Limited Phase II Soil and Groundwater Quality Investigation
Silveria Ranch Site
6615 Tassajara Road
Pleasanton, California

February 5, 2001
7941.00-001

Prepared for
SummerHill Homes
777 California Avenue
Palo Alto, California

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Mr. Mark A. Beskind
SummerHill Homes
777 California Avenue
Palo Alto, California 94304

Subject: Limited Phase II Soil and Groundwater Quality Investigation Report, Silveria Ranch Site, 6615 Tassajara Road, Pleasanton, California

Dear Mr. Beskind:

Enclosed is the subject report, regarding the Silveria Ranch site at 6615 Tassajara Road, in Pleasanton, California ("the Site"). The limited Phase II soil and groundwater investigation discussed in this report included advancing three soil borings to a depth of 15 feet below ground surface (bgs), advancing two soil borings to the first water bearing zone (approximately 27 feet bgs), and collecting eight shallow soil samples. Grab groundwater samples were also collected from the two deeper soil borings. Samples were analyzed for arsenic and lead; selected samples were also analyzed for total petroleum hydrocarbons (TPH) as diesel (TPHd), as gasoline (TPHg), and as motor oil (TPHmo), for volatile organic compounds (VOCs), and for pesticides and herbicides.

On November 27, 2000, t[redacted] LFR staff what he said was the location of a former UST at the property ("the presumed former UST"). The presumed former UST was not reported in Terrasearch, Inc.'s "Phase I Environmental Site Assessment of the Silveria and Regwick Properties," dated March 26, 1999.

Soil samples were collected from the areas of potential hydrocarbon contamination (i.e., at the locations of aboveground storage tanks and the presumed former UST and areas in which soil staining was observed). Analysis of most samples indicated residual concentrations of TPHg and TPHd below regulatory levels of concern. However, the groundwater sample collected near the presumed former UST location contained TPHd at 13,000 ppb. TPHg at 18,000 ppb, and total benzene, toluene, ethylbenzene, and xylene (BTEX) compounds at approximately 2,000 ppb. These analytical results indicate that groundwater in this area is affected with residual chemicals at concentrations above U.S. Environmental Protection Agency (U.S. EPA) Maximum Contaminant Levels (MCLs). Additionally, because the removal of the UST is unconfirmed, it is possible that it is still present and may be a continuing source of contaminants to site soil and groundwater.

Therefore, we recommend additional investigation at the Site, to evaluate the lateral extent of hydrocarbons and hydrocarbon constituents in groundwater and to determine whether the presumed former UST is still present at the Site or has been removed.

LFR

If you have any questions, please feel free to call me or Lucas Goldstein at (510) 652-4500.

Sincerely,

Andrew M. Lojo, R.G.
Senior Geologist

Enclosure

cc: Adam Tennant, SummerHill Homes

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1.0 INTRODUCTION

LFR Levine·Fricke (LFR) has prepared this report on behalf of SummerHill Homes to document its November 2000 Phase II investigation of soil and groundwater quality at the Silveria Ranch site, located at 6615 Tassajara Road in Pleasanton, California ("the Site"; Figure 1). The objective of the investigation was to assess whether soil in selected areas of the Site has been affected by chemical storage and use at the Site, as reported in Terrasearch, Inc.'s "Phase I Environmental Site Assessment of the Silveria and Regwick Properties," dated March 26, 1999 ("the Terrasearch Phase I ESA").

1.1 Site Location and Previous Investigations

The Site is located immediately east of Tassajara Road near the northern boundary of Alameda County, and within the limits of the city of Pleasanton (Figures 1 and 2). The Site is approximately 91 acres in size, with hilly topography. Site features include a main residence, a garden shed, three barns, a stable area, and a carport (Figure 3). The Terrasearch Phase I ESA states that the Site has only been used for grazing livestock, and identifies the following potential adverse environmental conditions at the Site:

- two 550-gallon steel aboveground storage tanks (ASTs)
- a gasoline pump
- petroleum staining on the floors of the barns
- containers of pesticides and herbicides in the barns and garden shed

1.2 Phase II Investigation Scope of Work

Based on the information contained in the Terrasearch Phase I ESA, LFR developed a soil sampling and analysis work plan (LFR 2000a). The scope of work presented in the work plan included advancing four soil borings to depths of 15 feet bgs and collecting six additional surface soil samples.

