aqua resources inc.

2030 Addison Street, Suite 500 • Berkeley, California 94704 • 415 540-6954

October 3, 1988

Alameda County Health Agency
Department of Environmental Health
Hazardous Materials Division
80 Swan Way, Room 200
Oakland, CA 94621

87157.5

Attention: Mr. Lowell Miller

Subject: Final Closure Plan
Mill Springs Park Apartments (Formerly Livermore Superblock)
Railroad Avenue between South P and South L Streets
Livermore, California

EXECUTIVE SUMMARY

Aqua Resources Inc. (ARI) has provided environmental consultation and engineering services to develop the Final Closure Plan for the Mill Springs Park Apartment Site. The site is located on Railroad Avenue, between South L and South P Streets, in Livermore, California. The site was known formerly as the Livermore Superblock. A Final Closure Plan is required by the Alameda County Health Agency, Department of Environmental Health whenever soil contamination with hazardous materials occurs. Previous environmental services provided by ARI included a limited historical review of site usage, three subsurface investigations and observation, sample collection and review of chemical analyses during initial soil removal that were presented in an interim report dated September 12, 1988.

As part of the Final Closure Plan, the additional subsurface investigation recommended in the interim report was authorized by Barnett-Range and performed on September 9, 1988. Results from this additional investigation were incorporated into the Final Closure Plan. This Final Closure Plan details the remedial action steps and procedures that will be performed.

The main remedial action steps include removal of the concrete structure, underground oil lines, oil contaminated soil, lead contaminated soil and treatment or disposal of the excavated materials that are determined to be contaminated above allowable regulatory limits.

The concrete structure and oil lines will be fully removed. Oil contaminated soil will be temporarily stockpiled onsite. Treatment or disposal of the oil contaminated soil will depend on the level of contamination, determined from chemical analyses performed on samples of the excavated material. The Regional Water Quality Control Board (RWQCB) allows soils containing hydrocarbon below concentrations of 100 parts per million (ppm) to be reused onsite as fill. Existing stockpiled materials that contain oil contamination below 100 ppm will be reused on site as backfill for existing excavations or disposed of in a Class III landfill. When oil content is higher than 100 ppm, the materials will be treated onsite to reduce the concentration to within acceptable limits so they can be reused as fill or disposed of in a Class III landfill. Lead contaminated soil will be transported to a Class I disposal facility according to applicable regulations.

Lastly, because of the relatively shallow depths of contamination, the deep groundwater (greater than 72 feet below site grade) and that the proposed development will include covering a majority of the site with concrete or asphalt pavement thus significantly reducing surface groundwater recharge potential, a groundwater or vadose zone monitoring well is not believed to be warranted and is not included as part of the Final Closure Plan.

depends on seasonal groundwater table
in any event need to be approved
by RWQCB

1.0 Introduction

This report contains the Final Closure Plan for the Mill Springs Park Apartment Site prepared by Aqua Resources Incorporated (ARI). Additional subsurface investigation recommended in the Interim Environmental Engineering Services Report dated September 12, 1988 was performed as part of ARI's scope of services. Observation and conclusions developed from the additional investigation were incorporated into the recommendation that comprise the Final Closure Plan. A Final Closure Plan is required by the Alameda Health Agency, Department of Environmental Health whenever soil contamination with hazardous materials occurs. At this site, soil contamination has occurred due to prior release of fuel oil.

ARI's scope of services included performing additional subsurface exploration, soil sampling for chemical analyses, reviewing chemical analyses, reviewing applicable regulations, developing environmental conclusions and recommendations and preparing the Final Closure Plan Report.

The following sections of the report present a summary of the supplemental subsurface investigation, a detailed site assessment, detailed recommendations for remedial cleanup of the site, quality control procedures during remedial cleanup operations and a Health and Safety Plan. In addition, the location of test pits and borings performed as part of the supplemental investigation are shown on the Boring and Test Pit Location Plan, Plate 1. The approximate limits of excavation are shown on the Phase II Excavation Limit Plan, Plate 2. Likewise, copies of the boring logs, chain of custody form and certified chemical analysis reports are presented in appendices A,B, and C respectively.

2.0 Summary of Supplemental Investigation

Aqua Resources Incorporated (ARI) recommended in the September 12, 1988 Interim Environmental Engineering Services report that additional investigation be performed at three locations in Area B where oil contamination extended below the completed excavation and adjacent to Area A where additional lead contamination was encountered. The supplemental investigation was authorized by Barnett-Range, and the investigation performed on September 9, 1988.

To determine the vertical extent of oil contamination, a boring was drilled at each location (three total) within Area B where oil contamination was observed to extend below the excavation base. The aerial extent of lead contamination adjacent to Area A was determined using backhoe excavated test pits. Boring and test pit locations were determined by measurements from existing surface features. Boring and test pit locations should be considered accurate only to the degree implied by the methods used.

Borings were drilled using a Mobile B-34 drill rig equipped with an 8-inch diameter hollow stem auger. Augers were steam cleaned prior to each boring to prevent cross contamination. A rubber tired backhoe was used to excavate the test pits. The borings extended to depths ranging from 16 1/2 feet (B4-1 and B4-2) to 26 1/2 feet (B4-3) below the base of the excavation. The excavation depth varied at each boring location; accounting for this, the boring depths ranged from about 22 feet to 32 feet below the unexcavated site grade. No free groundwater was encountered at the three boring locations. Test pits were excavated to depths generally less than 3 feet. Borings were backfilled with grout at the conclusion of drilling; test pits were backfilled with the excavated materials with little compaction effort.

The borings were logged in the field. Soil samples for chemical analyses were collected generally from borings at 5 foot intervals during drilling using a standard split-barrel sampler (2-inch I.D). The sampler and brass liners were cleaned prior to each sampling interval. Soil samples from test

pits were obtained by selectively excavating soils exposed in the test pit sidewalls using a stainless steel scoop. The scoop was cleaned after each sample interval.

