CENTURY WEST ENGINEERING

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July 12, 1991

Ms. Susan L. Hugo
Alameda County Department of Environmental Health
Hazardous Materials Program
80 Swan Way, Room 200
Oakland, CA 94621

Subject: Amended Workplan For a Preliminary Site Assessment
Liquid Sugars, Inc.
1275 66th Street
Emeryville, California
CWEC 20516-001-01

Dear Ms. Hugo:

Pursuant to our recent teleconferences concerning the subject site, Century West Engineering is submitting this amended workplan on behalf of Liquid Sugars, Inc. for your review. It is our understanding that a workplan previously submitted by Baseline Environmental Consulting on January 24, 1991, was provisionally approved by the Alameda County Department of Environmental Health on March 12, 1991. However, after reviewing the costs associated with various elements of the original workplan, Liquid Sugars, Inc. seeks to amend the workplan to reflect a more fiscally responsible approach to the problem.

This amended workplan does not contain the site history information contained in the original workplan. Rather, the amended workplan describes the work steps that Liquid Sugars, Inc. proposes to conduct at the project site in order to seek site closure.

Approach

Our approach to seeking closure for this site is to first address any fuel laden soil above the ground water table and then to address fuel constituents in ground water at the site. Based on this approach, we propose the following course of action: (1) Backfill the excavation pit; (2) Remediate and/or dispose the existing soil stockpile; (3) Drill and sample five soil borings to assess the nature and extent of fuel-laden soil; (4) Remediate fuel-laden soil above ground water; and (5) Install and sample three ground water monitoring wells.

Proposed Workplan

The following workplan describes in greater detail the steps outlined in the project approach above. However, because the choice of remedial options for both the existing soil stockpile

and for fuel-laden subsurface soils cannot be assessed until more data become available, Step 2 and Step 4 will not be addressed in detail in this workplan.

1. Backfill the Excavation Pit.

   In order to return the site to usable conditions, we propose to backfill the pit at the earliest date. Prior to backfilling the excavation pit, the concrete slab overhang resulting from caving of the excavation walls will be removed. Two soil samples will be collected from the pit wall along the west side of the excavation, where caving of the pit wall is greatest. Each of these samples will be taken directly from the backhoe bucket using a clean brass sample tubes. After removing the tube, it will be quickly sealed with aluminum foil and plastic end caps, wrapped tightly with tape, labeled, and immediately placed in cold storage for transport to the laboratory. Each sample will be analyzed for TPH-G, TPH-D, and BTXE at a State certified analytical laboratory.

   The excavation pit will be backfilled using clean gravel material, requiring minimal mechanical compaction. After backfilling to just above ground water level, visqueen will be placed in the excavation to separate the clean gravel from potentially contaminated soils along the pit walls. The backfilled excavation pit will remain unpaved pending further site assessment.

2. Remediate and/or Dispose Stockpiled Soil.

   In order to free up the space now occupied by the excavated soil stockpile, this soil will be remediated and/or removed from the site at the earliest date. Remedial and/or disposal options will depend on analytical results of composite sampling of the soil stockpile. Thus, we will take one composite sample of soil for TPH-G, TPH-D, and BTXE analysis at a State certified analytical laboratory.

3. Drill and Sample Five Soil Borings.

   Remediation of fuel-laden soil is the most important step in UST closure because it will prevent further leaching of fuel contaminants into ground water. However, prior to remediation, we propose to assess the nature and extent of fuel constituents in soil above the ground water table. This assessment will consist of drilling and sampling five soil borings These five soil borings will be sited around the excavation pit approximately eight feet out from the excavation wall.

Approximate boring locations are shown in Figure 1. The siting of the five borings may be modified in response to the analytical results of the two sidewall samples collected during backfilling of the excavation pit. In addition, Liquid Sugars, Inc. may elect to drill and sample additional soil borings depending on field screening results obtained during drilling of the five soil borings.

Soil borings will be drilled using hollow stem auger to the ground water table at approximately twelve feet below grade. Subsurface soils will be logged and field evaluated for the presence of hydrocarbons using sight, smell, and a photoionization detector (PID).

