


M E M O R A N D U M

GRIBI Associates

To: Steve Hill, RWQCB
From: Jim Gribi, RG 
Date: 11/17/99
Subject: Liquid Sugars, Inc. Site, 1266 66th Street, Emeryville, CA

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Pursuant to our upcoming teleconference on Monday, November 22, 1999, attached please find the following figures from previously-submitted reports:

- ▶ Figure 1 Site Vicinity Map
- ▶ Figure 2 Site Plan
- ▶ Figure 3 Soil HVOC Results
- ▶ Figure 4 Groundwater HVOC Results
- ▶ Figure 5 Groundwater PCE & 1,2-DCA Isoconcentration Map
- ▶ Figure 6 Proposed Well Locations
- ▶ Figure 7 Well Construction Diagram

In evaluating this site, we believe that the following site characteristics are of key importance:

1. The project site is located in an area of little or no usable shallow groundwater resources.
2. As with most of the East Bay area, the project site is underlain predominantly by clays and silty clays, with occasional thin, discontinuous sand and gravel layers.
3. HVOC releases identified on the project site appear to represent small releases which, due to low-permeability soils beneath the site, have resulted in small, concentrated plumes that are bound up in tight soils and have not migrated significant distances. The fact that both vadose zone soils and shallow groundwater contained detectable levels of HVOCs indicates that the near-surface clay and silt soils have bound up downward migrating HVOC releases.
4. Three apparently isolated release areas have been identified on the project site: (1) An area along the upgradient east property line adjacent to the Union Pacific Railroad tracks; (2) An area beneath the "tile room" portion of the project site building; and (3) An area on the west side of the "warm room" portion of the project site building. For the first two areas, the concentrations of breakdown products TCE, t-1,2-DCE, c-1,2-DCE, and VC relative to the probable PCE parent product clearly show that natural attenuation of these HVOCs has occurred over time. The 1,2-DCA release identified on the west side of the "warm room" appears to be isolated and does not appear to be migrating appreciably.
5. Gribi Associates has uncovered no evidence of historic HVOC use at the site. Liquid Sugars, Inc. the current owner of the project site, has operated a food-grade liquid sugar/vegetable