The samples were stored and handled using EPA approved procedures; samples were transported to a state-certified laboratory for analysis. Copies of the boring logs and chain of custody are presented as Appendix A and B, respectively.

Chemical analyses were performed by Curtis and Tompkins Laboratories in Berkeley, California. Soil samples obtained from the suspected lead contaminated area were analyzed for total lead (TTLC) using EPA method 7420; and for soluble lead (STLC) using the Waste Extraction Test procedure (CAC Title 22, Section 66700) and EPA method 7420. Soil samples obtained from borings in Area B, were analyzed for Total Petroleum Hydrocarbons (TPH) using EPA Methods 3550 and 8015. Results of the chemical analyses are presented in the Certified Laboratory Reports presented in Appendix C.

3.0 SITE CONDITION ASSESSMENT

Based on review of the previously referenced Interim Report and results of the supplemental investigation, ARI has prepared the following site assessment:

Concrete Structure - During the Phase I soil removal, a concrete structure was encountered under a portion of the paved area north of the Kirpatrick building. This structure was described in detail in the September 12, 1988 Interim Report. The approximate location of the structure is shown on the Final Excavation Plan, Plate 2.

Buried Oil Lines - Several buried steel lines containing fuel oil residue were also encountered during the Phase I soil removal in Area B. Lines encountered within the excavation limits were removed and stockpiled on site. The lines extending beyond the excavation limits were potholed to determine their horizontal extent. The identified remaining portions of buried lines are shown on Plate 2.

Oil Contaminated Areas Previously Excavated - As described on the Interim Report, results of chemical analyses indicate that contamination in Area A, C and D does not appear to extend beyond the existing horizontal and vertical excavation limits. However, in Area B, contamination does appear to extend beyond the vertical excavation at isolated locations. Results of the supplemental investigation indicate that contamination at the three locations in the excavation base does not extend substantially below the completed excavation depth at these locations.

Additional Lead Contaminated Area - Results of test pits indicate that the lead contamination appears to be confined to a near surface layer extending to a depth of 1 to 1-1/2 feet. The approximate horizontal limits of the lead contamination are shown on Plate 2.

Previously Excavated Soils - Soils excavated from Area B, C and D during the Phase I soil removal were stockpiled at two locations on the north west portion of the site. The stockpiles are currently fenced and covered

with plastic. Lead contaminated soil from Area A was placed in a closable container and transported to a Class I disposal facility.

Based on this site assessment, ARI has developed specific remedial recommendation addressing the above. The remedial recommendations comprise the Final Closure plan for this site.

4.0 CLOSURE PLAN

Based on our assessment of the site conditions, ARI recommends that the final closure plan include the following elements:

1. Removal of the concrete structure.
2. Removal of remaining buried oil lines.
3. Removal of remaining oil contaminated soil in Area B.
4. Removal and disposal of additional lead contaminated soil.
5. Treatment and/or disposal of concrete rubble, metal oil lines and oil contaminated soil (including existing soil stockpiles).

Detailed recommendations for each element are presented below.

must have come from gw. water!

4.1 Removal of the Concrete Structure

The concrete structure contains wood debris, soil backfill and water that has percolated through the backfill and collected at the base of the concrete structure. The water shall be removed from the structure using vacuum removal equipment, while allowing the backfill to drain. A sample of the water shall be obtained and analyzed to determine appropriate treatment/disposal requirements.

The backfill shall be removed, separating the wood debris from the soil backfill. Samples of the excavated backfill shall be obtained for chemical analyses. If the backfill is saturated, it shall be removed and stockpiled in a manner such that the water draining from the stockpile does not come into contact with uncontaminated materials.

Once the water and backfill have been removed, the concrete structure shall be cleaned and rinsed to remove any remaining contaminant residue. Rinsates shall be removed using vacuum equipment, treated and disposed. Following cleaning, the structure shall be fully removed in a manner that does not disturb the underlying subgrade soil. Samples of the exposed subgrade soil shall be collected for chemical analyses to determine if additional soil removal is required.

4.2 Removal of Remaining Fuel Oil Lines

The remaining fuel oil lines shall be removed in a manner such that oil spillage potential is avoided. The oil lines, including those removed previously, shall be cleaned to remove oil residue prior to transport or transported to a licensed cleaning facility in a manner that prevents oil spillage during transport. Soil samples shall be collected from exposed subgrade soils below the oil lines to determine if additional soil removal is required.

4.3 Removal of Oil Contaminated Soil

Remaining oil contaminated areas in Area B (shown on Plate 2) shall be removed. Excavation in these areas is expected to be less than 2 feet. Where visible oil contamination is observed in the exposed subgrade soil after removal of the concrete structure and oil lines, the contaminated soils shall be removed. Soil samples of the excavated soil shall be collected and analyzed to determine appropriate treatment and disposal.

4.4 Removal of Additional Lead Contaminated Soil

The areas of additional lead contamination shown on Plate 2 shall be removed and transported to a Class I disposal facility. These areas will be excavated to a depth of approximately 1-1/2 feet. The sidewalls and base of the excavation shall be resampled to confirm that contaminant levels are within acceptable regulatory limits. Lead contaminated soil shall be excavated such that no dust is generated. Lead contaminated soils shall be transported to the disposal facility in equipment that is appropriately labeled and certified by D.O.T.

4.5 Treatment and Disposal of Concrete Rubble, Metal Oil Lines and Oil Contaminated Soil

The surfaces of the concrete structure and oil lines shall be cleaned with pressurized water or steam to remove oily residue prior to disposal. Rinsates generated shall be treated prior to disposal and analysis of the

rinsates shall be performed to determine appropriate method of treatment. After cleaning, the concrete rubble could be transported to a Class III disposal facility, while the metal oil lines could be recycled as scrap metal.

