETECTION LIMIT)

*parts per billion

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ES ENGINEERING-SCIENCE

RESEARCH AND DEVELOPMENT LABORATORY • 600 BANCROFT WAY • BERKELEY, CALIFORNIA 94710 • 415/841-7353

ENGINEERING-SCIENCE
Purgeable Halocarbons
EPA Method 601

Date Received 3/17/86
Date Reported 4/2/86

P.O. No. --
Job No. 8047.54

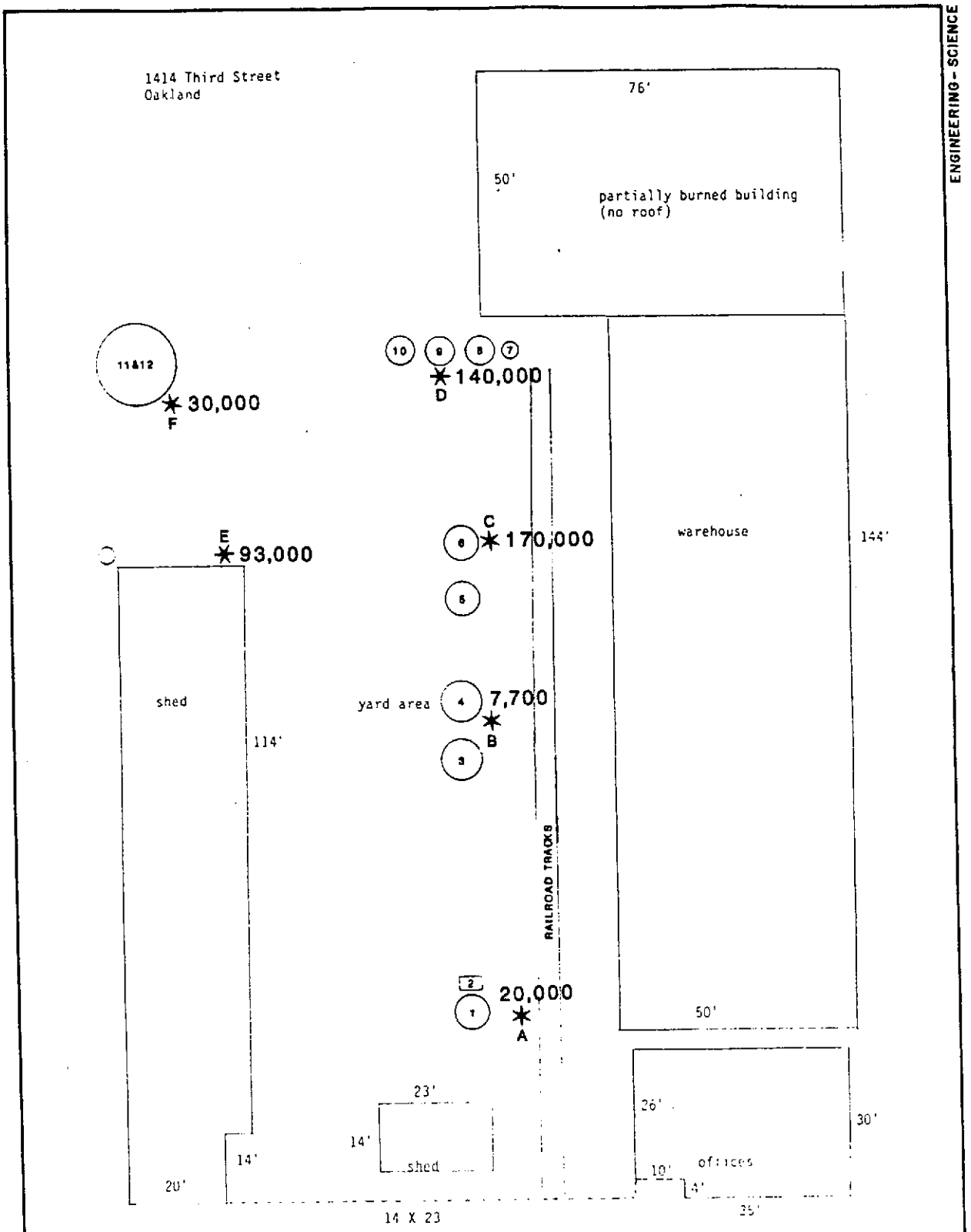

For: ES-Berkeley/AMCO
Address:

Attn: Rick Makdisi

| Source of Sample: | A | B | C | D |
|---|---|---|---|---|
| Lab No: | 860780 | 860781 | 860782 | 860783 |
| Date Collected: | 3/17/86 | 3/17/86 | 3/17/86 | 3/17/86 |
| Time Collected: | 0920 | 0917 | 0900 | 0858 |

| Compound | Detection Limit ug/kg | Analytical Results ug/kg | ug/kg | ug/kg | ug/kg |
|---|---|---|---|---|---|
| Bromodichloromethane | 0.08 | ND | ND | ND | ND |
| Bromoform | 0.2 | ND | ND | ND | ND |
| Bromomethane | 0.08 | ND | ND | ND | ND |
| Carbon tetrachloride | 0.2 | ND | ND | ND | ND |
| Chlorobenzene | 0.08 | ND | ND | ND | ND |
| Chloroethane | 0.08 | ND | ND | ND | ND |
| 2-Chloroethylvinyl ether | 0.8 | ND | ND | ND | ND |
| Chloroform | 0.08 | ND | ND | ND | ND |
| Chloromethane | 0.8 | ND | ND | ND | ND |
| Dibromochloromethane | 0.6 | ND | ND | ND | ND |
| 1,2-Dichlorobenzene | 0.2 | ND | ND | ND | ND |
| 1,3-Dichlorobenzene | 0.2 | ND | ND | ND | ND |
| 1,4-Dichlorobenzene | 0.2 | ND | ND | ND | ND |
| Dichlorodifluoromethane | 0.4 | ND | ND | ND | ND |
| 1,1-Dichloroethane | 0.4 | ND | ND | ND | 2100 |
| 1,2-Dichloroethane | 0.4 | ND | ND | ND | ND |
| 1,1-Dichloroethene | 0.4 | ND | ND | ND | ND |
| trans-1,2-Dichloroethene | 0.2 | ND | ND | ND | ND |
| 1,2-Dichloropropane | 0.08 | ND | ND | ND | ND |
| cis-1,3-Dichloropropene | 0.04 | ND | ND | ND | ND |
| trans-1,3-Dichloropropene | 0.04 | ND | ND | ND | ND |

FIGURE 6




OIL & GREASE CONCENTRATIONS* IN SURFACE SOIL SAMPLES
AMCO Chemical Company
Oakland, California

*mg/kg

ENGINEERING-SCIENCE

ENGINEERING-SCIENCE
Purgeable Halocarbons
EPA Method 601

Date Received 3/17/86
Date Reported 4/2/86

P.O. No. --
Job No. 8047.54


For: ES-Berkeley/AMCO
Address:

Attn: Rick Makdisi

| Source of Sample: | A | B | C | D |
|---|---|---|---|---|
| Lab No: | 860780 | 860781 | 860782 | 860783 |
| Date Collected: | 3/17/86 | 3/17/86 | 3/17/86 | 3/17/86 |
| Time Collected: | 0920 | 0917 | 0900 | 0858 |

| Compound | Detection Limit ug/kg | Analytical Results ug/kg | ug/kg | ug/kg | ug/kg |
|---|---|---|---|---|---|
| Methylene chloride | 0.8 | ND | ND | ND | ND |
| 1,1,2,2-Tetrachloroethane | 0.4 | ND | ND | ND | ND |
| Tetrachloroethene | 0.2 | ND | ND | ND | ND |
| 1,1,1-Trichloroethane | 0.4 | 466 | ND | 662 | 25500 |
| 1,1,2-Trichloroethane | 0.4 | ND | ND | ND | 1800 |
| Trichloroethene | 0.4 | ND | ND | ND | ND |
| Trichlorofluoromethane | 0.4 | ND | ND | ND | ND |
| Vinyl chloride | 0.08 | ND | ND | ND | ND |

