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DATE: November 2, 1999 **FROM:** Greg Baum

TO: Eva Chu **FAX #:** 510/337-9335
Alameda County Health Care Svc.
Environmental Health Services **# Pages to Follow:** 32

cc: Alan Gibbs, ENSR, Inc.

COMMENTS: South Shore Shopping Center, Agency ID No. 1773

Enclosed please find the following documents:

Our letter dated November 2, 1999;
ACHCS letter dated December 31, 1996 re: Risk Management Plan;
Kleinfelder letter dated December 18, 1996 re: Risk Management Plan;
ACHCS letter dated November 6, 1996 re: acceptance of Risk Assessment w/additional request;
Kleinfelder letter dated August 20, 1996 re: Risk Assessment;
Harsch Investment Corp. letter dated August 12, 1996 re: building configurations;
Kleinfelder letter dated July 31, 1996 re: Risk Review Report ;
Kleinfelder Report pages 4-13;
Kleinfelder Site Plan dated May 31, 1996;
Kleinfelder letter dated May 1, 1996 re: summary of April 24, 1996 meeting;
ACHCS letter dated April 26, 1996 re: outcome of April 24, 1996 meeting;

- Original sent via mail on: _____
- Original Sent via Federal Express on: _____
- Original hand-delivered by _____
- This is the only copy you will receive:



Via Facsimile (510/337-9335)

November 2, 1999

Ms. Eva Chu
Alameda County Health Care Services
Environmental Health Services
1131 Harbor Bay Parkway
Suite 250
Alameda, CA 94502-6577

Re: **South Shore Shopping Center**
Park Street and Shoreline Drive, Alameda County, CA
Agency ID No. 1773

Dear Ms. Chu:

Pursuant to your telephone inquiry of November 1, 1999, I am providing you with copies of several documents which led to the issuance of a "no further action" letter by your agency to us dated December 31, 1996 for the above referenced site. As you indicated, the files on this property are extremely voluminous and there have been several agency personnel assigned the responsibility for this project prior to you.

As I indicated on the phone, during 1996 we met at the site and discussed what actions would be needed to resolve the outstanding environmental issues. Following the group meeting on April 24, 1996, correspondence was exchanged between your predecessor, Madhulla Logan, and our consultant on the project, Alan Gibbs, with Kleinfelder, Inc. The result of exchanged correspondence and telephone conversations was the development on our behalf by Kleinfelder of a risk assessment for the site. Some clarification work was requested and performed at which time a Risk Management Plan was sought and provided. On the basis of all of the foregoing actions, on December 31, 1996, Ms. Logan issued the "no further action" letter to us for this portion of our site.

I am including with this letter a copy of the primary pieces of correspondence and reports that led to, and include, the "no further action" letter. I have omitted the oversized diagrams or detail attached to those pieces of correspondence, but full copies are available if needed. After you have received and reviewed the enclosed items, I would appreciate an opportunity to discuss any questions you may still have. It would be

Page 2

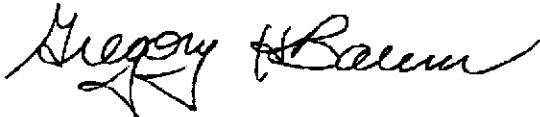
Alameda County Health Care Services
Environmental Health Services
Ms. Eva Chu
November 2, 1999

particularly important to us to have that opportunity before you would determine that a reopening of this matter was necessary.

I suspect that you will see that if any further action is required, it would be the completion of a Risk Management Plan by the owner and operator of the car wash, Kamur Industries, and not Harsch Investment Corp.

As I indicated, our consultant, Alan Gibbs and I will be happy to meet with you at your offices if that would facilitate your understanding and a resolution of this matter.

Very truly yours,



Gregory H. Baum
Vice President and General Counsel

GHB:lae

cc: Alan Gibbs, Environmental Consultant—ENSR, Inc.
(via fax w/o encl. @ 916/362-8100)

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ALAMEDA COUNTY
HEALTH CARE SERVICESAGENCY
DAVID J. KEARS, Agency DirectorRECEIVED
JAN 06 1997
LEGAL DEPT.

December 31, 1996

Mr. Greg Baum
Harsch Investment Corporation
P.O. Box 2708,
Portland, Oregon, - 97208

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION (LOP)
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

STID# 1773

**Ref: South Shore Shopping Center, located at Park Street, and Shore Line Drive,
Alameda, CA.**

Dear Mr. Baum:

This Department is in receipt of the document "Risk Management Plan", dated December 18, 1996 which was submitted in response to a request from this Department in a letter dated November 6, 1996. This risk management plan has been prepared to address any concerns due to the remaining residual contamination that may be present in the south/southwest half of the referenced site.

Based on the review of all pertinent documents submitted to this department and with the provision that the information provided to this agency is accurate and representative of site conditions, no further action is required on the south/southwest half of the referenced site. However, if current land use (commercial) changes, then additional evaluation may be needed.

If you have any questions, you may reach me at (510) 567-6764

Sincerely,

Madhulla Logan
Hazardous Material Specialist

C: Kleinfelder, 7133 Koll Center Parkway, Suite 100 Pleasanton, CA - 94566



December 18, 1996
File No. 10-3003-01/006

RECEIVED

DEC 23 1996

LEGAL DEPT.

Mr. Gregory H. Baum
Vice President/General Counsel
Harsch Investment Corp.
P. O. Box 2708
Portland, Oregon 97208

**SUBJECT: Risk Management Plan
Harsch Investment Corp.
South Shore Shopping Center
Alameda, California**

Dear Mr. Baum:

Kleinfelder, Inc. (Kleinfelder) is pleased to provide you with this brief Risk Management Plan (RMP). This RMP is in response to the Alameda County Health Agency's (ACHA) letter to you, dated November 6, 1996 (attachment). During several conversations with representatives of the ACHA and specifically with Ms. Logan during a meeting on April 24, 1996, it was agreed that impacted soil had been removed and the site closed with regard to soil impacted by chlorinated hydrocarbons. We understand the ACHA has accepted our risk assessment dated June 1996, for final closure of the site, providing we address Ms. Logan's concerns, as highlighted below.

Kleinfelder also understands that Harsch Investment Corp. (Harsch), not Kleinfelder, assumes full responsibility for the implementation and enforcement of this RMP, including, but not limited to, notification of construction workers regarding the hazards associated with residual volatile organic compounds (VOCs) in the subsurface soil, use of appropriate safety equipment to mitigate any hazards associated with residual VOCs, and precautions to avoid making conduits that result in cross contamination of shallow and deep aquifers. Kleinfelder can assist Harsch with oversight, if required.

Extent of Contamination Present on the Property and Methods to Mitigate any Potential Negative Impacts Posed by any Residual Contamination Onsite, like Capping the Site, Using Liners, Barriers, etc.

To date, numerous soil and groundwater samples have been collected from the subject site area by Woodward-Clyde, Clayton Environmental, and the Mark Group, Inc. In 1990, soil samples were collected on the property at depths of five feet and analyzed by Environmental Protection Agency (EPA) Test Method 8010 for chlorinated hydrocarbons. Only tetrachloroethene (PCE) was detected above reporting limits in one of the soil samples at a concentration of 70 micrograms per kilogram ($\mu\text{g}/\text{kg}$). In 1991, toluene was detected at a concentration of 56 $\mu\text{g}/\text{kg}$ in the soil sample collected at a depth of 5 feet during installation of monitoring well MW-8.