Based on ARI staff discussion with the Regional Water Quality Control Board, soil containing oil below 100 ppm can be reused on-site as fill provided the material is placed in the same excavations from which the soil were removed, residual contaminated levels are documented prior to backfilling and that the placement locations noted on a final plan. In addition, where the materials are reused as backfill, they should be properly moisture-conditioned and compacted. Soil containing oil above 100 ppm should be aerated in conformance with Bay Area Air Quality Management District regulations until the contaminant level is below 100 ppm. After aeration, the soils can be reused as fill onsite as described above or transported to a Class III disposal facility.

4.6 Groundwater Monitoring Well

Borings performed as part of the supplemental investigation did not encounter free groundwater to the depth explored (about 32 feet below excavated site grade). Chemical analyses indicate that oil contamination does not extend more than several feet below the completed excavation grade in Area B and not deeper than the completed excavation grade in Areas C and D. Based on thess findings, groundwater or vadose zone monitoring well installation is not believed to be warranted.

5.0 QUALITY ASSURANCE PLAN

The Quality Assurance Plan will consist of three elements. The first element will include sampling to document contaminant levels. Sampling shall be performed during the following closure operations:

1. Removal of concrete structure.
2. Removal of remaining oil lines.
3. Removal of lead contaminated soil.
4. Removal of remaining oil contaminated soil.
5. Aeration of oil contaminated soil.

Soil samples from material excavated during removal of backfill from the concrete structure and removal of remaining oil contaminated soil shall be collected for chemical analyses at intervals of one sample per 50 to 100 cubic yards. In addition, a minimum of 3 soil samples from the subgrade soils exposed after removal of the concrete structure and oil lines shall be collected. Soil samples shall be collected every 20 lineal feet along the oil line locations. Additional soil sample shall be collected from areas where lead contaminated and oil contaminated soil were removed to document that the excavation had removed the contaminants. Likewise, soil samples shall be collected from the aerated soils using a random sampling pattern to document the remaining contaminant levels prior to backfilling the previous excavations with these materials or disposing of them in a Class III site.

The second element involves the chemical analyses. Soil samples shall be handled and transported according to approved EPA Methods using strict chain of custody protocol. Chemical analyses shall be performed by a State-certified Laboratory. All sampling, handling and transporting will be performed in conformance with an approved health and safety plan.

The third element involves reporting. A final report describing field observations made during remedial work and containing chain of custody records, certified laboratory reports and a plan showing the final excavation limits and location of backfill placement (if material is

backfilled on site) will be prepared and submitted to the Alameda County Healthy Agency and the Regional Water Quality Control Board.

6.0 HEALTH AND SAFETY PLAN

A Health and Safety Plan for the closure activities has been prepared and is presented separately. (Appendix D)

7.0 LIMITATIONS

The Final Closure Plan is based on prior environmental services during Phase I soil removal and supplemental investigation performed concurrently with Final Closure Plan development. Soil samples obtained for chemical analyses represent conditions encountered at a specific point where taken. Chemical analyses were performed under the direction of others. Although a responsible effort has been made by ARI to test soil samples for likely contaminants in the areas that have been excavated, ARI cannot provide a guarantee either express or implied that other hazardous contaminants are not present at this site.

It has been a pleasure to provide you with this information. If you have any questions regarding the above, please do not hesitate to contact the undersigned.

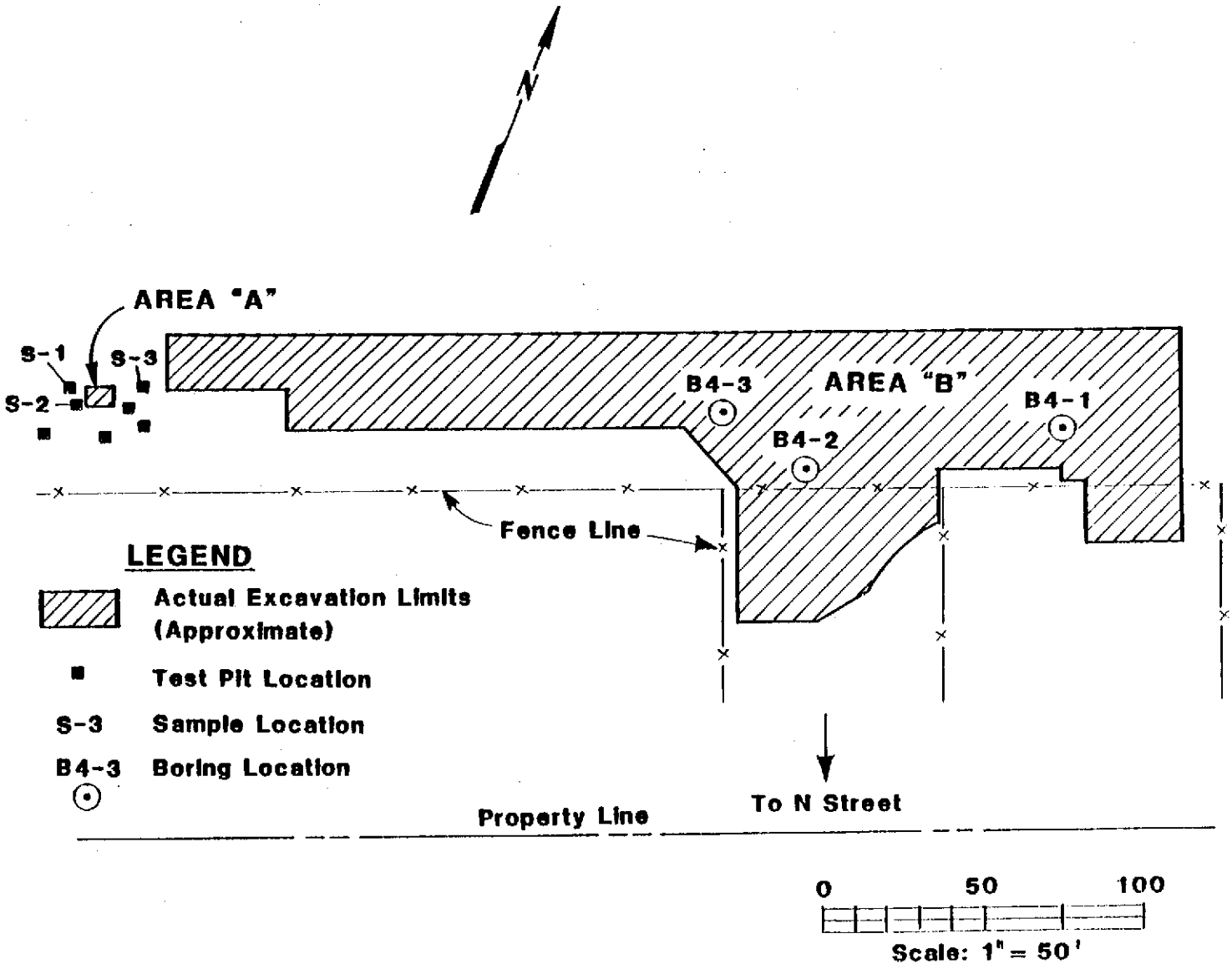
Respectfully submitted,
AQUA RESOURCES INC.