Laboratory Supervisor

ENGINEERING-SCIENCE
Purgeable Halocarbons
EPA Method 601

Date Received 3/17/86
Date Reported 4/2/86

P.O. No. --
Job No. 8047.54


For: ES-Berkeley/AMCO Attn: Rick Makdisi
Address:

| | |
|---|---|
| Source of Sample: | E |
| Lab No: | 860784 |
| Date Collected: | 3/17/86 |
| Time Collected: | 0848 |

| Compound | Detection Limit ug/kg | Analytical Results ug/kg | ug/kg | ug/kg | ug/kg |
|---|---|---|---|---|---|
| Bromodichloromethane | 0.08 | ND | | | |
| Bromoform | 0.2 | ND | | | |
| Bromomethane | 0.08 | ND | | | |
| Carbon tetrachloride | 0.2 | ND | | | |
| Chlorobenzene | 0.08 | ND | | | |
| Chloroethane | 0.08 | ND | | | |
| 2-Chloroethylvinyl ether | 0.8 | ND | | | |
| Chloroform | 0.08 | ND | | | |
| Chloromethane | 0.8 | ND | | | |
| Dibromochloromethane | 0.6 | ND | | | |
| 1,2-Dichlorobenzene | 0.2 | ND | | | |
| 1,3-Dichlorobenzene | 0.2 | ND | | | |
| 1,4-Dichlorobenzene | 0.2 | ND | | | |
| Dichlorodifluoromethane | 0.4 | ND | | | |
| 1,1-Dichloroethane | 0.4 | ND | | | |
| 1,2-Dichloroethane | 0.4 | ND | | | |
| 1,1-Dichloroethene | 0.4 | ND | | | |
| trans-1,2-Dichloroethene | 0.2 | ND | | | |
| 1,2-Dichloropropane | 0.08 | ND | | | |
| cis-1,3-Dichloropropene | 0.04 | ND | | | |
| trans-1,3-Dichloropropene | 0.04 | ND | | | |

ENGINEERING-SCIENCE
Purgeable Halocarbons
EPA Method 601

Date Received 3/17/86
Date Reported 4/2/86

P.O. No. --
Job No. 8047.54


For: ES-Berkeley/AMCO
Address:

Attn: Rick Makdisi

| | |
|---|---|
| Source of Sample: | E |
| Lab No: | 860784 |
| Date Collected: | 3/17/86 |
| Time Collected: | 0848 |

| Compound | Detection Limit ug/kg | Analytical Results ug/kg | ug/kg | ug/kg | ug/kg |
|---|---|---|---|---|---|
| Methylene chloride | 0.8 | ND | | | |
| 1,1,2,2-Tetrachloroethane | 0.4 | ND | | | |
| Tetrachloroethene | 0.2 | ND | | | |
| 1,1,1-Trichloroethane | 0.4 | 294 | | | |
| 1,1,2-Trichloroethane | 0.4 | ND | | | |
| Trichloroethene | 0.4 | ND | | | |
| Trichlorofluoromethane | 0.4 | ND | | | |
| Vinyl chloride | 0.08 | ND | | | |

James H. Morris
Laboratory Supervisor

ENGINEERING-SCIENCE LABORATORY ANALYSIS REPORT

DATE RECEIVED: Mar. 17, 198
DATE REPORTED: Apr. 4, 198
PURCHASE ORDER NO.: --
ES PROJECT NO.: 8047.54



PROJECT NAME: ES Berkeley/AMCO

| | | Analysis (units) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample Identification | Lab Number | Fraction Solids (--) | Oil & Grease *(mg/kg) | Arsenic (mg/kg) | Barium (mg/kg) | Cadmium (mg/kg) | Chromium (mg/kg) | Lead (mg/kg) | Mercury (mg/kg) | Selenium (mg/kg) | Silver (mg/kg) | |
| Soil A | 860774 | 91 | 20,000 | 5.5 | 81 | 1.8 | 89 | 96 | <0.2 | <0.5 | <2.5 | |
| Soil B | 860775 | 93 | 7,700 | 12 | 170 | 3.0 | 350 | 290 | 0.33 | 0.65 | <2.5 | |
| Soil C | 860776 | 76 | 170,000 | 4.0 | 200 | 4.5 | 260 | 340 | 2.11 | <0.5 | <2.5 | |
| Soil D | 860777 | 50 | 140,000 | 5.7 | 170 | 2.0 | 350 | 370 | <0.28 | <0.5 | <2.5 | |
| Soil E | 860778 | 64 | 93,000 | 74 | 240 | 2.5 | 710 | 1,300 | 0.93 | <0.5 | <2.5 | |
| Soil F | 860779 | 56 | 30,000 | 540 | 310 | 2.0 | 120 | 290 | <0.23 | <0.5 | <2.5 | |
| | | | | | | | | | | | | |
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| | -- -- -- | | | | | | | | | | | |