Concentrations of compounds analyzed for in the groundwater monitoring wells onsite since November 1990 are shown on Plate 1. Most of the groundwater samples collected from the wells have not had any volatile organic compounds above reporting limits. PCE, trichloroethene (TCE), and cis-1,2-DCE have been detected in groundwater samples collected from monitoring wells MW-7 and MW-8; the concentrations are listed on Plate 1.

The site is capped by an asphalt covered parking lot for the neighboring Lyon's Restaurant. The only potential negative impact by residual impacted soils may be from minimal volatilization of residual VOCs, if the asphalt is cut, or in landscaped areas.

Strategy to Address any Risk Posed by Residual VOCs to the Construction Workers, etc. During Earth Moving Activities, etc.

Potential hazards to construction workers working with soils possibly containing residual concentrations of VOCs, include skin exposure and inhalation. Prior to any construction work at the site including utility trenching, construction workers should be notified by Harsch of the possible exposure to VOCs. The risk assessment and this risk management plan should be given to those in charge of operations at the South Shore Shopping Center, who then need to pass the information on to their construction subcontractors.

After informing construction workers of the potential VOCs in the soil, they may choose to use a blower to redirect vapors away from their breathing space, especially if trench work is planned. Workers should be notified to wash their hands and face after working and before eating, drinking or smoking. If a large earthwork project is to take place, the site owner should hire an environmental consultant to monitor vapors and assess the potential exposure of construction workers.

Precautions to Avoid Making Vertical or Lateral Conduits that may Cause Cross Contamination Between the Shallow and Deeper Aquifers

As a part of site closure, Kleinfelder recommends that the site monitoring wells be properly abandoned by overdrilling and grouting. The wells have a low potential to act as a conduit for contamination considering they are capped and locked. In addition, the people in charge of operations of the shopping center need to be made aware of the potential cross contamination of the shallow aquifer from the ground surface, and deeper aquifers from either ground surface or the shallow aquifer.

If possible, utilities should be placed above the water table, which was encountered between depths of 3.5 to 7 feet below ground surface. If utilities need to be placed lower, care should be taken by the construction contractor to avoid creating a preferential contaminant pathway by building flow stops and by creating a closed system so that no contaminant can enter the utility trench from aboveground. The property owner will need to inform utility contractors of site conditions and that these precautions should be considered prior to beginning work.

Need for Re-evaluation if the Site Use Changes to Residential Day Care, etc.

The human health risk assessment, which the ACHA has conditionally approved for the site, is valid for a reasonable period of time unless land use or zoning changes occur. At such time, as land use or zoning changes occur, ACHA may require a revision of the risk assessment to account for changes in the potential exposure pathways and receptors, and changes in the concentration, nature, or extent of residual contamination.

Limitations

This plan was prepared in general accordance with the accepted standard of practice which exists in Northern California at the time the plan was prepared. It should be recognized that definition and evaluation of environmental conditions is a difficult and inexact art. Judgements leading to conclusions and recommendations are generally made with an incomplete knowledge of the conditions present. More extensive studies, including additional environmental investigations, can tend to reduce the inherent uncertainties associated with such studies. If Harsch Investment Corp. wishes to reduce the uncertainty beyond the level associated with this study, Kleinfelder should be notified for additional consultation.

Our firm has prepared this plan for Harsch's exclusive use for this particular project and in accordance with generally accepted engineering practices within the area at the time of our investigation. No other representations, expressed or implied, and no warranty or guarantee is included or intended.


This plan may be used only by the Client and ACHA and other potentially responsible parties and Harsch's advisors, successors and assigns and only for the purposes stated, within a reasonable

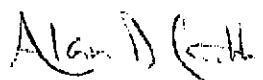
time from its issuance. Land use, site conditions (both onsite and offsite) or other factors may change over time, and additional work may be required with the passage of time. Any party other than the client who wishes to use this plan shall notify Kleinfelder of such intended use. Based on the intended use of the plan, Kleinfelder may require that additional work be performed and that an updated plan be issued. Non-compliance with any of these requirements by the Client or anyone else will release Kleinfelder from any liability resulting from the use of this plan by any unauthorized party.

As requested, we are providing copies of this letter and attachments to the people cited below. If you have any questions, please call us at (510) 484-1700.

Sincerely,

KLEINFELDER, INC.


Scott D. Dwyer, Ph.D.
Senior Toxicologist


Alan D. Gibbs, R.G., C.H.G., R.E.A.
Environmental Manager

SDD:ADG:ks

Attachments

cc: Madhulla Logan, M.S. - Alameda County Health Agency
Ms Debra Pryor - Texaco
Mr. Mike Dosen - Harsch - Oakland
Mr. Frank Hamedi - Soil Tech Engineering
Mr. Murray Stevens - Kamur Industries

ALAMEDA COUNTY
HEALTH CARE SERVICES

AGENCY

DAVID J. KEARS, Agency Director

November 6, 1996

Mr. Greg Baum
Harsch Investment Corporation
P.O. Box 2708,
Portland, Oregon, - 97208

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION (LOP)
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

STID# 1773

**Ref: South Shore Shopping Center, located at Park Street, and Shore Line Drive,
Alameda, CA.**

Dear Mr. Baum:

This Department is in receipt of the risk assessment prepared by Kleinfelder for the above referenced property in behalf of Harsch Investment Corporation. This risk assessment has been prepared to evaluate the potential risks of petroleum hydrocarbons and solvent contamination identified in the monitoring wells located in the south/southwest half of the referenced property. However, the risk assessment does not include the contamination identified in monitoring wells, MW-10, MW-12, MW-23, MW-24 and MW-25 located in the north/northeast half of the site. It was agreed in a meeting held on April 24, 1996 that this portion of the investigation will be conducted by Kamur Industries.

This Department has reviewed the risk assessment document and has found it acceptable for the current use (as a parking lot) in the south/southwest half of the property. The risk assessment evaluated the exposure to the solvent and petroleum hydrocarbons vapors to the outdoor area. The risk assessment did not evaluate the risk due to exposure of vapors to the indoor area as there are no buildings located in this half of the site. However, please note that since the risk assessment is being accepted is based on the current use of the property, the following information is still required before final closure can be granted:

1. A risk management plan that is acceptable to the regulatory agencies need to be submitted. This risk management plan should include at a minimum the following information:
 - the extent of the constamination present on the property and methods to mitigate any potential negative impacts posed by any residual contamination on site, like capping the site, using liners, barriers etc.
 - strategy to address any risk posed to the construction workers etc. during earth moving activities, etc.
 - precautions to avoid making vertical or lateral conduits like wells, drainage lines, water supply lines, etc that may cause cross contamination between the shallow and deeper aquifers.
 - Need for re-evaluation if the site use changes to residential, day care, etc.

Please submit the above required information within 30 days of receiving this letter. Please be advised that this is a formal request for technical information pursuant to California Water Code Section 13627 (b). Any extension of the stated deadlines, or modifications of the required tasks, must be confirmed in writing by this agency. If you have any questions, call me at (510) 567-6764.

Sincerely,



Madhulla Logan
Hazardous Material Specialist

Alan Gibbs, Kleinfelder, 7133, Koll Center Parkway, Suite 100, Pleasanton, CA - 94566

Frank Hamidi, Soil Tech Engineering, 1761, Junction Ave, San Jose, CA - 95112.

Murray Stevens, 2351 Shoreline Drive, Alameda, CA - 94501



August 20, 1996
File: 10-3003-01/004

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AUG 23 1996

HARSH INVESTMENT
LEGAL DEPT.