Mark Milani, P.E.
Project Manager

cc: Addressee (1)

Barnett-Range Corporation (2)
P.O. Box 8189
Stockton, CA 95208-1489
Attn: Mr. Larry Malcolm

Attachments: Plate 1 - Boring and Test Pit Location Plan
Plate 2 - Final Excavation Limit Plan
Appendix A - Boring Logs
Appendix B - Chain of Custody Forms
Appendix C - Certified Laboratory Reports
Appendix D - Health and Safety Plan



BORING AND TEST PIT LOCATION PLAN
MILL SPRINGS PARK APARTMENTS
RAILROAD AVENUE
LIVERMORE, CALIFORNIA

for

Barnett-Range Corporation

PLATE 1

Reference: Excavation Limit Plan by Aqua Resources Inc. dated August 1988, scale 1"=50'

AQUA RESOURCES, INC.
BERKELEY, CALIFORNIA

Appendix A - Boring Logs

BORING LOCATION: B4-1
DRILLING CONTRACTOR: ENSCO | DRILLER: Tim
DRILLING EQUIPMENT: Mobile B-34
DIAMETER OF BORING: 8-inch hollow stem auger
PURPOSE OF BORING: Contamination Investigation
SAMPLING EQUIPMENT: 2-inch I.D. split barrel
COMMENTS: No free groundwater encountered

ELEVATION AND DATUM: 5'7" below original site grade
DATE STARTED: 9/9/88
COMPLETION DEPTH (FT): 16½
NO. OF DIST. SAMPLES:
WATER DEPTH(FT) FIRST:
LOGGED BY: J. Alt

DATE FINISHED: 9/9/88
ROCK DEPTH (FT):
UNDIST.: 4 | CORE:
COMPL.: | 24 HRS.:
CHECKED BY: M. Milani

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG LITHOLOGY	SAMPLES NO.	SAMPLES TYPE	SAMPLES BLOW COUNT	DRILLING RATE/TIME	REMARKS
	Fill from constructing drilling pad						
			1		35 32		
5	Clayey gravel, dark grey, dry, gravel up to 1" diameter with interbed of wet blue-grey sandy clay between 5 and 6½ feet moist below 6½ feet		2		23 50		
10	Silty clay, brown, moist, with trace sand and gravel		3		10 9 7		
15	Clayey sand and gravel, brown, moist, gravel up to ½" in diameter		4		9 17 34		
	Boring terminated at 16½ feet. No free groundwater encountered. Boring grouted full depth.						
20							
25							
30							

Project: Mill Springs Park Apartments
Project No. 87157.5

LOG OF BORING

Fig.

AQUA RESOURCES, INC.
BERKELEY, CALIFORNIA

BORING LOCATION	B4-2	ELEVATION AND DATUM	8 feet below original site gra.
DRILLING CONTRACTOR	ENSCO	DRILLER Tim	DATE STARTED 9/9/88
DRILLING EQUIPMENT	Mobile B-34		DATE FINISHED 9/9/88
DIAMETER OF BORING	8-inch hollow stem auger		COMPLETION DEPTH (FT) 16½
PURPOSE OF BORING	Contamination Investigation		ROCK DEPTH (FT)
SAMPLING EQUIPMENT	2-inch I.D. split barrel		NO. OF DIST. SAMPLES UNDIST. 3 CORE
COMMENTS	No free groundwater encountered		WATER FIRST DEPTH (FT) COMPL. 120 HRS.
		LOGGED BY: J. Alt	CHECKED BY: M. Milani

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG / LITHOLOGY	SAMPLES NO.	SAMPLES TYPE	BLOW COUNT	DRILLING RATE/TIME	REMARKS
	Fill from drilling pad construction						
	Clayey sand and gravel, light brown, gravel up to 3/4" diameter		1		13 12 18		
5							
	Silty clay, light brown, moist, trace gravel		2		6 8 12		
10							
	Clayey sand and gravel, light brown, gravel up to 1" diameter		3		22 50		
15	Boring terminated at 16½ feet. No free groundwater encountered. Boring grouted full depth.						
20							
25							
30							

Project Mill Springs Park Apartments

Project No. 87157.5

LOG OF BORING

Fig.

