100 West Broadway, Suite 5000, Long Beach, California 90802-4443

September 26, 1995

Alameda County Health Agency
Department of Environmental Health
Hazardous Materials Division
1131 Harbor Bay Parkway, Room 250
Alameda, California 94502

Attention: Ms. Eva Chu, Hazardous Materials Specialist

Subject: **Results of Air Monitoring for Petroleum Hydrocarbons at Mill Springs Park Apartments, 1809 Railroad Avenue, Livermore, California**

Telephone
310.495.4449
Facsimile
310.426.0666

Dear Ms. Chu:

This letter presents the results of the air monitoring which was performed by EARTH TECH at various locations of the Mill Springs Park Apartments Complex located at 1809 Railroad Avenue, in the city of Livermore, California. This monitoring was performed by Mr. Johnathan R. Moore, C.S.P., an EARTH TECH Environmental Health and Safety Professional and Mr. Krzysztof Dabrowiecki, also of EARTH TECH.

The monitoring procedure included the use of both integrated sample collection and direct reading techniques. The sampling methodologies and results are individually discussed below.

Integrated Sampling Results

Sampling was accomplished by placing a single air sampling pump equipped with appropriate air sampling media inside the utility rooms of 4 separate buildings of the Mill Springs Park Apartments. Additionally, a single background sample was collected at the rear of the Apartment Manager's Office by placing the air sampling pump on top of the air conditioning chiller unit. Where possible, the air sampling pumps and media were placed at a height of approximately 5 feet. At each location, sample collection was performed for 5 hours.

The following sample types were collected at each of the 5 sampling locations:

- NIOSH[1] 1501, Aromatic Hydrocarbons (benzene, toluene, ethyl benzene, xylenes). This analysis was performed using a 400 mg charcoal sampling tube media and gas chromatography (FID[2]) measurement, and which detects various light (short-chained) hydrocarbon distillation fractions.

- NIOSH 1550, Naphthas, This analysis was also performed using a 400 mg charcoal sampling tube media and gas chromatography (FID[2]) measurement, which detects various light (short-chained) hydrocarbon distillation fractions refined for use as thinners and general use solvents.

Samples were analyzed by EMS Laboratories of Pasadena, California. Table 1 provides a summary of analytical results [expressed in parts per million (ppm)], while Figure 1 identifies the location of each of the identified sampling locations. Attachment A contains copies of EARTH TECH's sample collection/chain-of-custody forms as provided to EMS, and Attachment B contains a copy of the EMS analytical report.

The concentrations expressed indicate that the levels detected were below the established limits of detection for this sampling methodology. The levels shown can also be interpreted as non-detect.

Direct Reading Results

In addition to the collection of air samples from the utility rooms, direct reading air samples were performed at the openings of 24 irrigation boxes and 5 water meter boxes in order to evaluate the potential presence of hydrocarbon vapors at each of the sample locations. The direct reading air sampling results were obtained using a portable photo-ionization detector (PID) (Thermo Environmental Instruments, Inc., Organic Vapor Monitor, Model 580). Samples were obtained by opening each of the irrigation/water meter boxes and samples were collected

[1]National Institute for Occupational Safety and Health

[2]Flame Ionization Detector

within the ambient air within each location. Table 2 provides a summary of the direct reading results that were obtained using the PID. Locations for each of the direct reading samples are also identified in Figure 1.

The direct reading air sampling results did not indicate that significant levels of hydrocarbon vapors were present at the time of the air monitoring. The maximum level of 1.2 ppm detected by the PID does not confirm or eliminate the possibility of petroleum hydrocarbons being present in the soils associated with the site.

Conclusion

Based on the analytical results obtained, EARTH TECH presents the following conclusions:

- Interpretation of direct reading results obtained from field measurements in below grade valve boxes and water meter boxes do not indicate the presence of significant levels of petroleum hydrocarbons collecting within the air spaces monitored during the field investigation

- Results of integrated air sampling also do not indicate the presence of significant levels of petroleum hydrocarbons collecting within the unoccupied, above ground spaces monitored during this field investigation.