Ms. Madhulla Logan
Alameda County Health Agency
Department of Environmental Health
1131 Harbor Bay Parkway, 2nd Floor
Alameda, CA 94502

**SUBJECT: South Shore Shopping Center
Alameda, California**

Dear Ms. Logan:

Kleinfelder, Inc. (Kleinfelder) is pleased to provide you with this letter as discussed during a telephone conversation with you on August 6, 1996. You requested that an additional pathway be considered for the risk assessment completed at the site. The risk assessment completed at the site assumed an outdoor model because of the existing parking lot. You requested that an indoor model also be addressed during the risk assessment in the event that a building will be built in that corner of the site.

Attached to this letter are a letter and site plan from Michael Dosen of Harsch Investment Corp. (Harsch) explaining that further expansion is not planned in that corner due to minimum parking space requirements. Because of this, Harsch and Kleinfelder believe that an indoor model type of risk assessment is not necessary for this area.

If you have any questions or comments, please call me at (510) 484-1700.

Sincerely,

KLEINFELDER, INC.

Alan Gibbs, C.H.G.
Environmental Manager

AG/mjt

cc: Mr. Gregory Baum, Harsch Investment Corp.
Mr. Michael Dosen, Harsch Investment Corp.

HARSCH

INVESTMENT CORP.

August 12, 1996

Mr. Alan Gibbs
KLEINFELDER
7133 Koll Center Parkway, Suite 100
Pleasanton, CA 94566-3101

Dear Alan:

Pursuant to our conversation of last week, I have enclosed a copy of the master plan which was approved for the PD overlay for the City of Alameda. As you can tell, this corner is a self-contained piece of property whose growth is limited by its ability to maintain a 4.5 per thousand parking ratio.

The current building configurations are as follows:

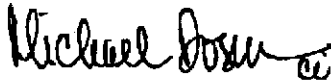
• Lyon's	5,000 s.f.
• Car Wash	4,613 s.f.
• Big 5	<u>8,150 s.f.</u>
• Total	17,763 s.f.

When you apply the 4.5 per thousand parking requirement, the minimum parking required is 79.93 parking spaces. There are currently 81 parking spaces. By virtue of this parking requirement and the tightness of the parking spaces available, there can be no further expansion in this corner.

Should you have any questions regarding this or need more clarity, please feel free to contact me.

Yours truly,

HARSCH INVESTMENT CORP.



Michael Dosen
Vice President
Bay Area Shopping Centers

MD/ci/081296b



July 31, 1996
File No. 10-3003-01/003

Mr. Gregory H. Baum
Vice President/General Counsel
Harsch Investment Corp.
1121 Southwest Salmon Street
P. O. Box 2708
Portland, Oregon 97208

**SUBJECT: Risk Review
Harsch Investment Corp.
South Shore Shopping Center
Alameda, California**

Dear Mr. Baum:

Kleinfelder, Inc. (Kleinfelder) is pleased to provide this cover letter for our Risk Review report which was mailed to you on June 21, 1996. Please attach a copy of this letter to the subject report for future reference.

If you have any questions on this report, please call the undersigned at (510) 484-1700, extension 204.

Sincerely,

KLEINFELDER, INC.

Alan D. Gibbs, R.G., C.H.G., R.E.A.
Environmental Manager



ADG:ks

cc: Mr. Mike Dosen - Harsch Investment Corp. - Oakland
Ms. Madhulla Logan - Alameda County Health Agency
Ms. Debra Pryor - Texaco Refining and Marketing, Inc.
Mr. Murray Steven - Kamur Industries, Inc.

**RISK REVIEW
HARSCH INVESTMENT CORP.
SOUTH SHORE SHOPPING CENTER
ALAMEDA, CALIFORNIA**

INTRODUCTION

Kleinfelder, Inc. (Kleinfelder) is pleased to submit this report, on behalf of Harsch Investment Corp. (Harsch), in response to the letter dated April 26, 1996 from Ms. Madhulla Logan, Alameda County Health Care Services Agency (ACHA) to Mr. Greg Baum of Harsch, and Mr. Murray Stevens of Kamur Industries, Inc. (Kamur) regarding "South Shore Shopping Center, located at Park Street and Shore Line Drive, Alameda, California." The letter specifies two actions for the above-referenced property.

This report is restricted to the first action item in the letter from Ms. Logan, and addresses only solvents and hydrocarbons detected in monitoring wells located in the south/south west half of the referenced property, in particular, monitoring well MW-7B. This report does not address the second action item regarding petroleum hydrocarbons detected in monitoring wells in the north/north east half of the site, especially monitoring well MW-24. Specifically, this report presents:

- Data from a recent investigation of soil at the location of monitoring well MW-7B;
- Results of an ecological risk assessment for solvents; and
- Results of a human health risk assessment for solvents and hydrocarbons.

This report is organized into several sections and appendices. The first section, "Hazard Identification," provides background information, analytical data for solvents and hydrocarbons, and historical activities addressing soil and groundwater conditions. Data from monitoring wells for the south/south west half of the site are summarized, including newly developed data from a recent Geoprobe™ adjacent to monitoring well MW-7B. Next, the potential for ecological risks to receptors in San Francisco Bay are addressed in the "Ecological Risk Assessment" section. Potential human health risks are addressed in the "Human Health Risk Assessment" section, and, finally, a summary and recommendations are provided.

Hazard Identification

Background

Historically, constituents of concern at the South Shore Shopping Center were released to the subsurface environment from three commercial sources: 1) a Texaco service station; 2) a dry cleaner, and 3) a car wash. The Texaco service station and the dry cleaner have

been closed and their facilities removed from the site; the car wash has been relocated on the site.

This report focuses on the former dry cleaner, the location of which is now occupied by an asphalt covered parking lot. The former dry cleaner is responsible for past releases of dry cleaning solvents, particularly tetrachloroethylene (also called perchloroethylene, or PCE). When the dry cleaner was removed, the underlying soil containing solvents was excavated. Before the parking lot was constructed, the excavation was filled with clean soil, which resulted in verbally-communicated ACHA closure for the site.

Despite soil closure, solvents remain in the groundwater. Six years of monitoring on site and at perimeter monitoring wells has demonstrated that the solvents are apparently not migrating from the site, and may be slowly degrading *in situ*. In addition to solvents, petroleum hydrocarbons from neighboring sources have mingled with the groundwater beneath the former dry cleaner. Therefore, this risk assessment addresses both solvents and hydrocarbons.

Recent Investigation

At a meeting held April 24, 1996, at the South Shore Shopping Center between interested parties, Ms. Logan expressed concern that hydrocarbons had been detected at depth in monitoring well MW-7B, and requested an additional investigation of the shallow interface of the groundwater with the vadose zone. (Since gasoline is generally expected to be found at the "top" of a groundwater aquifer, the investigation was to ensure that gasoline had neither been missed during historical sampling events nor migrated on-site since monitoring well MW-7B was re-screened deeper in the aquifer.) In response to Ms. Logan's request, Harsch asked Kleinfelder to complete the requested investigation.

On May 21, 1996, Kleinfelder performed a limited investigation at the subject site. The investigation was performed in the Lyon's Restaurant parking lot located at the corner of Shoreline Drive and Park Avenue.

A groundwater sample was obtained using a Geoprobe™ operated by Gregg Drilling and Testing, Inc., under the observations of a Kleinfelder representative. The sample site was located in a planter box approximately ten feet northwest of monitoring well MW-7B. Prior to drilling, the depth to groundwater in monitoring well MW-7B was measured and recorded to indicate the expected groundwater elevation. The boring was advanced to a total depth of eight feet; groundwater was encountered at approximately five-and-a-half feet below ground surface (bgs). After the groundwater sample was collected, the boring was backfilled with cement grout.