Memorandum

GRIBI Associates

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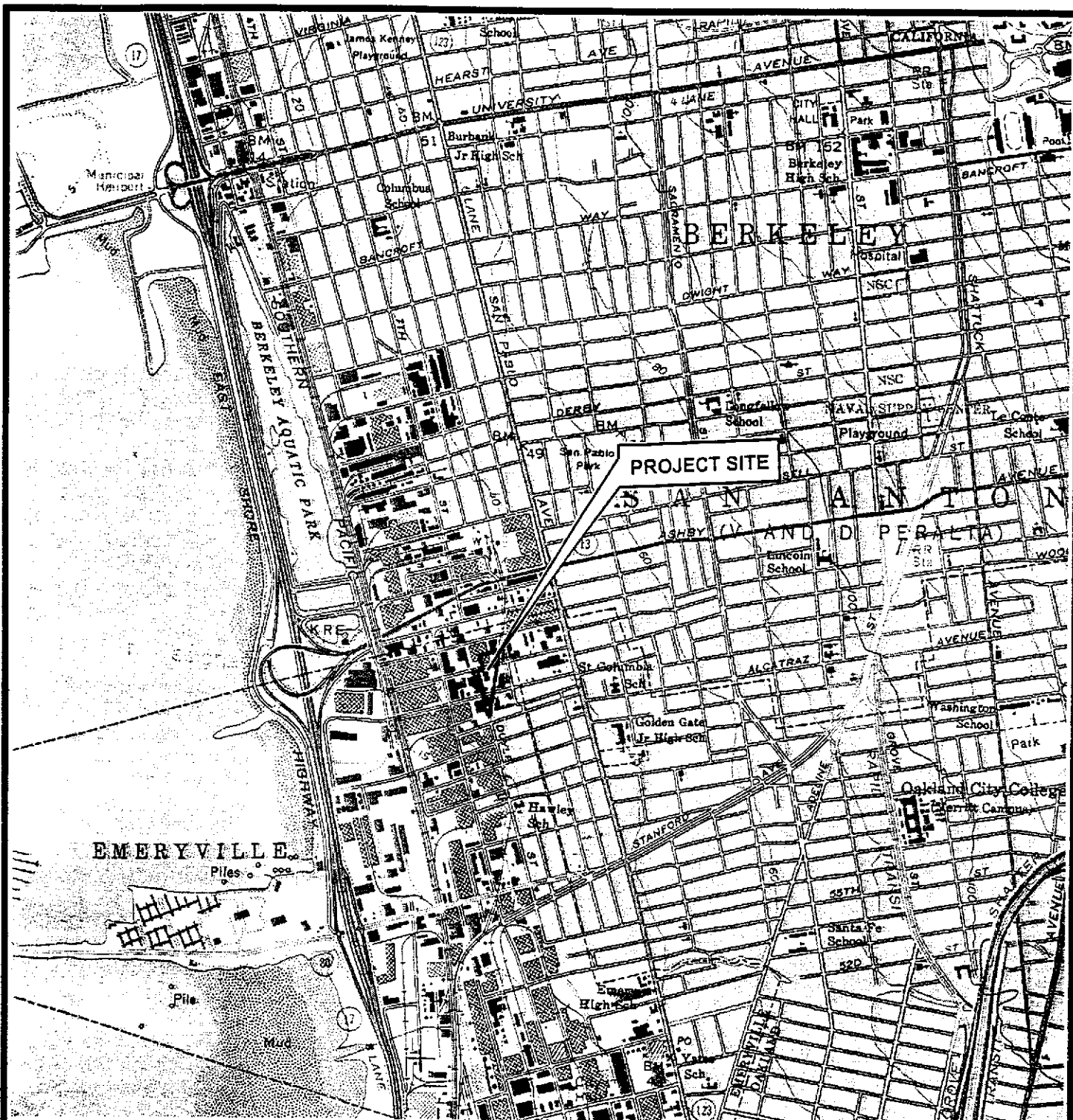
November 16, 1999

oil facility on the site since the 1970s. (LSI is in the initial stages of re-locating their facility, and has put the project site up for sale.) Prior to LSI ownership, the project site was owned by Diamond Alkali and was used for the manufacturing of sodium silicates since at least 1939. Sanborn Fire Insurance Maps identify project site land use in 1903 and 1911 as residential.

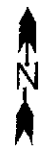
6. Based on calculated risk estimates, it appears that there is no significant risk of exposure from any identified HVOC constituents present at the project site. On this basis, Gribi Associates requested regulatory closure for the site; however, given the nature of the contaminants and the concentrations of 1,2-DCA and PCE in grab groundwater samples on the west and east sides of the site, respectively, the RWQCB requested that a Remediation/Risk Management Plan be prepared for the site.
7. In preparing the Remediation/Risk Management Plan, Gribi Associates established risk-based cleanup goals for the site and evaluated three remedial options for the site. These three remedial options included: (1) Natural attenuation; (2) Insitu groundwater treatment; and (3) Groundwater extraction and treatment.
8. After considering the relative costs of each option, the apparent lack of migration of HVOCs at the site, the low risk associated with residual HVOCs at the site, and the lack of groundwater beneficial uses in the area, it is apparent that the natural attenuation option is the most feasible remedial option for this site.

Based on these results, the Remediation/Risk Management Plan included a workplan to install four groundwater monitoring wells at the site. In order to assess true groundwater conditions in known HVOC impacted areas, one well is to be placed in the area of high 1,2-DCA in the southwest corner of the LSI "warm room", and another well is to be sited in the area of elevated PCE near the railspur on the east side of the site. A third well is to be sited west-southwest in an expected downgradient direction from this PCE-impacted area. The fourth well is to be sited west-southwest in an expected downgradient direction from the PCE-impacted area in the LSI "tile room".