During LFR's investigation, however, on November 27, 2000, Mr. Chris Haight, the owner and current resident of the property, identified the location of a former underground storage tank ("the presumed former UST") to LFR staff. The presumed former UST was not identified by the Terrasearch Phase I ESA. Because elevated PID readings and a hydrocarbon odor were detected in the boring near the presumed former UST, an additional soil boring was advanced in the assumed downgradient direction from the one near the presumed former UST. Both of these borings were also increased in depth, to approximately 27 feet bgs, to enable collection of grab groundwater samples.

2.0 FIELD WORK

After appropriate pre-field preparations, a Geoprobe® rig was used to advance three soil borings to a depth of approximately 15 feet below ground surface (bgs) and two soil borings to the depth of the first water-yielding interval, approximately 27 feet bgs. Soil samples were collected from each boring, and two grab groundwater samples were collected from the deeper borings. Eight shallow soil samples were also collected using a hand auger. Details regarding these activities are presented below.

2.1 Preparation for Field Work

Before field work began, LFR obtained a permit for soil borings from the Alameda County Flood Control and Water Conservation District. LFR also notified Underground Service Alert to identify public underground utilities and subcontracted with a private utility locator to locate underground utilities at the Site. Before field work, LFR also prepared a site-specific Health and Safety Plan (HSP: LFR 2000b).

2.2 Advancement of Borings and Collection of Soil Samples

Vironix, of Hayward, California, under the observation of a LFR geologist, advanced five soil borings (SB-1 through SB-5)at the Site using a Geoprobe rig. Boring locations (Figure 3) were selected as follows:

- SB-1 was advanced at a location adjacent to the presumed former UST, approximately 15 feet north of SB-2.
- SB-2 and SB-4 were advanced near the carport and wool barn, respectively, at locations adjacent to the two former ASTs.
- SB-4 was advanced in the hay barn, where oil-stained bricks had been observed.
- SB-5 was advanced at a location approximately 50 feet southwest of the location of the presumed former UST.

Soil borings SB-1 and SB-5 were advanced to the first encountered groundwater, at approximately 27 feet bgs. The remaining soil borings (SB-2 through SB-4) were drilled to a depth of 15 feet. Four soil samples were collected for potential laboratory analysis from each of the five borings at depths of approximately 1.5, 5, 10, and 15 feet bgs. The shallowest soil sample from each boring was submitted for analysis, and the remaining samples were submitted on a hold basis pending the shallow sample results. Samples were also collected for lithologic description from each boring and lithologically logged, using the Unified Soil Classification System. The log samples were also examined for visible indications of petroleum hydrocarbons.

Eight shallow soil samples (HA-1 through HA-8; Figure 3) were also collected for analysis at a depth of approximately 1 foot bgs, using a hand auger. HA-1 and HA-2

were collected in the wool barn. HA-3 though HA-6 were collected in the cow pastures. HA-7 was collected inside the carport, where stained soil and car batteries were observed. HA-8 was collected adjacent to the small garden shed, where containers of herbicides were observed.

Silt and clay were the predominant soil types encountered at the Site. A medium- to coarse-sand stringer, approximately 2 inches thick, was encountered at approximately 25 feet bgs in the two deeper soil borings (SB-1 and BS-5).

As soil samples were collected from the borings and hand auger locations, a field photoionization detector (PID) was used to assess the presence of petroleum hydrocarbons and volatile organic compounds (VOCs) in collected soil samples. A hydrocarbon odor and elevated PID readings were encountered in soil borings SB-1, SB-2, and SB-5 at depths greater than 10 feet.

2.3 Groundwater Sample Collection

After soil lithology was recorded and soil samples were collected, soil borings SB-1, SB-5 were converted into temporary groundwater sampling locations (Figure 3). A temporary casing of threaded 1-inch-diameter polyvinyl chloride (PVC) was introduced into each of the two borings, with approximately 10 feet of 0.010-inch slotted well screen across the groundwater table in the borings. Groundwater samples were pumped directly from each boring, using a peristaltic pump and clean tygon tubing, into clean laboratory-supplied 40-milliliter vials and 1-liter clear plastic and amber-colored glass bottles. Sample containers were labeled and placed into a chilled cooler for transportation to the analytical laboratory following strict chain of custody protocols. After sample collection, the temporary casing was removed from each boring and the borings were backfilled with neat cement, in accordance with county requirements.