The groundwater sample was retrieved using a stainless steel bailer and was decanted into 40 milliliter bottles provided by the laboratory. The sample bottles were properly capped, labeled and placed in an ice cooled chest. The samples were transported under chain-of-

custody control to McCampbell Analytical, a laboratory certified by the State of California to perform the requested analysis.

The sample was analyzed by U.S. Environmental Protection Agency (EPA) Method 8015 modified for total petroleum hydrocarbons quantified as gasoline (TPH-g) and benzene, toluene, ethylbenzene, and xylene (BTEX).

TPH-g and BTEX were not detected in the sample. A copy of the laboratory data sheet is included in Appendix 1.

Data Summary

This report covers the south/south west half of the property. As shown in Plate 1, this includes monitoring wells MW-2, MW-3, MW-5B, MW-7B, MW-8, MW-9, MW-11, MW-14, MW-15, MW-16, MW-17, MW-18, MW-19, MW-20, MW-21, and MW-22, and excludes monitoring wells MW-10, MW-12, MW-23, MW-24, and MW-25. Appendix 2 provides a compilation of all historical data collected from the above-referenced wells.

Table 1 provides the maximum detected values for chemicals of potential concern in the monitoring wells in the south/south west half of the site. Notably for the solvents, the relatively higher concentrations found near the source (as in monitoring well MW-7B) appear to fall off dramatically with distance from the source. Concentrations in monitoring well MW-8 are lower than concentrations in MW-7B; all perimeter monitoring wells are substantially lower than either monitoring wells MW-7 or MW-8.

Table 1: Maximum Detected Concentrations in Monitoring Wells Located in the South/Southwest Half of the South Shore Property

Chemical	Monitoring Well	Date	Maximum Detected Values ($\mu\text{g/L}$)
Benzene	MW-5B	Apr-91	1,300
Toluene	MW-5B	Apr-91	45
Ethylbenzene	MW-5B	Apr-91	370
Xylenes	MW-5B	Apr-91	100
1,2-dichloroethane (1,2-DCA)	MW-22	Feb-93	22
1,1-dichloroethylene (1,1-DCE)	MW-7B	Apr-94	5.8
cis-1,2-dichloroethylene (cis-1,2-DCE)	MW-7B	Nov-95	1,200
trans-1,2-dichloroethylene (trans-1,2-DCE)	MW-20	Apr-94	58
dichloroethylene ("DCE") ^A	MW-7B	Nov-90	440
tetrachloroethylene (PCE)	MW-7B	Jul-91	7,800
trichloroethylene (TCE)	MW-7B	Nov-95	1,200
Chloroform	MW-16	Apr-94	6.10
1,1,2-trichloroethane (1,1,2-TCA)	MW-7B	Jul-91	0.8
Bromoform	MW-7B	Jul-91	1.7
Chlorobenzene	MW-7B	Apr-94	31

$\mu\text{g/L}$ = micrograms per liter

^A"DCE" indicates 1,2-DCE that was not characterized for the cis and trans isomers.

Solvents are primarily represented by PCE and TCE. Although other solvents have been detected, only PCE and TCE have been consistently detected. These constituents are also present at relatively higher concentrations than the others. Concentrations of PCE and TCE in monitoring wells MW-7/7B are provided in Table 2.

Table 2: PCE and TCE in Monitoring Wells 7/7B ($\mu\text{g/L}$)

Chemical	Nov-90	Apr-91	Jul-91	Feb-93	Apr-94	Oct-94	Feb-95	May-95	Nov-95
PCE	1900	1600	7800	5800	190	N/A	N/A	N/A	2100
TCE	520	200	660	540	12	N/A	N/A	N/A	1200
N/A = Not Analyzed									

Pathway Screening

The pathway screening process summarized in this section was discussed at the meeting held on April 24, 1996, and consensus was established concerning the following points:

- Soil containing solvents was removed and replaced, and the site closed with regard to soil contamination. Therefore, there are no exposure pathways for direct contact with soil by ecological or human receptors.

- Groundwater pathways that typically produce "high risk" exposures—such as direct contact and ingestion pathways—are not complete at this site. Therefore, the site is expected to be a relatively "low risk" site for groundwater.
- The only reasonably complete pathway for ecological exposure is via groundwater transport and emission into San Francisco Bay. Participants in the April 24 meeting discussed the fact that concentrations of solvents in perimeter monitoring wells are comparable to concentrations in monitoring well MW-22. ~~The data from monitoring well MW-22 were used by Texaco to demonstrate that risks to ecological receptors in San Francisco Bay are negligible.~~ This report updates and confirms those findings.
- The only reasonably complete pathway for human exposure to chlorinated organics from the former dry cleaning site and hydrocarbons from gasoline is inhalation of vapors emitted from groundwater and transported through the soil to the surface, where it must penetrate the asphalt surface of the parking lot.
- The ASTM "Risk-Based Corrective Action" (RBCA) standard guide serves as a reasonable starting point for screening potential human health risks. Note: Even though the RBCA standard is specified for petroleum sites, its use herein was extended from the benzene application to include the solvents. RBCA has been applied to other solvent sites (Lynn Spence, personal communication).
- For preliminary screening, RBCA has two models that estimate emissions from groundwater through the vadose zone and into the air. ~~One model estimates emissions through a bare soil surface into "outdoor" air, where a "box" model is used to disperse chemicals in the breathing zone.~~ The other model estimates emissions through a building foundation into "indoor" air. Since the subject site has an asphalt parking lot between the vadose zone and the "outdoor" air, neither RBCA model is ideal for the problem. However, for preliminary screening, ~~the first model is applied,~~ understanding that omitting the barrier created by the asphalt surface ~~makes this application extremely conservative.~~

The results of this pathway screening exercise were used to evaluate ecological and human health risks as described below.

Ecological Risks

The potential for adverse ecological risks at the site appear to be small. This conclusion is based on two comparisons: 1) a comparison of all *perimeter* monitoring wells with the well (monitoring well MW-22) used in Texaco's ecological risk assessment; and 2) a comparison of monitoring well data with cleanup objectives used at the San Francisco International Airport for protection of salt water, ecological receptors.

Comparison With Texaco Ecological Risk Assessment

Generally, the levels of chlorinated organics in all perimeter monitoring wells is similar to the levels of chlorinated organics in monitoring well MW-22. Since risks estimated based on the constituents in monitoring well MW-22 were several orders of magnitude below levels that would require additional investigation (i.e., a *conservative* risk model showed *de minimus* risks), a similar conclusion is likely for the rest of the perimeter monitoring wells.

Comparison with San Francisco International Airport Cleanup Objectives

Table 3 provides the comparison of monitoring well data with the cleanup objectives established at the San Francisco International Airport for the protection of salt water, ecological receptors. These Tier 1 objectives were developed by the Regional Water Quality Control Board (RWQCB) using U.S. Environmental Protection Agency (U.S. EPA) ambient water quality criteria documents, California Water Quality Objectives for Saltwater Aquatic Life, and San Francisco Bay Region Basin Plan Shallow Water Effluent Limitation for Marine Water. The lowest values were selected from these documents to provide conservative Tier 1 objectives.

The RWQCB established five remediation management zones at the San Francisco Airport site for distinguishing different soil and groundwater cleanup objectives. The Salt Water Ecological Protection Remediation Management Zone (RMZ) was defined as an area between the mean high tide line and extending landward for a distance of 300 feet in areas within sensitive estuarine habitats. The RMZ Tier 1 objectives were developed for the protection of saltwater flora and fauna subjects such that there is no acute or significant chronic toxicity affecting the species inhabiting the San Francisco Bay and sensitive and critical estuarine waters and wetlands.