Undisturbed soils will be sampled in advance of the auger at five-foot intervals and at changes in lithology, at areas of obvious contamination, and at the soil/ground water interface using a split spoon sampler with brass liners. Soils will be sampled as follows: (1) A two-inch inside diameter California-style split spoon sampler will be driven into undisturbed soil ahead of the drill bit; (2) The sampler will be raised quickly to the surface and the brass liners exposed; (3) One of the brass liners (the one containing the most undisturbed soil) will be quickly sealed with aluminum foil and plastic end caps, labeled, and wrapped tightly with tape; and (4) The sealed soil sample will be immediately placed in cold storage for transport to the laboratory under formal chain-of-custody. All sampling equipment will be thoroughly cleaned and decontaminated between each sample collection by triple-rinsing first with water, then with dilute tri-sodium phosphate solution, and finally with distilled water. Drilling cuttings will be placed in sealed drums pending laboratory results. Soil borings will be grouted using a cement/sand slurry (bentonite less than 5 percent).

All soil samples will be analyzed for TPH-G, TPH-D, and BTXE at a State certified analytical laboratory in accordance with guidelines contained in the *Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites*, dated August 10, 1990.

A summary report will be submitted to Alameda County Department of Environmental Health. This report will include: (1) Description of drilling and sampling methods; (2) Description of subsurface soils; (3) Tabulated analytical results; (4) Results and conclusions: (5) Site plan; (6) Boring logs; and (7) Laboratory data reports.

4. Remediate Fuel-Laden Soil Above Ground Water.

Remediation of fuel-laden soil above the ground water table will depend on the results of the soil boring investigation. Thus, after completing the soil boring investigation, we will submit to Alameda Department of Environmental Heath a brief workplan to remediate these soils.

5. Install and Sample Three Ground Water Monitoring Wells.

In accordance with the requirements stated in your March 12, 1991 letter to Liquid Sugars, Inc., three monitoring wells will be installed and sampled. The exact location of the three wells will depend on the results of the soil boring investigation. However, one well will be placed in a suspected downgradient (west-northwest) direction within ten feet from the UST excavation.

The three well borings will be drilled to a depth approximately ten feet below the ground water table. Ground water depth beneath the project site is approximately ten feet below grade; thus, each boring will be drilled to a depth of approximately 20 feet below grade, but not to exceed a total depth of 25 feet. The borings will be drilled using hollow stem auger, and soil samples will be collected at five-foot intervals in advance of the auger using a split spoon sampler. Each boring will be logged and sampled in accordance with the procedures and protocols described earlier for the soil boring investigation.

The three wells will be constructed in accordance with the following specifications. A Well Construction Diagram is shown on Figure 2.

1. Well casing will consist of two-inch diameter Schedule 40 threaded PVC. 0.020-inch slotted well casing will be placed from twenty feet to five feet in depth, and blank casing will be placed from a depth of five feet to ground level.

2. Number 3 Lonestar silica sand will be placed around the casing to a depth of four feet below grade.

3. A hydrated bentonite seal will be placed around the casing from four feet to three feet in depth.

4. The remaining three feet of annulus will be grouted using a cement/sand slurry (bentonite less than 5 percent).

5. The top of the well will be enclosed in a traffic rated locking box set in concrete slightly raised above grade.

After the cement has cured in each of the wells for a minimum of 48 hours, a State certified land surveyor will determine to the nearest 0.01 foot the elevation of the top of the well casing in relation to a common benchmark datum. The ground water depth in each of the wells will then be measured to the nearest 0.01 foot using an electronic probe. These measurements will be used to determine the ground water flow gradient.

Each of the wells will then be developed by overpumping the wells until ground water pH, conductivity, temperature, and visible clarity have stabilized.

Each of the wells will be purged and sampled approximately two weeks after developing the wells. A dedicated disposable PVC bailer will be used to purge and sample each of the wells. Well purging will consist of bailing each well of at least three well volumes, periodically monitoring the purged ground water for free-floating product thickness, pH, specific conductance, temperature and visible clarity in accordance with approved protocols.

After these parameters have stabilized, ground water will be sampled directly from the bailer in the following manner: (1) Two 40-ml glass VOC vials and one 1-liter glass amber bottle will be completely filled directly from the bailer with a minimum of agitation; (2) After making sure that no air bubbles are present in each container, each container will be tightly sealed with a teflon-lined septum; and (3) Each container will be labeled and placed in cold storage for transport to the analytical laboratory. Completed chain-of-custody records will accompany all samples. All purged ground water will be stored on site in sealed drums pending analytical results of the ground water samples.

All sampling equipment will be thoroughly cleaned and decontaminated between each sample collection by triple-rinsing first with water, then with dilute tri-sodium phosphate solution, and finally with distilled water.

Both the well boring soil samples and the three ground water samples will be analyzed for TPH-G, TPH-D, and BTXE at a State certified analytical laboratory in accordance with guidelines contained in the *Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites*.