3.0 LABORATORY ANALYSIS AND RESULTS

Soil and groundwater samples were submitted to Curtis & Tompkins of Berkeley, California, a state-certified analytical laboratory. All fifteen soil samples were analyzed for arsenic and lead. In addition, ten soil samples collected from areas potentially affected by total petroleum hydrocarbons (TPH) were analyzed for TPH as diesel (TPHd), as gasoline (TPHg), and as motor oil (TPHmo), and for VOCs. Eleven soil samples collected from the pastures and near potential storage areas were analyzed for pesticides, and four soil samples collected near potential storage areas were analyzed for herbicides. Both of the groundwater samples were analyzed for arsenic, lead, organic lead, TPHd, TPHg, TPHmo, and VOCs. All analyses were performed in accordance with U.S. Environmental Protection Agency (U.S. EPA) methods, as summarized in Table 1, below.

TABLE 1: SUMMARY OF ANALYSES

EPA METHOD	NO. OF SOIL SAMPLES	NO. OF WATER SAMPLES	ANALYTES
8015M	10	2	TPHg (purgeable hydrocarbons as gasoline)
8015M	10	2	TPHd (extractable hydrocarbons as diesel)
8015M	10	2	TPMmo (extractable hydrocarbons as motor oil)
8260B	10	2	VOCs (complete VOCs, including benzene, toluene, ethylbenzene, and total xylenes [BTEX])
6010B	15	2	Arsenic, lead
DOHS LUFT	0	2	Organic lead
8081	11	2	Pesticides
8151	4	0	Herbicides

Analytical laboratory certificates for soil and groundwater sample analysis are presented in Appendix A.

3.1 Soil Sample Results

Hydrocarbons. TPHd and TPHmo were detected in soil samples at concentrations as high as 59 parts per million (ppm) . Table 2, below, summarizes TPH concentrations detected in soil samples. BTEX was not detected above laboratory detection limits.

Table 2: Summary of Soil Analytical Results for Hydrocarbons (ppm)

LOCATION	SAMPLE DEPTH (feet bgs)	TPHg	TPHd	TPHmo
SB-1	1.5	< 1	1.2	< 1
SB-2	1.5	< 1	2.2	22
SB-3	1.5	< 1	< 1	< 1
SB-4	1.5	< 1	< 1	< 1
SB-5	1.5	< 1	< 1	9.5
HA-1	1.0	< 1	17	47
HA-2	1.0	< 1	7	55
HA-7	0.5	< 1	19	59

Note: < = not detected above laboratory reporting limit

Metals. Arsenic was detected in soil samples at concentrations ranging from 0.75 ppm (HA-7-1.5) to 4.0 ppm (HA-5-1.5). Lead concentrations in soil samples ranged from 5.9 ppm (HA-4-1.5) to 30 ppm (SB-2-2).

VOCs. VOCs were not detected above the laboratory detection limit in soil samples.

Pesticides and Herbicides. Lindane (reported as Gamma-BHC) and 4,4-DDT were detected in the soil sample collected from sample HA-8-0.5 at 0.046 ppm and 0.0057 ppm, respectively. Pesticides were not detected above the laboratory detection limits in other soil samples. Herbicides were not detected above the laboratory detection limit in any soil samples.

3.2 Groundwater Sample Results

Hydrocarbons. TPHg, TPHd, and hydrocarbon constituents were detected in both groundwater samples, as summarized in Table 3, below.

Table 3: Summary of Groundwater Analytical Results for Hydrocarbons (parts per billion [ppb])

LOCATION	TPHg	TPHd	TPHm	Benzene	Toluene	Ethelbenzene	Total Xylenes
SB-1	18,000	13,000 (Y)	<1,500	71	3.5	250	481
SB-5	240	220 (Y)	<300	3.3	<0.5	<0.5	<0.5

Note: < = not detected above laboratory reporting limit; Y = chromatograph does not match diesel standard. Additional hydrocarbon constituents detected in groundwater samples SB-1 and SB-5 include isopropylbenzene, propylbenzene, 1,2,3-trimethylbenzene, 1,2,4-trimethylbenzene, sec-butylbenzene, para-isopropyl, n-butylbenzene, and naphtalene.