The shoreline in Alameda along Shore Line Drive adjacent to the South Shore Shopping Center is a public beach, and is not indicated as a sensitive and/or critical habitat for San Francisco Bay area flora and/or fauna subjects. There is a bird sanctuary farther east along Shore Line Drive. However, evidence from monitoring well MW-22 (see Table 3) indicates that constituents are not migrating in that direction.

At the subject site, perimeter wells were placed around the former dry cleaners to determine if solvents were migrating toward the shoreline. As shown in Table 3, over 6 years of monitoring indicate that migration is not occurring from the source area (monitoring well MW-7/7B) to an intermediate monitoring point (MW-8), and then to the perimeter monitoring wells (MWs-14, 22, 15, 16, 17, 18). Furthermore, only one data point from the perimeter wells exceeds the Tier 1 value (PCE in monitoring well MW-14). However, between monitoring well MW-14 and the shore are monitoring wells MW-15 and MW-22, in which PCE has not been detected.

Monitoring wells MW-7B and MW-8 are located approximately 300 feet and 225 feet from the mean high tide level, respectively. This places monitoring well MW-7B at the limit of the RMZ established for the San Francisco Airport, and monitoring well MW-8 within the zone. Nevertheless, the conservative derivation of the Tier 1 cleanup objectives for the San Francisco Airport, as well as the attenuation factors evident at the South Shore Center (including the stability of the plume), indicate that the surveyed concentrations do not represent a threat to the flora and fauna of the adjacent Bay.

Chemical	Maximum Detected Values (µg/L) in Indicated Well								Ecological Tier 1 (µg/L)
	Source Well	Intermediate Well	Perimeter Wells						
	7/7B	8	MW-14	MW-22	MW-15	MW-16	MW-17	MW-18	
Benzene	190	92	2.9	ND	ND	ND	ND	ND	71
Toluene	ND	ND	0.8	ND	ND	ND	ND	ND	5,000
Ethylbenzene	ND	ND	3.4	ND	ND	ND	ND	ND	43
Xylenes	27	ND	15	ND	ND	ND	ND	ND	2,200
1,2-DCA	ND	ND	9.7	22	ND	ND	ND	ND	99
1,1-DCE	5.8	ND	0.5	ND	ND	NA	NA	ND	3.2
cis-1,2-DCE	1,200	44	ND	ND	NA	ND	ND	NA	3
trans-1,2-DCE	13	23	ND	ND	ND	ND	ND	ND	3
"DCE"	440	11	ND	ND	NA	ND	ND	ND	n.a.
PCE	7,900	70	16	ND	ND	ND	2.4	1.4	7
TCE	1,200	57	0.4	ND	ND	ND	ND	ND	81
Chloroform	ND	ND	NA	0.65	NA	6.1	4	NA	470
1,1,2-TCA	0.8	ND	ND	NA	NA	NA	NA	NA	42
Bromoform	1.7	ND	ND	NA	NA	NA	NA	NA	n.a.
Chlorobenzene	31	ND	ND	ND	ND	ND	ND	ND	n.a.
	^a RBCA Tier 1 concentrations at the 10 ⁻³ risk level.								
	^b RBCA Tier 1 concentrations at the 10 ⁻⁴ risk level.								
	n.a. = Not Available								
	ND = Not Detected								
	NA = Not Analyzed								

RISK-BASED SCREENING LEVELS FOR HUMAN HEALTH RISK ASSESSMENT

Development of Risk-Based Screening Levels

Chemical-specific risk-based screening levels (RBSLs) were developed using the equations provided in ASTM's Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites (ASTM, 1995). Consistent with the pathway screening summary provided above, RBSLs were derived using the equations and parameters provided in Tables X2.2, and X2.4-X2.7, for the "groundwater to ambient (outdoor) vapors" pathway.

Table 3 provides the values calculated for chemicals of concern at the site. RBSLs were calculated at two risk management thresholds: 1) 1×10^{-5} and 2) 1×10^{-4} . These values represent probabilities that an individual exposed to a given chemical *under the specified assumptions* might develop cancer due to that exposure. The RBCA Tier 1 assumptions are quite conservative; that is, it is quite unlikely that any individual will experience the exposure conditions specified by the assumptions. The first threshold is routinely applied by ACHA to sites characterized by commercial land use. The second threshold is the upper value of the range between 1×10^{-5} and 1×10^{-4} within which the U.S. EPA specifies a need to consider risk management (i.e., risks less than 1×10^{-5} are considered *de minimus*; risks greater than 1×10^{-4} almost invariably require action). Complete derivation of the RBSLs is provided in Appendix 3.

Risk Screening

Table 3 compares the maximum detected values against the RBSLs. For every chemical except PCE, the maximum detected values were less than the chemical-specific RBSLs. Based on the conservative assumptions built into the RBSL algorithms, this suggests that ongoing commercial use of the property is unlikely to produce adverse health effects in humans visiting or working on the property.

Table 3: Comparison of maximum detected values with RBSLs

Chemical	Maximum Detected Values ($\mu\text{g/L}$)	RBSLs ($\mu\text{g/L}$)	
		Tier 1 (10^{-5}) ^A	Tier 1 (10^{-4}) ^B
Benzene	1,300	170,340	1,703,401
Toluene	45		
Ethylbenzene	370		
Xylenes	100		
1,2-dichloroethane (1,2-DCA)	22	13,228	132,279
1,1-dichloroethylene (1,1-DCE)	5.8	125	1,246
cis-1,2-dichloroethylene (cis-1,2-DCE)	1,200		
trans-1,2-dichloroethylene (trans-1,2-DCE)	58		
dichloroethylene ("DCE")	440		
tetrachloroethylene (PCE)	7,800	5,499	54,994
trichloroethylene (TCE)	1,200	27,410	274,101
Chloroform	6.10	8,561	85,608
1,1,2-trichloroethane (1,1,2-TCA)	0.8		
Bromoform	1.7		
Chlorobenzene	31		

^ARBCA Tier 1 concentrations at the 10^{-5} risk level.

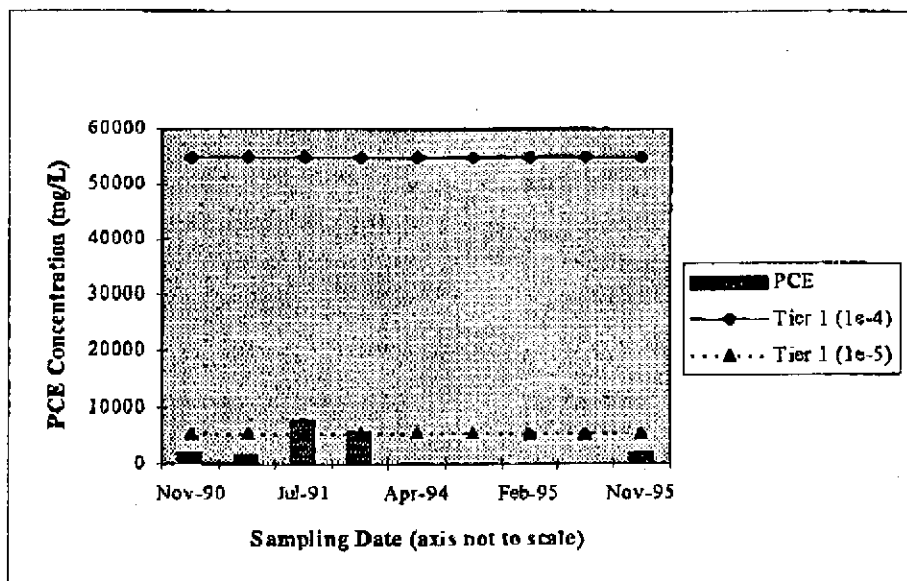
^BRBCA Tier 1 concentrations at the 10^{-4} risk level.