AQUA RESOURCES, INC.
BERKELEY, CALIFORNIA

BORING LOCATION	B4-3	ELEVATION AND DATUM	6'8" below original grade
DRILLING CONTRACTOR	ENSCO	DRILLER Tim	DATE STARTED 9/9/88
DRILLING EQUIPMENT	Mobile B-34	COMPLETION DEPTH (FT) 26½	DATE FINISHED 9/9/88
DIAMETER OF BORING	8-inch hollow stem auger	NO. OF DIST. SAMPLES	ROCK DEPTH (FT)
PURPOSE OF BORING	Contamination Investigation	WATER FIRST DEPTH(FT)	UNDIST. 5 CORE
SAMPLING EQUIPMENT	2-inch I.D. split barrel	LOGGED BY:	COMPL. 24 HRS.
COMMENTS	No free groundwater encountered		CHECKED BY:

DEPTH (FEET)	DESCRIPTION	GRAPHIC LOG LITHOLOGY	SAMPLES NO.	SAMPLES TYPE	BLOW COUNT	DRILLING RATE/ TIME	REMARKS
5	Clayey sand and gravel, blue-grey, gravel up to 1" diameter		1		12 26 20	1:15	
10	Clay, green-grey, moist		2		4 8 12		
15	Clayey gravel, green-grey, moist, gravel up to 2" diameter		3		10 30 19		
20	Clayey sand and gravel, blue, wet		4				
25	Sandy gravel, light brown, wet, trace clay		5		27 50		
30	Boring terminated at 26½ feet. No free groundwater encountered. Boring grouted full depth.						

Project Mill Springs Park Apartments

Project No. 87157.5

LOG OF BORING

Fig.

AQUA RESOURCES, INC.
BERKELEY, CALIFORNIA

Appendix B - Chain of Custody Forms

AQUA RESOURCES, INC.

SHIPMENT NO.: 1

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

DATE 9/9/88

@ 4½.

PROJECT NAME: Superblock/Livermore

PROJECT NO.:

	Sample Number	Location	Type of Sample: Material	Type of Sample: Method	Type of Container	Type of Preservation: Temp	Type of Preservation: Chemical	Analysis Required
1	B4-1	6'	soil	drive	brass tube	~		TPH
2	B4-1	11'						
3	B4-1	16'						
4	B4-2	6'						
5	B4-2	11'						
6	B4-2	16'						
7	B4-3	6'						
8	B4-3	11'						
9	B4-3	16'						
10	B4-3	21'						
11	B4-3	26'						
12	lead #1		soil	scoop	brass tube			lead
13	lead #2							
14	lead #3							
15	B4-1 @ 4½	*						

Total Number of Samples Shipped: 15

Sampler's Signature: John N. Ait

Relinquished By:
Signature: John N. Ait
Printed Name: John N. Ait
Company: Aqua Resources
Reason: Transport to Lab

Received By:
Signature: James Cooley
Printed Name: James Cooley
Company: Curtis & Tompkins

Date: 9/9/88
Time: 4:40 PM

Relinquished By:
Signature:
Printed Name:
Company:
Reason:

Received By:
Signature:
Printed Name:
Company:

Date: / /
Time:

REMARKS: *

Special Shipment / Handling / Storage Requirements:

Appendix C - Certified Laboratory Reports

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (415) 486-0900

LABORATORY NUMBER: 15639
CLIENT: AQUA RESOURCES, INC.
PROJECT: SUPERBLOCK/LIVERMORE

DATE RECEIVED: 09-12-88
DATE ANALYZED: 09-17-88
DATE REPORTED: 09-20-88

Total Petroleum Hydrocarbons in Soils & Wastes
EPA 8015 (Modified)
Extraction Method: EPA 3550

LAB ID	CLIENT ID	GASOLINE (mg/Kg)	KEROSINE (mg/Kg)	DIESEL (mg/Kg)	OTHER (mg/Kg)
15639-15	B4-1 @ 4 1/2'	ND(10)	ND(10)	ND(10)	*
15639-1	B4-1 @ 6'	ND(10)	ND(10)	ND(10)	*
15639-2	B4-1 @ 11'	ND(10)	ND(10)	ND(10)	ND(10)
15639-3	B4-1 @ 16'	ND(10)	ND(10)	ND(10)	ND(10)
15639-4	B4-2 @ 6'	ND(10)	ND(10)	ND(10)	ND(10)
15639-5	B4-2 @ 11'	ND(10)	ND(10)	ND(10)	ND(10)
15639-6	B4-2 @ 16'	ND(10)	ND(10)	ND(10)	ND(10)
15639-7	B4-3 @ 6'	ND(10)	ND(10)	ND(10)	*
15639-8	B4-3 @ 11'	ND(10)	ND(10)	ND(10)	*
15639-9	B4-3 @ 16'	ND(10)	ND(10)	ND(10)	*
15639-10	B4-3 @ 21'	ND(10)	ND(10)	ND(10)	*
15639-11	B4-3 @ 26'	ND(10)	ND(10)	ND(10)	*

* Sample contains unidentifiable oil not quanitfiable by GC.

ND = Not Detected; Limit of detection in parentheses.

QA/QC SUMMARY

Duplicate: Relative % Difference	17
Spike: % Recovery	101

LABORATORY DIRECTOR

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (415) 486-0900

LABORATORY NUMBER: 15639
CLIENT: AQUA RESOURCES, INC.
PROJECT: SUPERBLOCK/LIVERMORE

DATE RECEIVED: 09-12-88
DATE ANALYZED: 09-13-88
DATE REPORTED: 09-20-88

TOTAL LEAD ANALYSIS IN SOIL AND WASTE, EPA 7420

LAB ID	CLIENT ID	LEAD (mg/Kg)
15639-12	LEAD #1	434
15639-13	LEAD #2	109
15639-14	LEAD #3	57

QA/QC SUMMARY

%RPD	19
%RECOVERY	105

Appendix D - Health and Safety Plan

MILL SPRINGS PARK APARTMENTS
(FORMERLY LIVERMORE SUPERBLOCK)
RAILROAD AVENUE BETWEEN SOUTH P AND
SOUTH L STREETS
LIVERMORE, CALIFORNIA

HEALTH AND SAFETY
PLAN

Prepared For:

BARNETT-RANGE CORPORATION

Aqua Resources Inc.
2030 Addison Street, Suite 500
Berkeley, CA 94704
Job 87157.5

September 1988

TABLE OF CONTENTS

A. SITE DESCRIPTION

Date: September 1988

Location: Railroad Avenue between South L and South P Streets, Livermore, CA.