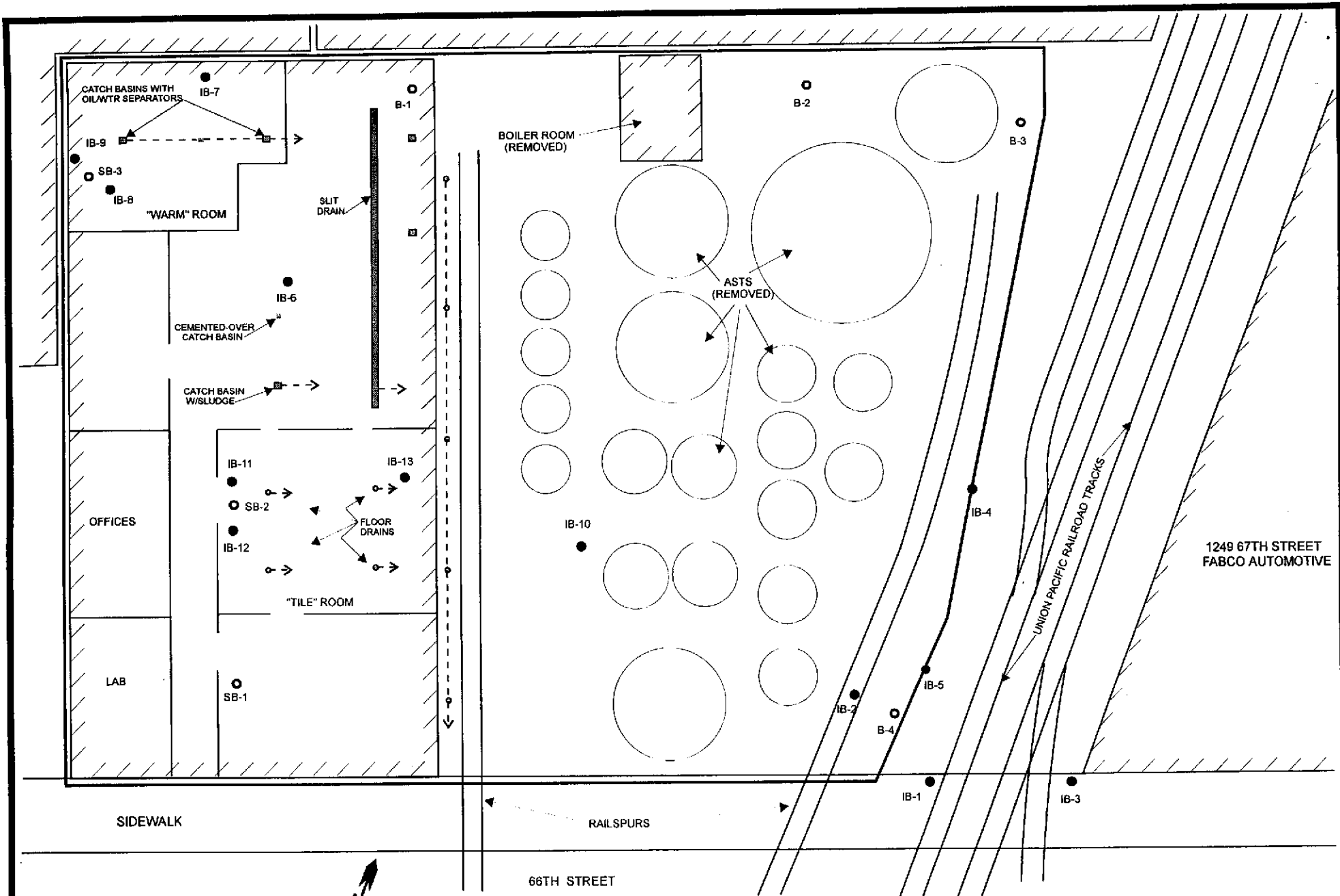
The monitoring workplan proposes to conduct quarterly groundwater monitoring for one year, whereupon closure/remedial options will be re-evaluated for the site. During the initial monitoring, groundwater samples from the four wells will be additionally analyzed for biochemical parameters to help in evaluating the effectiveness of natural attenuation at the site.



TOPOGRAPHY FROM USGS OAKLAND, WEST, CALIFORNIA
7.5-MINUTE QUADRANGLE MAPS. (TOPO! 1997).