The above findings indicated there is low potential for subsurface vapor migration of petroleum hydrocarbons (in either LNAPL or dissolved form) in the groundwater to impact operation of the Mill Springs Park Apartment site. EARTH TECH further concludes that there is low potential for inhalation exposure to petroleum hydrocarbon vapors or an immediately dangerous to life and health (IDLH) condition caused by the volatilization of petroleum hydrocarbons from the groundwater underlying the site.

Based on the above conclusions, EARTH TECH recommends that additional air sampling is not warranted unless results of chemical analyses of soil samples indicate the presence of volatile petroleum hydrocarbons (gasoline) in near subsurface soils immediately underlying the Mill Spring Apartment site.

Chemical analyses were performed by others nor under direct supervision by EARTH TECH, and were used as reported. The conclusions and recommendations contained herein represent

Ms. Eva Chu
Alameda County Health Agency
September 1, 1995

professional opinions prepared consistent with the standards of care and diligence normally practiced by environmental consultants of similar nature in the same locale.

Very truly yours,

EARTH TECH

Johnathan R. Moore, C.S.P.
Environmental Health and Safety Professional

Robert M. Poll, C.I.H., C.S.P.
Health and Safety Manager

Mark Milani, P.E.
Project Manager

Attachment

moore\comm\68715708.rpt

Ms. Eva Chu
Alameda County Health Agency
September 1, 1995

Table-1 Summary of Integrated Air Sampling Results

		Analytical Results (ppm)				
Sample Number	**Sample Location**	**Benzene**	**Toluene**	**Ethyl Benzene**	**Xylenes**	**Hydrocarbons**
MSPA-187-1	Bldg.-5 AMS-1	<0.003	<0.002	<0.002	<0.004	<0.003
MSPA-187-2	Bldg.-2 AMS-2	<0.003	<0.002	<0.002	<0.004	<0.003
MSPA-187-3	Bldg.-3 AMS-3	<0.003	<0.002	<0.002	<0.004	<0.003
MSPA-187-4	Bldg.-10 AMS-4	<0.003	<0.002	<0.003	<0.004	<0.003
MSPA-187-5	Background AMS-5	<0.003	<0.002	<0.002	<0.004	<0.003
MSPA-187-6	Blank	<0.0001	<0.0001	<0.0001	<0.0001	<0.0003

Table 2 Direct Reading Air Sampling Results

Sample Location	Sample Result (ppm)	Sample Location	Sample Result (ppm)
IR[1]-1	1.2	IR-16	<0.1
IR-2	1.2	IR-17	<0.1
IR-3	<0.1	IR-18	<0.1
IR-4	<0.1	IR-19	<0.1
IR-5	<0.1	IR-20	<0.1
IR-6	<0.1	IR-21	<0.1
IR-7	0.2	IR-22	<0.1
IR-8	0.2	IR-23	<0.1
IR-9	0.7	IR-24	<0.1
IR-10	<0.1	WB[2]-1	<0.1
IR-11	<0.1	WB-2	<0.1
IR-12	<0.1	WB-3	<0.1
IR-13	<0.1	WB-4	<0.1
IR-14	<0.1	WB-5	<0.1
IR-15	<0.1		

Note: 1. Irrigation Box
2. Water Box

ATTACHMENT 1

EMS LABORATORIES ANALYTICAL REPORT

DATE: July 25, 1995

CLIENT: The Earth Technology Corporation
100 West Broadway, Ste. 5000
Long Beach, CA 90802

ATTENTION: John Moore

REFERENCE: Project # 687157-08

REPORT NO: 35723

DATE RECEIVED: July 11, 1995

SUBJECT: ANALYSIS OF SIX CHARCOAL TUBES AS REQUESTED

The samples were analyzed according to the following methods.

Analyte	Method
BTEX	NIOSH 1501
Hydrocarbons Scan	NIOSH 1550

The results of the analyses and the detection limit are summarized on the following pages; where applicable, blanks have been subtracted from sample readings.

Respectfully submitted,

EMS LABORATORIES, INC.