Hazards: lead, oils, open excavations

Surrounding population: Primarily residential, with commercial and small industrial areas

Topography: Flat -- open excavations onsite

Weather conditions: No extreme temperatures or other unusual conditions expected

B. ENTRY OBJECTIVES - The objective of the entry to the site is to perform the final closure plan. Activities include:

(1) Removal of the concrete structure

(2) Removal of buried oil lines

(3) Removal of remaining oil contaminated soils in Area B

(4) Removal of remaining lead contaiminated soils

(5) Treatment and/or disposal of concrete rubble, metal oil pipes, and oil contaminated soil (including existing soil stockpiles)

(6) Soil sampling during excavation.

C. ONSITE ORGANIZATION AND COORDINATION - The following personnel are designated to carry out the stated job functions on site. (Note: One person may carry out more than one job function).

PROJECT MANAGER:	Mark Milani
SITE SAFETY OFFICER:	Fatima S. Lelic or Mary E. Clifford
FIELD TEAM LEADER:	Mark Milani
LOCAL AGENCY REP:	Lowell Miller, Alameda County DHS
CONTRACTOR(S):	To be determined after bidding process

All personnel arriving or departing the site should log in and out with the Field Team Leader. All activities on site must be cleared through the Project Manager.

D. ONSITE CONTROL - Site perimeter has been established and is defined by the existing fenced area and temporary barriers.

No unauthorized person should be within this area during site activities.

E. HAZARD EVALUATION

The following substances are known to be on site. The primary hazards of each are identified.

Substances Involved	Maximum Detected Concentration (mg/kg)	Primary Hazards
	Soil	
Lead	434	Maximum lead concentration in the air during excavation and removal operation will not exceed OSHA Permissible Exposure Limit. (PEL) PEL is 0.05 mg/m^3; maximum lead concentration in air is 0.002 mg/m^3 at a dust concentration of 5 mg/m^3.
Fuel Oil	over 1000	No adverse health effects expected from exposure during excavation and removal activities.

Hazardous Substance Information Forms for the involved substances are attached.

Safety hazards unrelated to the chemicals at the site may include the following:

(1) Open excavations
(2) Sharp objects, such as broken glass, nails or metal shards
(3) Uneven and/or unstable surfaces

Construction industry standards (OSHA 2207, Part 1926) and specially Subpart P, Excavation, Trenching and Shoring, will be adhered to in full where applicable.

F. PERSONAL PROTECTIVE EQUIPMENT

Based on evaluation of potential hazards, the following levels of personal protection have been designated for the applicable work areas or tasks:

Locations	Job Function	Level of Protection
All site areas	All	D

Specific protective equipment is as follows:

Level D Protection

Hard hat
Safety shoes
Surgical inner gloves
(for soil sampling activities only)
Nitrile or Nitrile/PVC outer gloves

NO CHANGES TO THE SPECIFIED LEVELS OF PROTECTION SHALL BE MADE WITHOUT THE APPROVAL OF THE SITE SAFETY OFFICER.

G. ONSITE WORK PLANS

Work parties consisting of 3 persons will perform the following tasks:

Field Team Leader: Mark Milani

Task 1: Supervise excavation and removal activities

Task 2: Soil Sampling

The work parties will be briefed on the contents of this plan at the site prior to start of field operations.

H. COMMUNICATION PROCEDURES

Site activities allow for direct voice contact at all times.

Personnel in the site will remain in constant voice communication or within sight of the Field Team Leader.

The following standard hand signals will be used in the unlikely case that voice communication is impossible.

Hand gripping throat ---------- Out of air, can't breathe
Hands on top of head ---------- Need assistance
Thumbs up ---------- OK, I am all right, I understand
Thumbs down ---------- No, negative

I. DECONTAMINATION PROCEDURES

Personnel and equipment leaving the site shall be decontaminated. The standard level decontamination protocol shall be used with the following decontamination stations: (1) Sampling and personnel protective equipment decontamination, Railroad Avenue parking area; (2) Personnel decontamination, adjacent shopping center bathroom (hand washing and personal hygiene only).

The following decontamination equipment is required: plastic bucket, brush, plastic bags for disposable surgical (inner) gloves.

Soap and water will be used as the decontamination solution.

J. SITE SAFETY AND HEALTH PLAN

1. Site Safety Officer

Ms. Fatima S. Lelic is the designated Site Safety Officer.

2. Emergency Medical Care

Valley Memorial Hospital, located at 1111 E. Stanley Blvd., phone (415) 447-7000 is 2 minutes from this site. A map showing the location of this facility will be available at the site, and is included in this Health and Safety Plan.

First-aid equipment will be available on site, consisting of:

First-aid kit
Emergency eye wash bottles

Local ambulance service is available by calling 911.

First Aid Instructions

No chemicals in concentrated form are excepted to be encountered during sampling. These instructions apply to the unlikely case that chemicals are found at the site. If chemicals come in contact with the eyes, immediately wash the eyes with large amounts of water, occasionally lifting the lower and upper lids. Get medical attention immediately. Contact lenses must not be worn when working. If chemicals come in contact with the skin, wash the contaminated skin with soap and water.

EMERGENCY PHONE NUMBERS:

Agency/Facility Emergency: 911

Police Department: 1050 South Livermore Ave., Livermore (415) 373-5302

Fire Department: 4550 East Ave. Livermore, (415) 373-5450

Hospital: Valley Memorial Hospital, 1111 E. Stanley Blvd., Livermore, (415) 447-7000

Public Health Advisor: Hazard Evaluation System and Information Service, (HESIS), (415) 540-3014

3. Environmental Monitoring

The following environmental monitoring instruments shall be used on site as required (based on initial air testing).

Combustible gas meter (continuous as required by work task)

4. Emergency Procedures

The following standard emergency procedures will be used by onsite personnel. The Site Safety Officer shall be notified of any onsite emergencies and be responsible for ensuring that the appropriate procedures are followed.