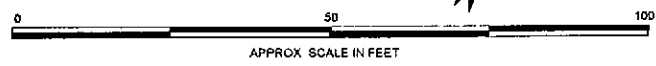


DESIGNED BY:	CHECKED BY:	SITE VICINITY MAP LIQUID SUGARS, INC. EMERYVILLE, CALIFORNIA	DATE: 11/09/98	FIGURE: 1
DRAWN BY: JG	SCALE: 1:24,000		GRIBI Associates	
PROJECT NO: 149-01-01				



1249 67TH STREET
FABCO AUTOMOTIVE

- - GRIBI ASSOCIATES BORING
- - GEOMATRIX BORING



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PROJECT NO: 149-01-03	

SITE PLAN

LIQUID SUGARS, INC. FACILITY
1266 66TH STREET
EMERYVILLE, CALIFORNIA

DATE: 11/17/99	FIGURE: 2
GRIBI Associates	

DEPTH	3.0'	6.0'
VC	ND	ND
t-1,2-DCE	ND	ND
c-1,2-DCE	ND	ND
TCE	ND	ND
PCE	ND	ND
1,2-DCA	ND	ND
OTHER	ND	ND

DEPTH	4.5'	12.0'
VC	ND	ND
t-1,2-DCE	ND	ND
c-1,2-DCE	ND	ND
TCE	ND	ND
PCE	ND	0.042
1,2-DCA	ND	0.042
OTHER	ND	ND

DEPTH	3.5'	6.0'	15.0'
VC	ND	ND	ND
t-1,2-DCE	ND	ND	ND
c-1,2-DCE	0.0061	ND	ND
TCE	0.0096	ND	ND
PCE	0.0052	ND	0.011
1,2-DCA	ND	ND	0.012
OTHER	ND	ND	ND

DEPTH	3.0'	6.0'
VC	ND	ND
t-1,2-DCE	ND	ND
c-1,2-DCE	ND	ND
TCE	ND	ND
PCE	ND	ND
1,2-DCA	ND	ND
OTHER	ND	ND

DEPTH	6.0'	9.0'
VC	0.18	ND
t-1,2-DCE	0.011	ND
c-1,2-DCE	0.039	0.025
TCE	ND	0.041
PCE	0.078	0.10
1,2-DCA	ND	ND
OTHER	ND	ND

DEPTH	6.5'
VC	ND
t-1,2-DCE	ND
c-1,2-DCE	ND
TCE	ND
PCE	ND
1,2-DCA	ND
OTHER	ND

DEPTH	3.5'	5.5'
VC	0.039	ND
t-1,2-DCE	ND	ND
c-1,2-DCE	0.82	0.37
TCE	0.025	0.13
PCE	0.048	ND
1,2-DCA	ND	ND
OTHER	ND	ND

DEPTH	3.5'	6.0'
VC	ND	ND
t-1,2-DCE	ND	ND
c-1,2-DCE	ND	ND
TCE	ND	ND
PCE	0.020	ND
1,2-DCA	ND	ND
OTHER	ND	ND

DEPTH	3.5'	6.0'
VC	ND	ND
t-1,2-DCE	ND	ND
c-1,2-DCE	ND	ND
TCE	ND	ND
PCE	0.087	ND
1,2-DCA	ND	ND
OTHER	ND	ND

DEPTH	3.5'	6.0'
VC	0.0090	ND
t-1,2-DCE	ND	ND
c-1,2-DCE	0.078	0.044
TCE	0.0090	0.0073
PCE	0.010	0.025
1,2-DCA	ND	ND
OTHER	ND	ND

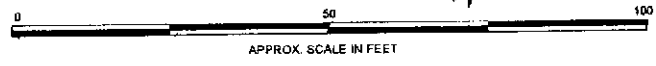
DEPTH	2.0'	4.0'	13.0'
VC	0.045	0.014	ND
t-1,2-DCE	ND	ND	ND
c-1,2-DCE	0.32	0.18	0.0094
TCE	0.21	0.13	0.012
PCE	0.017	0.068	0.028
1,2-DCA	ND	ND	ND
OTHER	ND	ND	ND