Bob Moezzi

Bob Moezzi, Ph.D.
Manager of Chemistry

CLIENT: THE EARTH TECHNOLOGY CORP. LABORATORY NUMBER: 35723

COMPOUND	DETECTION LIMIT (mg) FRONT	BACK
HYDROCARBONS(1)	<0.0001	<0.0001
BENZENE	<0.0001	<0.0001
TOLUENE	<0.0001	<0.0001
ETHYLBENZENE	<0.0001	<0.0001
XYLENES	<0.0003	<0.0003

SAMPLE ID: CLIENT BLANK

	COMPOUND	WEIGHT (mg) FRONT	BACK
MSPA-187-6	HYDROCARBONS(1)	<0.0001	<0.0001
	BENZENE	<0.0001	<0.0001
	TOLUENE	<0.0001	<0.0001
	ETHYLBENZENE	<0.0001	<0.0001
	XYLENES	<0.0003	<0.0003

THE CLIENT BLANK IS SUBTRACTED OUT FROM THE REST OF THE TEST DATA.

ppm = parts per million

(1) HYDROCARBONS- AVERAGED AS HEXANE

SAMPLE ID	COMPOUND	WEIGHT (mg) FRONT	BACK	SAMPLE VOLUME (liters)	CONCENTRATION (ppm) TOTAL
MSPA-187-1	HYDROCARBONS(1)	<0.0001	<0.0001	14.31	<0.003
	BENZENE	<0.0001	<0.0001		<0.003
	TOLUENE	<0.0001	<0.0001		<0.002
	ETHYLBENZENE	<0.0001	<0.0001		<0.002
	XYLENES	<0.0003	<0.0003		<0.004