Personnel Injury: The Site Safety Officer, Project Manager or Team Leader shall evaluate the nature of the injury. Contact should be made for an ambulance and with the designated medical facility (if required).

Activities on site will stop until the risk is removed or minimized.

Fire/Explosion: Upon notification of a fire or explosion on site, the Project Manager shall order all site personnel to assemble outside the property line. The fire department shall be alerted and all personnel moved to a safe distance from the involved area.

Equipment Failure: If any equipment on site fails to operate properly, the Site Safety Officer shall be notified and then determine the effect of this failure on continuing operations on site. If the failure affects the safety of personnel, all personnel shall leave the site until the situation is evaluated and appropriate actions taken.

5. Personal Monitoring

The following personal monitoring will be in effect on site:

Personal exposure sampling: A combustible gas meter will be used for both personnel and area monitoring since work areas are small.

All site personnel have read the above plan and are familiar with its provisions.

SIGNATURE

Site Safety Officer: _____

Other Site Personnel: _____

_____

OILS, FUEL: 4

OFR

Common Synonyms			
Residual fuel oil No. 4	Oily liquid Floats on water.	Dark	Lube or fuel oil odor

Stop discharge if possible.
Call fire department.
Avoid contact with liquid.
Isolate and remove discharged material
Notify local health and pollution control agencies.

Fire

Combustible.
Extinguish with dry chemical, foam or carbon dioxide.
Water may be ineffective on fire.
Cool exposed containers with water.

Exposure

CALL FOR MEDICAL AID.

LIQUID
Irritating to skin and eyes.
Harmful if swallowed.
Remove contaminated clothing and shoes.
Flush affected areas with plenty of water.
IF IN EYES, hold eyelids open and flush with plenty of water.
IF SWALLOWED and victim is CONSCIOUS, have victim drink water.

DO NOT INDUCE VOMITING.

Water Pollution

Effect of low concentrations on aquatic life is unknown.
Fouling to shoreline.
May be dangerous if it enters water intakes.

Notify local health and wildlife officials.
Notify operators of nearby water intakes.

1. RESPONSE TO DISCHARGE

(See Response Methods Handbook)

Mechanical containment
Should be removed
Chemical and physical treatment

2. LABEL

2.1 **Category:** None
2.2 **Class:** Not pertinent

3. CHEMICAL DESIGNATIONS

3.1 **CG Compatibility Class:** Miscellaneous Hydrocarbon Mixtures
3.2 **Formula:** Not applicable
3.3 **IMO/UN Designation:** 3.3/1223
3.4 **DOT ID No.:** 1223
3.5 **CAS Registry No.:** Data not available

4. OBSERVABLE CHARACTERISTICS

4.1 **Physical State (as shipped):** Liquid
4.2 **Color:** Brown
4.3 **Odor:** Characteristic

5. HEALTH HAZARDS

5.1 **Personal Protective Equipment:** Protective gloves; goggles or face shield.
5.2 **Symptoms Following Exposure:** INGESTION: gastrointestinal irritation. ASPIRATION: pulmonary irritation is normally minimal but may become more severe several hours after exposure.
5.3 **Treatment of Exposure:** INGESTION: do NOT lavage or induce vomiting. ASPIRATION: treatment probably not required; delayed development of pulmonary irritation can be detected by serial chest x-rays; consider prophylactic antibiotic regime if condition warrants. EYES: wash with copious quantity of water. SKIN: wipe off and wash with soap and water.
5.4 **Threshold Limit Value:** Data not available
5.5 **Short Term Inhalation Limits:** Not pertinent
5.6 **Toxicity by Ingestion:** Grade 1; LD_{50} = 5 to 15 g/kg
5.7 **Late Toxicity:** Data not available
5.8 **Vapor (Gas) Irritant Characteristics:** None
5.9 **Liquid or Solid Irritant Characteristics:** Minimum hazard. If spilled on clothing and allowed to remain, may cause smarting and reddening of the skin.
5.10 **Odor Threshold:** Data not available
5.11 **IDLH Value:** Data not available

6. FIRE HAZARDS

6.1 **Flash Point:** > 130°F C.C.
6.2 **Flammable Limits in Air:** 1.0%-5%
6.3 **Fire Extinguishing Agents:** Dry chemical, foam, or carbon dioxide
6.4 **Fire Extinguishing Agents Not to be Used:** Water may be ineffective.
6.5 **Special Hazards of Combustion Products:** Not pertinent
6.6 **Behavior in Fire:** Not pertinent
6.7 **Ignition Temperature:** 505°F
6.8 **Electrical Hazard:** Not pertinent
6.9 **Burning Rate:** 4 mm/min.
6.10 **Adiabatic Flame Temperature:** Data not available
6.11 **Stoichiometric Air to Fuel Ratio:** Data not available
6.12 **Flame Temperature:** Data not available

7. CHEMICAL REACTIVITY

7.1 **Reactivity With Water:** No reaction
7.2 **Reactivity with Common Materials:** No reaction
7.3 **Stability During Transport:** Stable
7.4 **Neutralizing Agents for Acids and Caustics:** Not pertinent
7.5 **Polymerization:** Not pertinent
7.6 **Inhibitor of Polymerization:** Not pertinent
7.7 **Molar Ratio (Reactant to Product):** Data not available
7.8 **Reactivity Group:** 33

8. WATER POLLUTION

8.1 **Aquatic Toxicity:** Data not available
8.2 **Waterfowl Toxicity:** Data not available
8.3 **Biological Oxygen Demand (BOD):** Data not available
8.4 **Food Chain Concentration Potential:** None

9. SHIPPING INFORMATION

9.1 **Grades of Purity:** Commercial
9.2 **Storage Temperature:** Ambient
9.3 **Inert Atmosphere:** No requirement
9.4 **Venting:** Open (flame arrester)

10. HAZARD ASSESSMENT CODE

(See Hazard Assessment Handbook)