Project Schedule

In order to return the space to usable condition, Liquid Sugars, Inc. will backfill the UST excavation and remediate and/or remove the existing soil stockpile at the earliest date. Subject to your approval, we will conduct the soil boring investigation after the site is returned to usable condition. Installation of the three ground water monitoring wells will proceed after assessment and possibly after remediation of subsurface soils above ground water.

Your review and approval of this workplan at the earliest date is appreciated. Please contact us if you have any questions or require additional information.

Very truly yours,

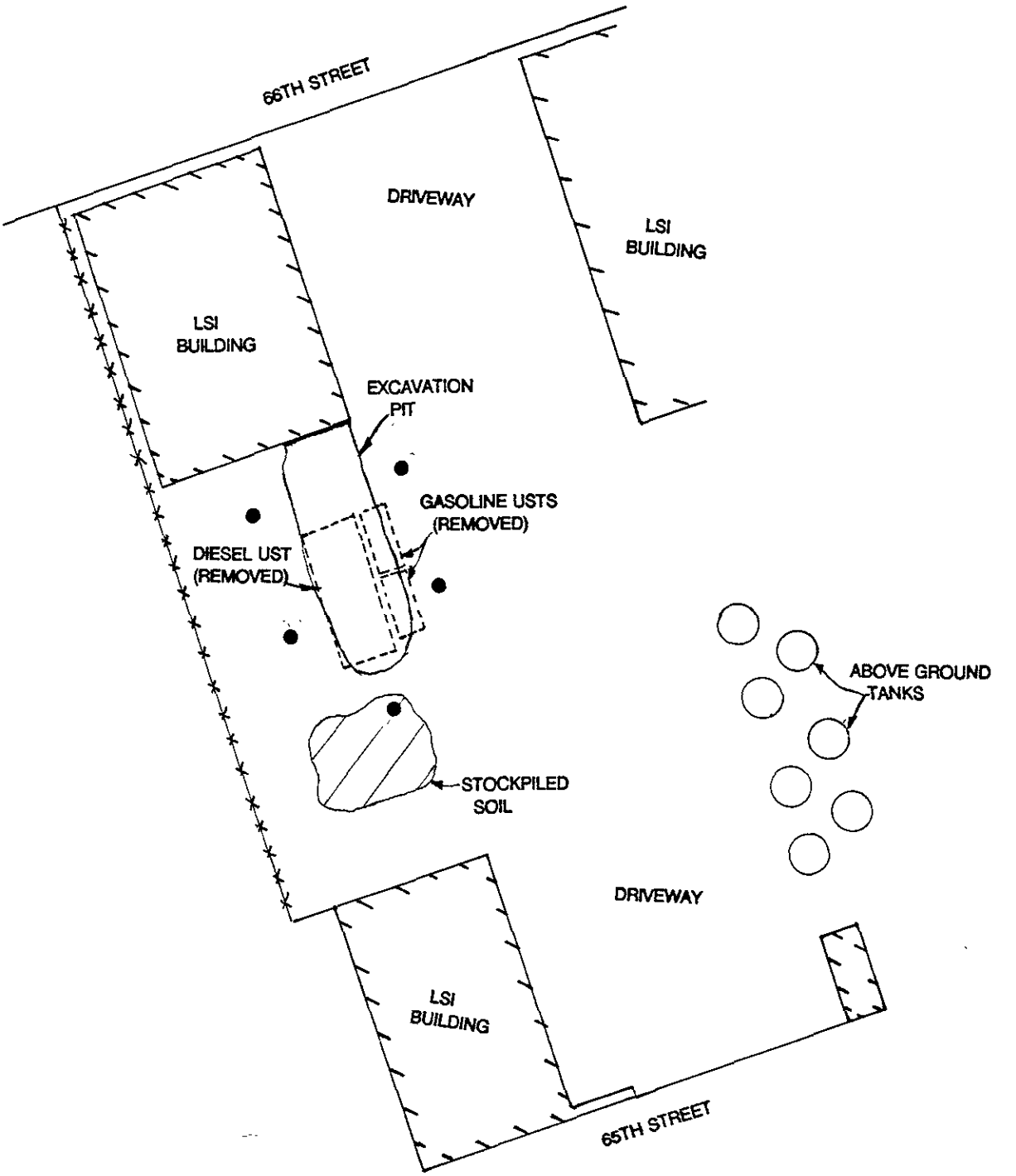
CENTURY WEST ENGINEERING CORPORATION

James E. Gregor
Geologist

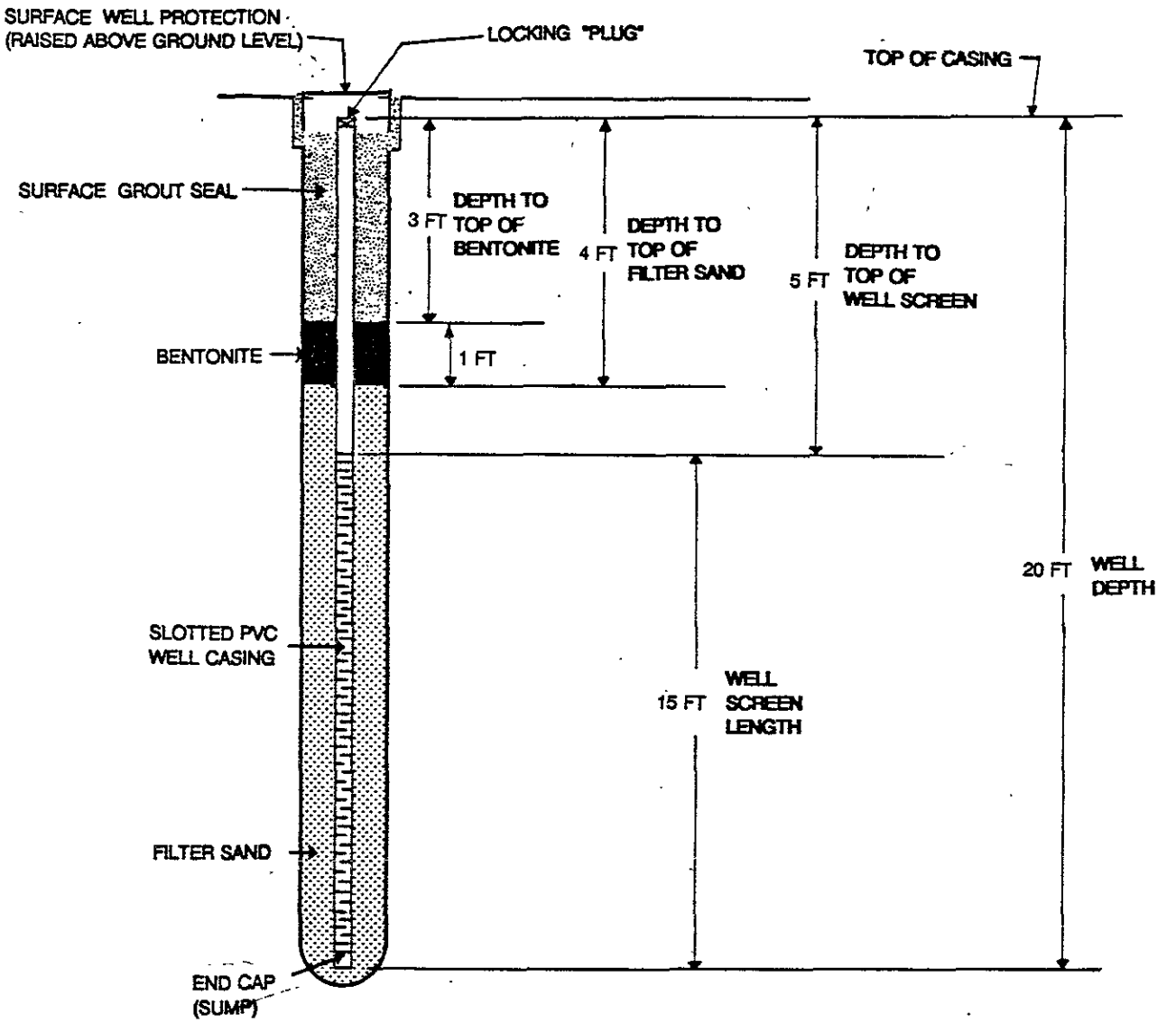
David R. Yogi, Jr.
Registered Civil Engineer
California No. 25148

JEG/DRY:ct

cc: Taylor Partch, Liquid Sugars, Inc.



DESIGNED BY:	CHECKED BY:	FIGURE 1 SITE PLAN CWEC 20516-001-01	DATE: 7/11/91	FIGURE:
DRAWN BY: JEG	SCALE:		CENTURY WEST ENGINEERING	
DWG. NO.:				



OGDEN SURVEYING EQUIPMENT CO. 94420

DESIGN BY		CHECKED BY		FIGURE 2 WELL CONSTRUCTION DIAGRAM CWEC 20516-001-01	APPROVED
SURVEY BY		SCALE	NO SCALE		DATE 7/11/91
DRAWN BY	JEG	DWG. NO.			CENTURY WEST ENGINEERING CORPORATION