DEPTH	2.0'	6.0'	11.5'
VC	ND	0.13	0.0063
t-1,2-DCE	ND	0.024	0.021
c-1,2-DCE	ND	0.33	0.099
TCE	0.024	0.11	0.048
PCE	0.28	0.29	2.6
1,2-DCA	ND	ND	ND
OTHER	0.0021	ND	0.0072

DEPTH	2.0'	5.5'
VC	ND	ND
t-1,2-DCE	ND	ND
c-1,2-DCE	ND	ND
TCE	ND	ND
PCE	0.017	0.068
1,2-DCA	ND	ND
OTHER	ND	ND

SHALLOW HVOCs
IN SOIL = 0.100 PPM

- - GRIBI ASSOCIATES BORING
- - GEOMATRIX BORING

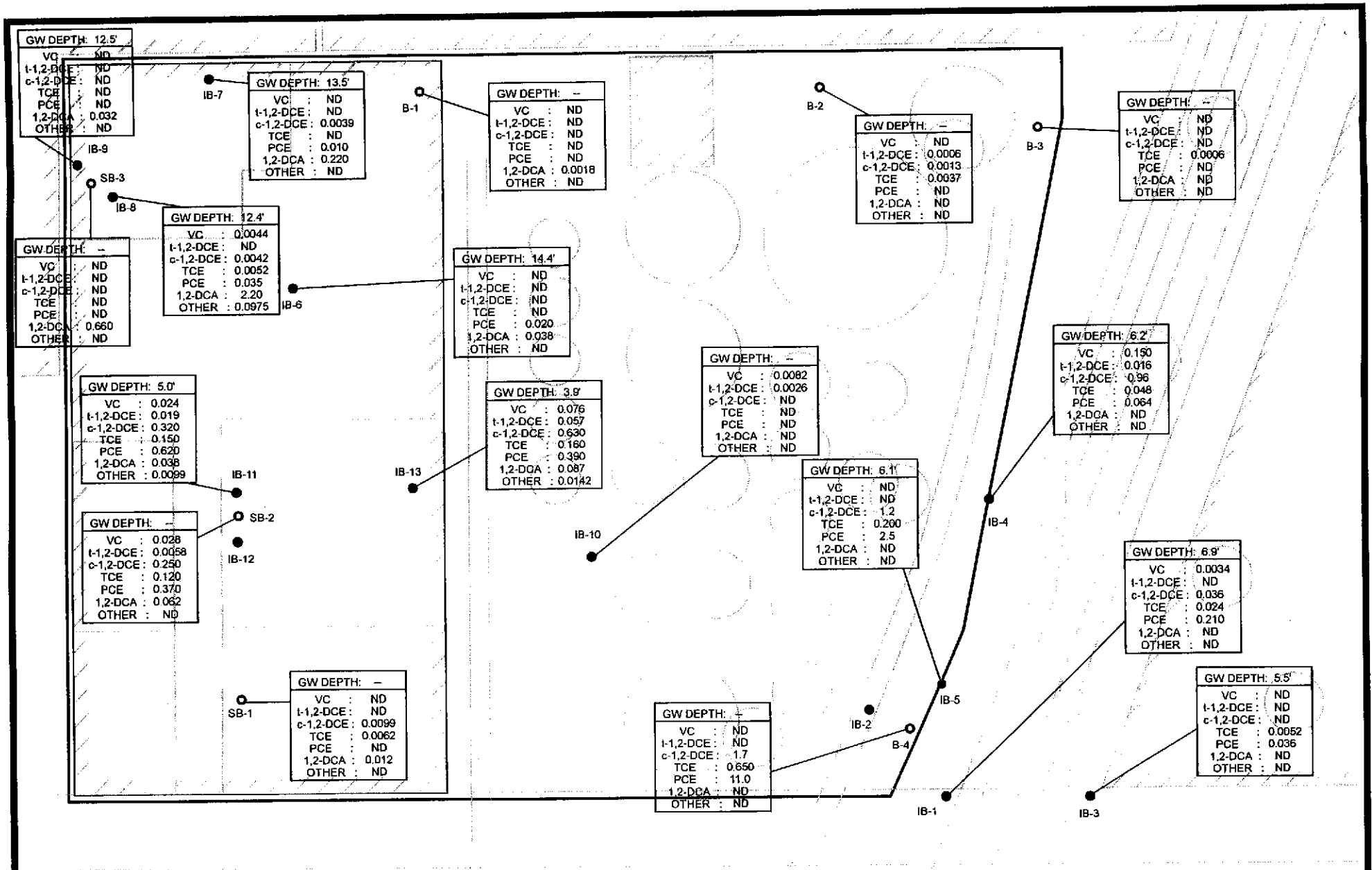


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PROJECT NO: 149-01-03	

SOIL HVOC RESULTS