A-T-U

11. HAZARD CLASSIFICATIONS

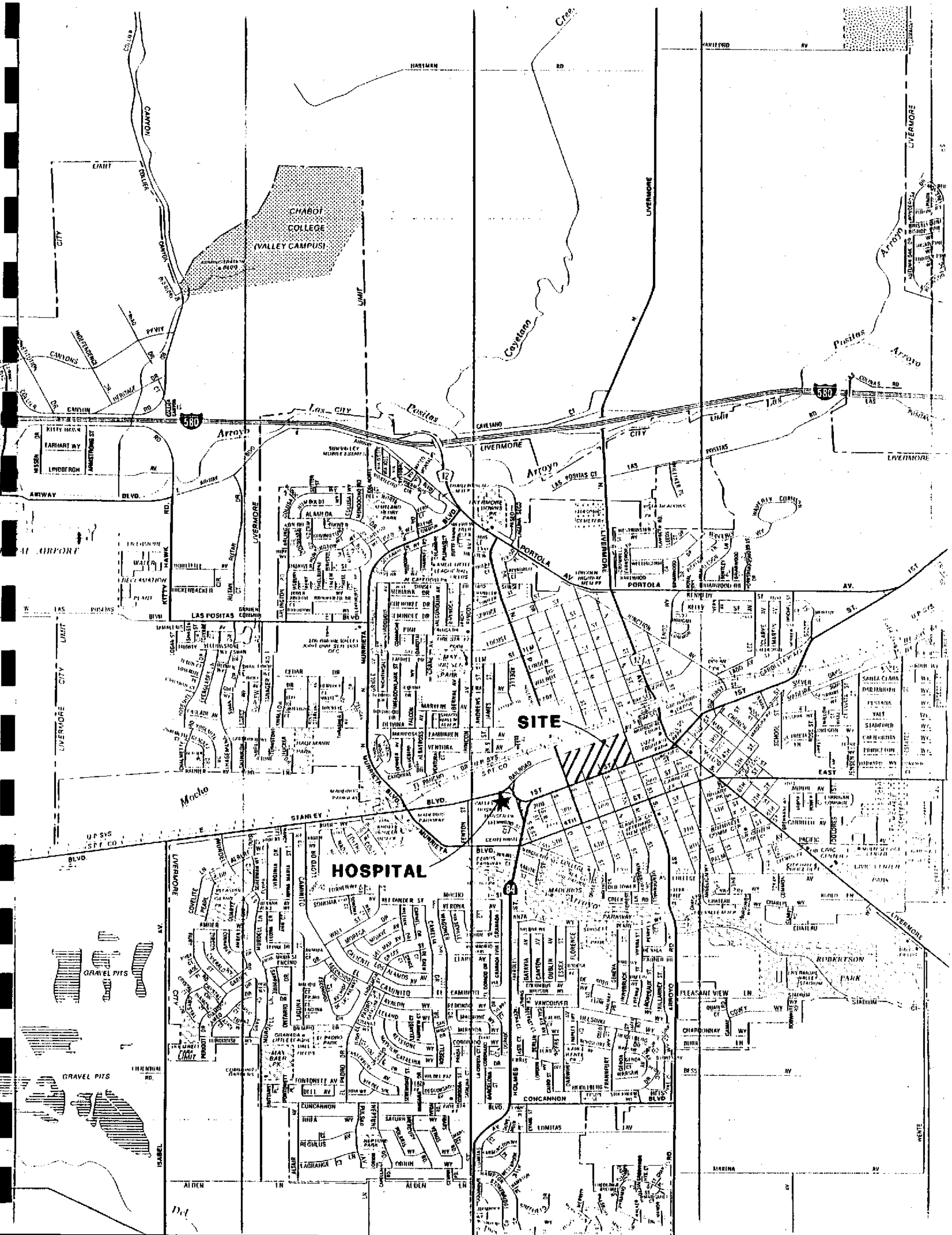
11.1 **Code of Federal Regulations:** Combustible liquid
11.2 **NAS Hazard Rating for Bulk Water Transportation:** Not listed
11.3 **NFPA Hazard Classification:**

Category	Classification
Health Hazard (Blue)	0
Flammability (Red)	2
Reactivity (Yellow)	0

12. PHYSICAL AND CHEMICAL PROPERTIES

12.1 **Physical State at 15°C and 1 atm:** Liquid
12.2 **Molecular Weight:** Not pertinent
12.3 **Boiling Point at 1 atm:** 214 to > 1002°F = 101 to > 538°C = 374 to 661°K
12.4 **Freezing Point:** —20 to +15°F = —29 to —9°C = 244 to 264°K
12.5 **Critical Temperature:** Not pertinent
12.6 **Critical Pressure:** Not pertinent
12.7 **Specific Gravity:** 0.904 at 15°C (liquid)
12.8 **Liquid Surface Tension:** Data not available
12.9 **Liquid Water Interfacial Tension:** Data not available
12.10 **Vapor (Gas) Specific Gravity:** Not pertinent
12.11 **Ratio of Specific Heats of Vapor (Gas):** Not pertinent
12.12 **Latent Heat of Vaporization:** Not pertinent
12.13 **Heat of Combustion:** —17,460 Btu/lb = —9,700 cal/g = —406.1 X 10^3 J/kg
12.14 **Heat of Decomposition:** Not pertinent
12.15 **Heat of Solution:** Not pertinent
12.16 **Heat of Polymerization:** Not pertinent
12.25 **Heat of Fusion:** Data not available
12.26 **Limiting Value:** Data not available
12.27 **Reid Vapor Pressure:** Data not available

NOTES


SITE
HOSPITAL
CHABOT
COLLEGE
(VALLEY CAMPUS)
GRAVEL PITS
GRAVEL PITS
ROBERTSON
PARK
580
580
84
LIVERMORE
PORTOLA
STANLEY
MURRIETA
BLVD.
CONCANNON
HOLMES
ARROYO
ISABEL
ALDEN
MARINA
HARTMAN
RD
LAS POSITAS
AIRWAY
Arroyo
Mocho
Positas
Cayetano