As shown in Table 4, PCE was detected at concentrations between the 1×10^{-5} and 1×10^{-4} RBSLs in two rounds of sampling, once in 1991 and again in 1993. Otherwise, PCE was below the 1×10^{-5} RBSL in samples from four other sampling events. Figure 2 shows the relationship of the measured PCE concentrations compared with RBSLs based on risk management thresholds set at 1×10^{-5} and 1×10^{-4} .

Table 4: PCE in monitoring well MW-7/7B relative to risk management thresholds

PCE Concentrations in Monitoring Well MW-7/7B relative to RBSLs	Sample Dates
[PCE] < RBSL at 1×10^{-5} (170,000 $\mu\text{g/L}$)	11/90, 4/91, 4/94, 11/95
RBSL at 1×10^{-5} < [PCE] < RBSL at 1×10^{-4}	7/91 & 2/93
[PCE] > RBSL at 1×10^{-4} (1,700,000 $\mu\text{g/L}$)	None

Figure 2: PCE against RBSLs over time



PCE concentrations at the site marginally failed the Tier 1 standard. However, mitigation of PCE by active remediation is unwarranted for the following reasons:

1. The RBCA Tier 1 equations, as applied, are extremely conservative. The model is sensitive to the assumptions regarding the volumetric air content of the capillary fringe and vadose zone soils, and total soil porosity (θ_{acp} , θ_{vs} and θ_T , respectively). The default assumption represents conditions typical of dry, sandy soils, whereas dense or moist soils attenuate vapors quite efficiently. This means that soil conditions at the site, plus the paved surface, will substantially retard emissions (Spence, personal communication). Proceeding from Tier 1 to Tier 2 in the RBCA process will almost certainly demonstrate *de minimis* risks. Tier 2 calculations, however, would require the compilation of additional, site-specific data. The costs of collecting such data are not justified by these results.
2. The RBCA Tier 1 equations assume that exposure will be continuous throughout the duration of a 25-year period. This means that in order to produce an incremental increase in lifetime cancer risk at the 1×10^{-5} risk management threshold, the PCE concentration must remain at the RBSL for 25 years. Clearly, this is not happening. More often than not, PCE concentrations are below the threshold and when exceedances did occur, they occurred several years ago. Therefore, risk accumulated over a 25-year exposure period is likely to be less than 1×10^{-5} .
3. The exceedances are substantially less than the 1×10^{-4} threshold below which the U.S. EPA encourages risk management decisions considering, among other factors, cost. In this case, marginal and brief exceedances of the 1×10^{-5} threshold do not appear to warrant expensive intervention to remediate the groundwater.

Based on these considerations, solvents in the groundwater are unlikely to produce significant health risks, and may be left to naturally attenuate. Furthermore, the magnitude of the risks calculated using very conservative models does not justify remedial action.

SUMMARY AND RECOMMENDATIONS

Neither chlorinated organics from the former dry cleaner nor benzene from the former car wash site appear to present significant risks. This is to be expected given that impacted soil has been removed from the site.

Ecological risks appear to be mitigated by the pronounced attenuation between the source and the shoreline.

The potential for risks from exposure to vapors emitted from the groundwater through the soil and into the air after passing through paved surfaces appears to be negligibly low, given the conservative nature of the models applied.

Risks appear not to justify the expense of attempting to remediate chlorinated organics, which are intractable, or benzene, which can be expected to biodegrade. Therefore, no further action is recommended for the site.

Of related interest, in the April 24, 1996 meeting, ACHA expressed concern over the concentrations of TPH-g detected in monitoring well MW-24 (located in the north/northeast half of the site), and recommended either remediation or a risk assessment based on additional data. During the discussion, ACHA allowed that a risk-based concentration might justify modification of remedial action goal. The current remedial action goal is the MCL for benzene (1 µg/L). The RBSL for benzene presented herein is an appropriate risk-based concentration for the north/northeast half of the site, and deserves further consideration by ACHA. Although this report is specifically not intended to represent Kamur's plans for remedial action at the site, it is notable that benzene in monitoring wells MW-10, MW-12, MW-23, MW-24, and MW-25 does not exceed the RBSL calculated in this study.