Chlorinated VOCs. 1,2-dichloroethane (1,2-DCA) was detected in the groundwater sample collected from boring SB-5 at 5.5 ppb.

Metals. Lead was detected in groundwater sample SB-1 at a concentration of 4.2 ppb, but not in the sample from boring SB-2 (3 ppb laboratory detection limit). Arsenic was not detected in either groundwater sample (5 ppb laboratory detection limit).

Organic Lead. Organic lead was not detected in either sample (300 ppb laboratory detection limit).

3.3 Discussion of Soil and Groundwater Results

Soil. TPHd and TPHmo were detected in shallow soil samples at locations SB-1, SB-2, HA-1, HA-2, and HA-7 (Figure 3). One of these soil borings is located near the presumed former UST (SB-1), one is located near the carport AST (SB-2), and three are from oil-stained areas (HA-1 and HA-2, from the barn, and HA-7, from the carport). The highest concentration of TPH detected (59 ppm TPHmo, in HA-7-0.5) is below its Regional Water Quality Control Board (RWQCB) Tier 1 Risk-Based Screening Level (RBSL; 100 ppm; RWQCB 2000). Benzene and other hydrocarbon constituents, which are considered more toxic than TPH, were not detected in any soil samples. Elevated PID readings and hydrocarbon odors indicate that hydrocarbon-

affected soil is also present at depths of greater than 10 feet bgs in soil borings SB-1, SB-2, and SB-5.

Metals detected in samples were within generally acceptable background concentrations for Bay Area soils. Isolated concentrations of the pesticides Lindane and DDT were detected in sample HA-8, collected near the pesticide storage shed, at levels below its U.S. EPA preliminary remediation goal (PRG).

Groundwater. Relatively high concentrations of TPHg were detected in the groundwater sample collected from boring SB-1, located near the presumed former UST. Benzene concentrations in this sample are above the U.S. EPA Maximum Contaminant Levels (MCLs) for drinking water (5 ppb). In the sample from SB-5, located approximately 50 feet from SB-1 and presumed to be downgradient from SB-1 with respect to the direction of groundwater flow, benzene was also detected at concentration slightly above its RWQCB RBSL. However, the results from these two samples are insufficient to characterize the extent or quantity of benzene in site groundwater. 1,2-DCA was also detected at 5.5 ppb in the sample from SB-5, above its U.S. EPA MCL (5 ppb). 1,2-DCA was reportedly used in the past as a gasoline additive.

4.0 CONCLUSIONS AND RECOMMENDATIONS

The analytical results indicate that groundwater at the Site is affected with residual chemicals at concentrations above regulatory action levels, including U.S. EPA PRGs and MCLs. It is likely that the presumed former UST and any associated piping was or is the source of the chemicals detected in groundwater. Because the removal of the UST is unconfirmed, it is possible that it is still present and may be a continuing source of contaminants to site soil and groundwater. Therefore, LFR recommends that further site investigations be performed to evaluate the lateral extent of hydrocarbons in groundwater and to locate its source.

Specifically, LFR recommends the following:

- a geophysical investigation, to determine if the UST has been removed and define the extent of the former UST pit
- a soil investigation, to expose the UST (if it is still present) and evaluate the extent of any residual affected soils below and in the vicinity of the presumed former UST
- additional groundwater investigation, to define the extent of affected groundwater and the direction of groundwater flow

5.0 REFERENCES

LFR Levine·Fricke (LFR) 2000a. Work Order for a Limited Phase II Soil Investigation at 6615 Tassajara Road, Pleasanton, California. August 8.

———. 2000b. Health and Safety Plan for Investigation Activities at 6615 Tassajara Road, Pleasanton, California. November 23.

RWQCB 2000. Application of Risk-Based Screening Levels and Decision Making to Sites with Impacted Soil and Groundwater. Interim-Final, August.