LIQUID SUGARS, INC. FACILITY
1266 66TH STREET
EMERYVILLE, CALIFORNIA

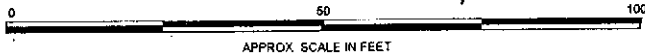
DATE: 11/17/99 FIGURE: 3

GRIBI Associates

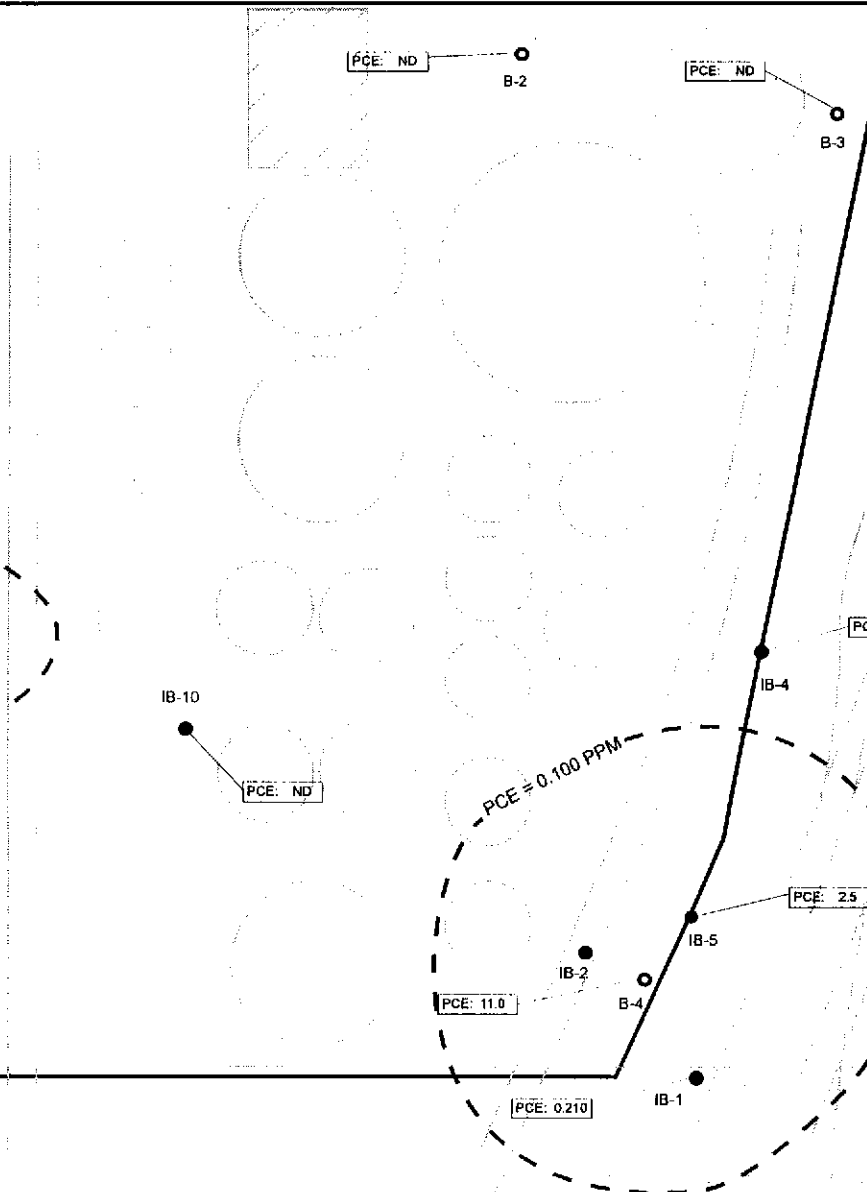
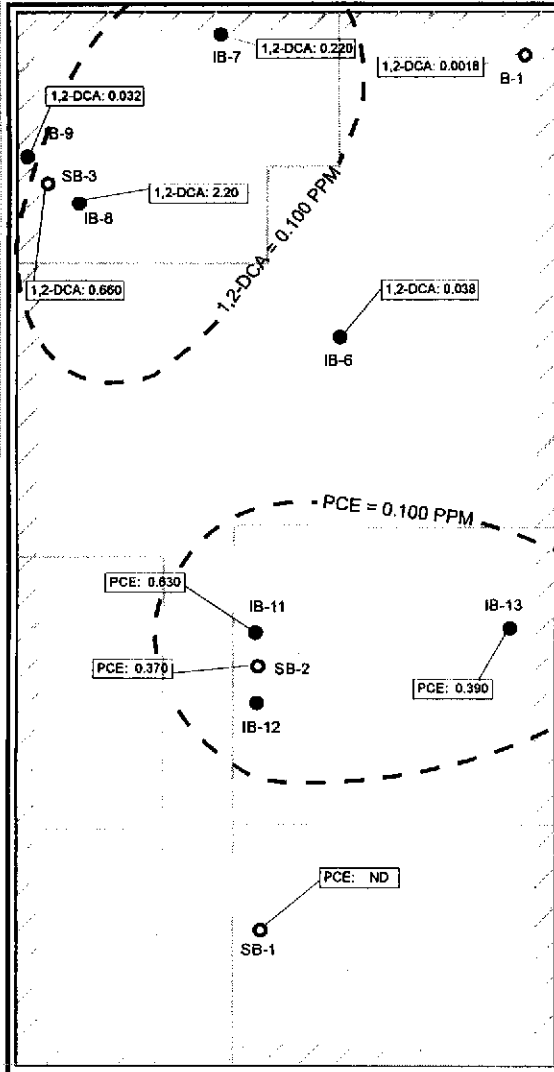