* All results for samples "as received" (wet weight)

James H. Morris

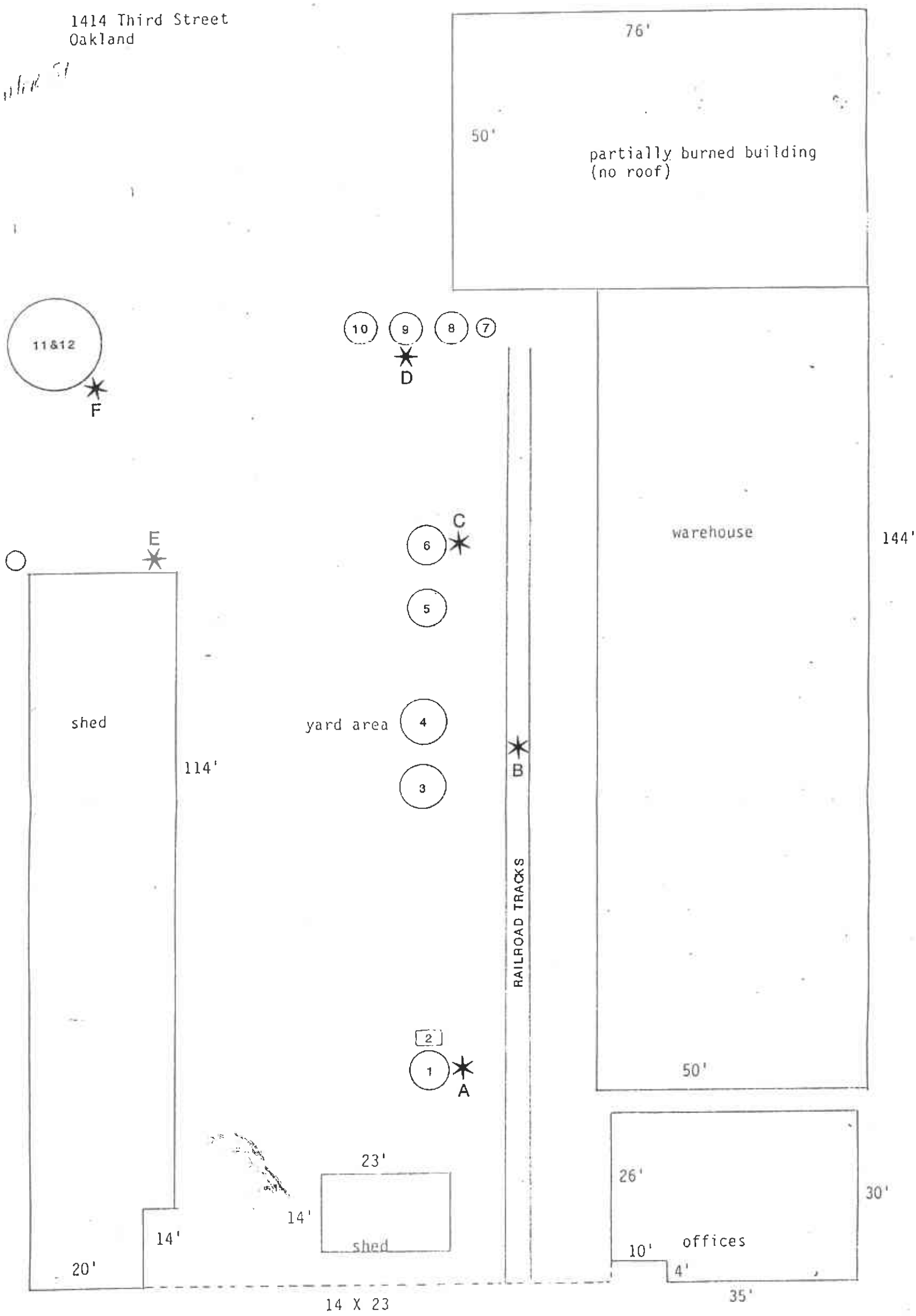
FIGURE ATTACHMENT 1

333

1414 Third Street
Oakland

335 Poplar St

ENGINEERING-SCIENCE




**PROPOSED**
**SURFACE SOIL SAMPLE LOCATIONS**
**AMCO Chemical Company**
**Oakland, California**

140W