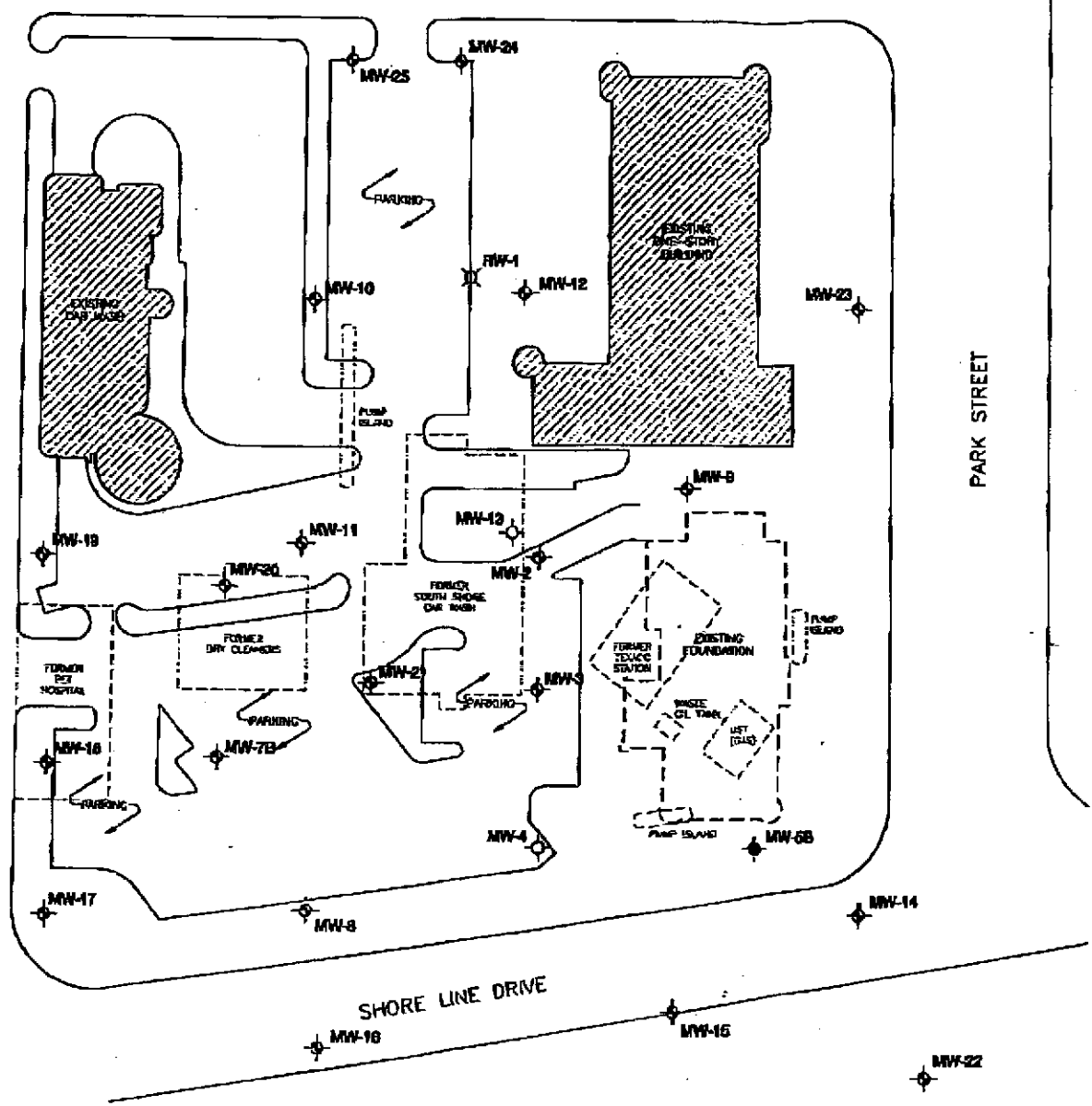
LIMITATIONS

This report was prepared in general accordance with the accepted standard of practice which exists in Northern California at the time the investigation was performed. It should be recognized that definition and evaluation of environmental conditions is a difficult and inexact art. Judgements leading to conclusions and recommendations are generally made with an incomplete knowledge of the conditions present. More extensive studies, including additional environmental investigations, can tend to reduce the inherent uncertainties associated with such studies. If the Client wishes to reduce the uncertainty beyond the level associated with this study, Kleinfelder should be notified for additional consultation.



Our firm has prepared this report for the Clients exclusive use for this particular project and in accordance with generally accepted engineering practices within the area at the time of our investigation. No other representations, expressed or implied, and no warranty or guarantee is included or intended.

This report may be used only by the client and only for the purposes stated, within a reasonable time from its issuance. Land use, site conditions (both onsite and offsite) or other factors may change over time, and additional work may be required with the passage of time. Any party other than the client who wishes to use this report shall notify Kleinfelder of such intended use. Based on the intended use of the report, Kleinfelder may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the client or anyone else will release Kleinfelder from any liability resulting from the use of this report by any unauthorized party.



- LEGEND**
- ◆ MONITORING WELL
 - ◆ MONITORING/VAP
 - RECOVERY WELL
 - ◆ MONITORING WELL

50 0
 APPROXIMATE SCALE (1"=50')

REFERENCE:
 EVAX Technologies, Inc., 7a-Built
 2375 Shore Line Drive, Alameda,
 dated 6-12-91.

		SITE PLAN
		HARSCH SOUTH SHORE 2375 SHORE LINE DRIVE ALAMEDA, CALIFORNIA
DRAFTED BY: L. Sue	DATE: 5-31-96	PROJECT NO. 10-300301-003
CHECKED BY: F. Leach	DATE: 6-19-96	



May 1, 1996
File No. 10-3003-01/002

Mr. Gregory H. Baum
Harsch Investment Corporation
P. O. Box 2708
Portland, Oregon 97208

SUBJECT: South Shore Shopping Center, Alameda, California

Dear Mr. Baum:

Kleinfelder, Inc. (Kleinfelder) has prepared the following summary of the meeting regarding the above-referenced project held on April 24, 1996. Attending the meeting were:

Mr. Greg Baum, Harsch Investment Corp.
Mr. Mike Dosen Harsch Investment Corp.
Mr. Alan Gibbs, Kleinfelder, Inc.
Mr. Frank Harnedi, Soil Tech Engineering, Inc.
Mr. Ed Leach, Kleinfelder, Inc.
Ms. Madhulla Logan, Alameda County Health Agency
Ms. Juliet Shin, Alameda County Health Agency

The meeting included a site walk and a discussion held in Harsch Investment Corp.'s (Harsch) South Shore office.

This summary is divided into two sections:

- Ecological risk assessment for chlorinated organics from the former dry cleaners;
- Human health risk assessment for chlorinated organics and benzene from the dry cleaners and car wash, respectively.

This summary is intended to provide a brief quality check-point to ensure agreement regarding the path forward.

ECOLOGICAL RISKS

The potential for adverse ecological risks at the site appears to be small. This conclusion is based on a comparison of constituent concentrations in perimeter monitoring wells with: 1) the Texaco ecological risk assessment; and 2) ecological risk standards for the San Francisco International Airport. In the April 24 meeting, the Alameda County Health Agency agreed that ecological risks were not of concern.

In the first step of the review Kleinfelder compared the concentrations of chlorinated organic compounds in all *perimeter* monitoring wells with the monitoring well used in Texaco's ecological risk assessment (monitoring well MW-22). Generally, the levels of chlorinated organics in all perimeter monitoring wells is similar to the levels of chlorinated organics in MW-22. Since risks estimated based on the constituents in MW-22 were several orders of magnitude below levels that would require additional investigation (i.e., a *conservative* ecorisk model showed *de minimus* risks), it is logical to conclude that concentrations detected in the rest of the perimeter monitoring wells present negligible ecological risks.

Secondly, Kleinfelder compared the maximum detected values in the monitoring wells with "Tier 1" concentrations for groundwater contamination in proximity to the San Francisco Bay (RWQCB 1995). These Tier 1 concentrations, listed by the RWQCB, are for comparison with monitoring well data within 300 feet of the mean high tide line. None of the perimeter monitoring wells exceeded the "maximum groundwater levels" listed in the Tier 1 Table. In monitoring well MW-7, the Tier 1 levels are exceeded by *cis*-1,2-dichloroethylene (*cis*-1,2-DCE), perchloroethylene (PCE) and trichloroethylene (TCE). However, the concentrations fall off rapidly between MW-7 and MW-8, such that only a single measurement of *cis*-1,2-DCE exceeds the Tier 1 level. Constituents in all other monitoring wells between the former dry cleaners and the shoreline are below the Tier 1 levels.

To complete the ecological risk assessment, Kleinfelder proposes to prepare a brief (approximately 2 -page) summary to describe the above findings in greater detail.

HUMAN HEALTH RISKS

Hazard Identification

Ms. Logan expressed concern over two elements of the existing site characterization. First, she wondered why benzene was detected in several monitoring wells that were screened deeper in the aquifer. Second, she stated that, in order to complete a risk assessment for gasoline/benzene from the former car wash, the plume would have to be more completely delineated.

Mr. Gibbs suggested that Kleinfelder complete a geoprobe investigation of the portion of the aquifer where Kleinfelder appear to be detecting benzene lower in the aquifer. This will answer the question as to whether higher concentrations are present higher in the aquifer.

Pathway Screening

During the meeting of April 24, the group agreed that the following statements fully describe the exposure pathways at the site:

- Impacted soil was removed and replaced, and the site closed with regard to soil contamination. Therefore, there appear to be *no soil-related pathways* for exposure.
- Groundwater pathways that typically produce "high risk" exposures—such as direct contact and ingestion pathways—are *not* evident at this site. Therefore, the site is expected to be a relatively "low risk" site for groundwater.

- The only reasonable complete pathway for human exposure to chlorinated organics from the former dry cleaning site is inhalation of vapors emitted from groundwater and transported through the soil to the surface.
- As with the chlorinated organics, benzene from the former car wash site may only reasonably reach receptors via vapor transport through the soil, then through paved surfaces (or very limited landscaped surfaces) and into the air.

All risk assessment activities should focus on inhalation of vapors from the groundwater through the soil.

Risk Screening

The Alameda County Health Agency agreed that human health and ecological risk assessments could be used to close the portion of the South Shore project associated with the former dry cleaners. To complete the human health risk assessment, the preliminary results described below will be elaborated and finalized.