ALL UNITS IN MILLIGRAMS PER LITER (PPM).
 NOTE: GROUNDWATER DEPTHS FOR INSIDE BORINGS REDUCED 2.7 FEET TO MATCH OUTSIDE GROUND SURFACE DATUM.

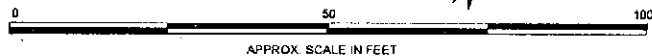
- - GRIBI ASSOCIATES BORING
- - GEOMATRIX BORING



DESIGNED BY:	CHECKED BY:	GROUNDWATER HVOC RESULTS	DATE: 11/17/99	FIGURE: 4
DRAWN BY: JG	SCALE:		GRIBI Associates LIQUID SUGARS, INC. FACILITY 1266 66TH STREET EMERYVILLE, CALIFORNIA	
PROJECT NO: 149-01-03				



- - GRIBI ASSOCIATES BORING
- - GEOMATRIX BORING



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DRAWN BY: JG	SCALE:
PROJECT NO: 149-01-03	

**GROUNDWATER PCE & 1,2-DCA
 ISOCONCENTRATION MAP**
 LIQUID SUGARS, INC. FACILITY
 1266 66TH STREET
 EMERYVILLE, CALIFORNIA

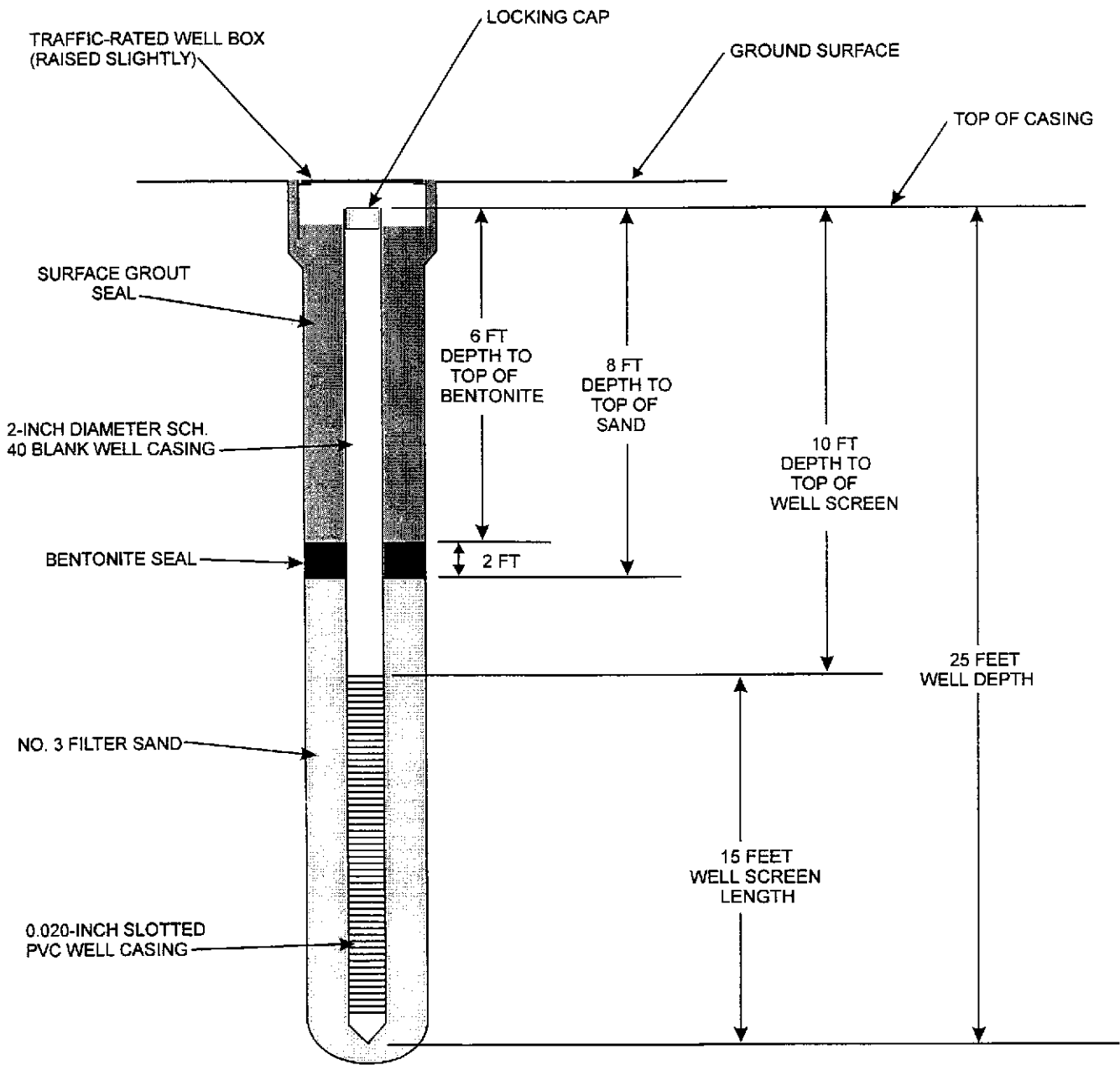
DATE: 11/17/99	FIGURE: 5
GRIBI Associates	



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PROJECT NO: 149-01-03	

PROPOSED WELL LOCATIONS
 LIQUID SUGARS, INC. FACILITY
 1266 66TH STREET
 EMERYVILLE, CALIFORNIA

DATE: 11/17/99	FIGURE: 6
GRIBI Associates	



DESIGNED BY:	CHECKED BY:	WELL CONSTRUCTION DIAGRAM	DATE: 11/17/99	FIGURE: 7
DRAWN BY: JG	SCALE: NTS		GRIBI Associates	
PROJECT NO: 149-01-03		LIQUID SUGARS, INC. FACILITY 1266 66TH STREET EMERYVILLE, CALIFORNIA		