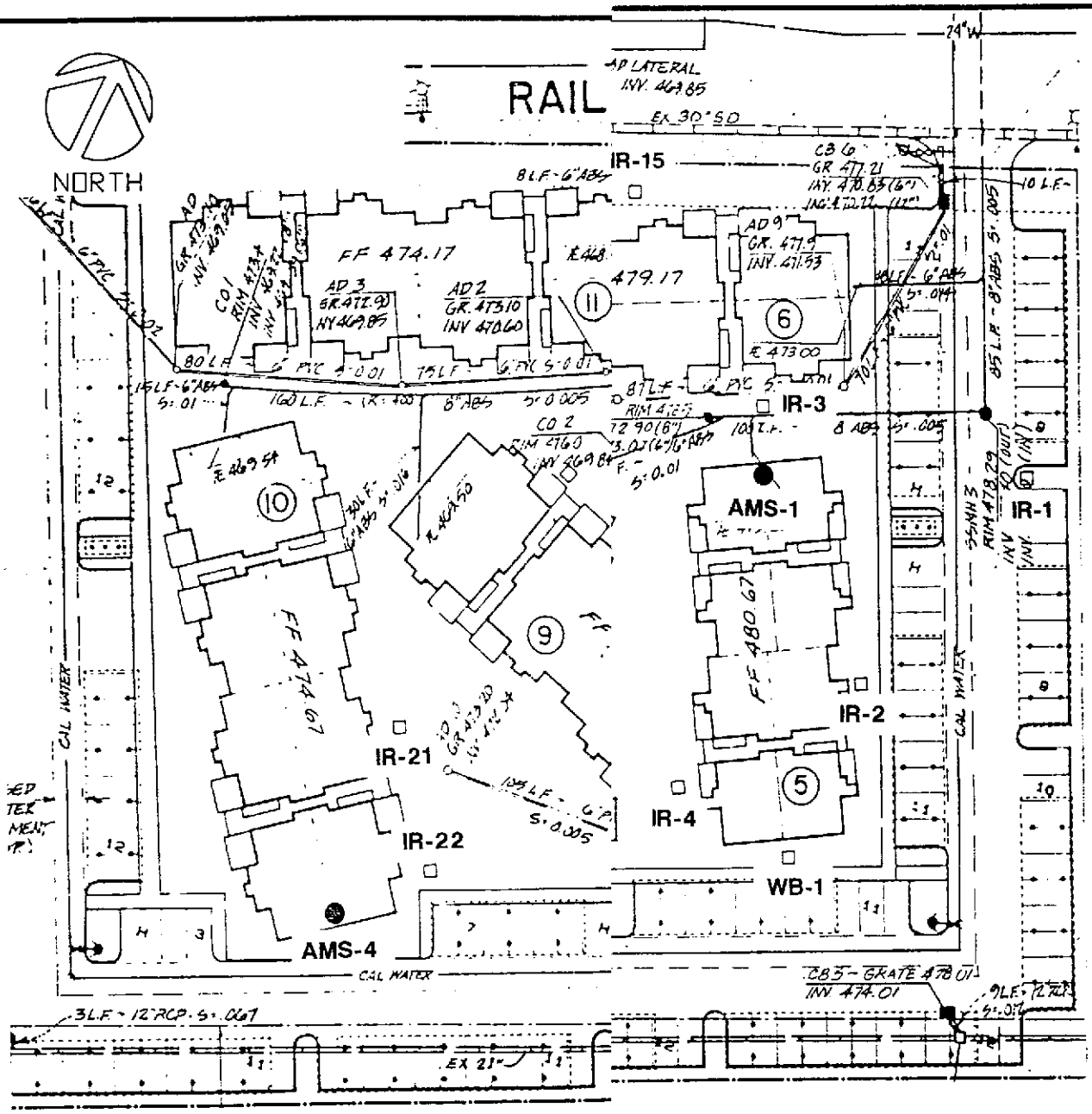
CHEMIST Michael S. Gaza

CLIENT: THE EARTH TECHNOLOGY CORP. LABORATORY NUMBER: 35723

(1) HYDROCARBONS- AVERAGED AS HEXANE

SAMPLE ID	COMPOUND	WEIGHT (mg) FRONT	WEIGHT (mg) BACK	SAMPLE VOLUME (liters)	CONCENTRATION (ppm) TOTAL
MSPA-187-2	HYDROCARBONS(1)	<0.0001	<0.0001	14..*45	<0.003
	BENZENE	<0.0001	<0.0001		<0.003
	TOLUENE	<0.0001	<0.0001		<0.002
	ETHYLBENZENE	<0.0001	<0.0001		<0.002
	XYLENES	<0.0003	<0.0003		<0.004
MSPA-187-3	HYDROCARBONS(1)	<0.0001	<0.0001	13.95	<0.003
	BENZENE	<0.0001	<0.0001		<0.003
	TOLUENE	<0.0001	<0.0001		<0.002
	ETHYLBENZENE	<0.0001	<0.0001		<0.002
	XYLENES	<0.0003	<0.0003		<0.004
MSPA-187-4	HYDROCARBONS(1)	<0.0001	<0.0001	13.41	<0.003
	BENZENE	<0.0001	<0.0001		<0.003
	TOLUENE	<0.0001	<0.0001		<0.002
	ETHYLBENZENE	<0.0001	<0.0001		<0.003
	XYLENES	<0.0003	<0.0003		<0.004
MSPA-187-5	HYDROCARBONS(1)	<0.0001	<0.0001	14.85	<0.003
	BENZENE	<0.0001	<0.0001		<0.002
	TOLUENE	<0.0001	<0.0001		<0.002
	ETHYLBENZENE	<0.0001	<0.0001		<0.002
	XYLENES	<0.0003	<0.0003		<0.004

CHEMIST Mukul A Gajra



0 60 120

SCALE IN FEET 1"=60'

LEGEND

- • AMS-5 – AIR MONITORING STATION LOCATION
- ⊕ MONITORING WELL LOCATION
- IR-24 IRRIGATION BOX
- WB-5 WATER METER

NOTE: AMS-1 THROUGH AMS-4 MONITOR BUILDING INT
AMS-5 IS OUTSIDE MONITORING POINT FOR AMBIENT CI

ARTHTECH

PROJECT: 687157.08

LIVERMORE CALIFORNIA

MILL SPRINGS
PARK APARTMENT

AIR MONITORING STATION PLAN AND AIR ANALYSIS

SEPTEMBER 1995

FIGURE 1