The preliminary calculations were completed using the RBCA Tier 1 equations and default values, except that site-specific information for depth to groundwater was substituted into the model. The algorithm for vapor emitted from groundwater to indoor air was used.

- For the chlorinated organics, preliminary risk screening using the RBCA Tier 1 method indicates that PCE (Table 1) and TCE (Table 2) in monitoring wells MW-7 and MW-7B exceed the RBSLs at the risk management threshold¹ of 1×10^{-4} .

Table 1: PCE Concentrations relative to Risk-Based Screening Levels

PCE Concentrations relative to RBSLs	Monitoring wells
[PCE] < RBSL at 1×10^{-6} (1.5 µg/L)	2, 5B, 14B, 16, 18, 19, 21, 22, 23
RBSL at 1×10^{-6} < [PCE] < RBSL at 1×10^{-4}	1, 3, 8, 8B, 9, 10, 11, 12, 14, 17, 20, 24, 25
[PCE] > RBSL at 1×10^{-4} (150 µg/L)	7, 7B

¹ Risk management thresholds are established by policy. For carcinogenic substances, the threshold is expressed as a probability, such as one-in-one-million (1×10^{-6}) or one-in-ten-thousand (1×10^{-4}). The value expresses the likelihood—over and above the normal, background incidence rate of approximately one-third—that an exposed individual will develop cancer under the assumed conditions of exposure and toxicity. Therefore, exposure to chemicals at an estimated risk level of one-in-one-million (1×10^{-6}) changes the lifetime probability that the exposed individual will get cancer from 0.330000 to 0.330001.

Table 2: TCE Concentrations relative to Risk-Based Screening Levels

TCE Concentrations relative to RBSLs	Monitoring wells
[TCE] < RBSL at 1×10^{-6} (3 $\mu\text{g/L}$)	1, 2, 9, 12, 14, 14B, 15, 16, 17, 18, 19, 21, 22, 23, 24
RBSL at 1×10^{-6} < [TCE] < RBSL at 1×10^{-4}	3, 5B, 8, 8B, 10, 11, 20, 25
[TCE] > RBSL at 1×10^{-4} (300 $\mu\text{g/L}$)	7, 7B

- For benzene, preliminary risk screening using the RBCA Tier 1 method indicates that the measured benzene concentrations in 14 of 24 monitoring wells is below the concentration corresponding to a risk management threshold of 1×10^{-6} . In another 8 monitoring wells, benzene concentrations are between RBSLs corresponding to the range of risks between 1×10^{-6} and 1×10^{-4} . Finally, 2 monitoring wells have had at least one measured benzene concentration above the RBSL corresponding to the risk management threshold 1×10^{-4} .

Table 3: Benzene Concentrations relative to Risk-Based Screening Levels

Benzene Concentrations relative to RBSLs	Monitoring wells
[Benzene] < RBSL at 1×10^{-6} (36 $\mu\text{g/L}$)	1, 2, 3, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23
RBSL at 1×10^{-6} < [Benzene] < RBSL at 1×10^{-4}	5B, 7, 7B, 8, 8B, 9, 10, 25
[Benzene] > RBSL at 1×10^{-4} (3,600 $\mu\text{g/L}$)	12, 24(?)

Ms. Logan stated that the ACHA uses a risk management threshold of 1×10^{-5} for evaluation of risks at commercial sites. The tables provided above will be revised to reflect this.

*see report dated
7/31/96 by
Kleinfelder*

SUMMARY

- At the monitoring wells associated with the former dry cleaner, neither chlorinated organics nor benzene (migrating from the former car wash site) appear to present significant risks. This is to be expected given that impacted soil has been removed from the site.
- Ecological risks appear to be mitigated by the pronounced attenuation between the source and the shoreline, which has been stable over six years of monitoring.
- The potential for risks from exposure to vapors emitted from the groundwater through the soil and into the air after passing through paved surfaces appears to be low, given the conservative nature of the models applied.
- Risks do not justify the expense of attempting to remediate chlorinated organics.
- A RBCA approach may be used to establish an alternative cleanup level for remediation of the groundwater impact from the former car wash site.

RECOMMENDATIONS & PATH FORWARD


1. Perform a geoprobe investigation of the former dry cleaner site.
2. Complete the draft ecological risk assessment with a brief report.
3. Complete the human health risk assessment for chlorinated organics as described in the original scope of work.
4. Complete a RBCA risk assessment for benzene to set an alternative cleanup level for benzene from the former car wash site. This was not provided for in the original scope of work, and needs to be added on (see change order, attached).
5. Draft report per scope of work.
6. Meet with ACHA to transmit the results and request appropriate action.

CHANGE IN SCOPE


Addition of the geoprobe investigation, the RBCA risk assessment for benzene, and the use of the SFO ecological risk data are changes in scope from the original authorization. To complete this additional work, Kleinfelder respectfully request your authorization by executing the change order attached to this letter.

Please call Alan Gibbs at (510) 484-1700, ext. 204, if you have any questions regarding the content of this letter.

Sincerely,
KLEINFELDER, INC.



Alan D. Gibbs, R.G., H.G.
Environmental Manager



Edward C. Leach
Senior Project Manager

ALAMEDA COUNTY
HEALTH CARE SERVICES



AGENCY
DAVID J. KEARS, Agency Director

Alameda County 94500
Environmental Health Services
1131 Harbor Bay Pkwy., #250
Alameda CA 94502-6577
(510)567-6700 FAX(510)337-9335

Mr. Greg Baum
Harsch Investment Corporation
P.O Box 2708,
Portland, Oregon, - 97208

April 26, 1996

RECEIVED

Mr. Murray Stevens
2351 Shoreline Drive,
Alameda, CA - 94501

APR 27 1996
HARSH INVESTMENT
LEGAL DEPT.

STID# 1773

Ref: South Shore Shopping Center, located at Park Street, and Shore Line Drive,
Alameda, CA.

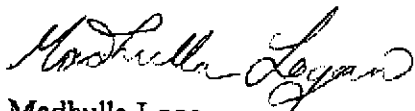
Dear Mr. Baum & Mr. Stevens:

This letter is being sent as a follow-up to the meeting that was held on April 24, 1996 with Greg Baum and Alan Gibbs representing Harsch Investment, and Frank Hamidi representing Kamur Industries. Based on the outcome of the meeting it was agreed that the following investigative/remedial work needs to be completed to move the project towards closure:

- A risk assessment to evaluate the potential risk of petroleum hydrocarbons and solvents identified in the monitoring wells located in the south/south west half of the referenced property, and specifically addressing the contamination that has been recently identified in monitoring well, MW-7B.
- A workplan to address the contamination that has been found in the monitoring wells in north/north east half of the site, specifically the high concentrations that appear to be migrating towards and away from monitoring well, MW-24. This Department would require that either a remediation system be installed to clean-up the groundwater contamination and to reduce further migration of petroleum hydrocarbons or that a risk assessment be submitted to evaluate the potential risk of contamination present in the groundwater. Depending on your choice, more investigative work and groundwater monitoring may be required to define the extent of contamination.

Please submit the above required information within 30 days of receiving this letter. Please be advised that this is a formal request for technical information pursuant to California Water Code Section 13627 (b). Any extension of the stated deadlines, or modifications of the required tasks, must be confirmed in writing by this agency. If you have any questions, call me at (510) 567-6764.

Sincerely,



Madhulla Logan
Hazardous Material Specialist

Alan Gibbs, Kleinfelder, 7133, Koll Center Parkway, Suite 100, Pleasanton, CA - 94566
Frank Hamidi, Soil Tech Engineering, 1761, Junction Ave, San Jose, CA - 95112.