A·C·C ENVIRONMENTAL CONSULTANTS

December 14, 2006

Mr. Francis Rush
c/o Rush Property Group, LLC
2200 Adeline Street, Suite 350
Oakland, California 94607

RE: Addendum to Request for Regulatory Closure Summary
1549 32nd Street, Oakland, California
ACC Project No. 6543-001.03

Dear Mr. Rush:

ACC Environmental Consultants, Inc., (ACC) has prepared this Addendum to its August 7, 2006 *Request for Regulatory Closure Summary* submitted to Alameda County Health Care Services Agency (ACHCSA). The intent of this Addendum is to specifically summarize and discuss volatile organic compound (VOC) data reported in the *Request for Regulatory Closure Summary* and discuss the relevance of perceived data gaps. New ACC comments are underlined and previously reported pertinent information has been **highlighted in BOLD** to aid review.

Section 2.0 - BACKGROUND

According to a January 4, 2001 *Phase I Environmental Site Assessment* Report prepared by Lumina Technologies, the property was developed with the current building in 1946. Oakland Fire Department records indicate the facility operated as Precision Cast, a steel foundry and heat-treating operation, since 1983. As reported in Section 2.1, Property Contamination Control, Inc. (PCC) conducted a soil investigation consisting of four exploratory soil borings in 1988. **PCC reported relatively minor concentrations of ethanol, methanol, 1,1-dichloroethene (1,1-DCE)**, and metals in soil. PCC soil sample locations and depths are unknown.

In March 2002, ERAS Environmental, Inc. (ERAS) advanced four soil borings with a hand auger and reported "elevated" concentrations of total recoverable petroleum hydrocarbons (TRPH) and relatively minor concentrations of benzene, toluene, ethylbenzene and total xylenes (BTEX) in soil at approximately 3.0 feet below ground surface (bgs) in three of the four soil borings. In November 2002, ERAS analyzed a sample of oil from an excavation pit located near the southeast corner of the building and reported the oil resembled mineral oil, foundry quenching oil, or similar material.

Petroleum hydrocarbons were deemed to be the primary constituents of concern in 2002.
In May 2002, Enrest excavated soil in the vicinity of soil boring SB-6 and in the vicinity of the southeast corner suspect percolation well. Enrest also advanced three soil borings to collect grab groundwater samples north, west, and south of soil boring SB-6, designated as borings SP-1, SP-2,

and SP-3. Grab groundwater sample analytical results reported elevated concentrations of motor oil-range petroleum hydrocarbons, **relatively minor concentrations of BTEX, 1,2-Dichlorobenzene**, and Naphthalene. Soil and grab groundwater sample analytical results are summarized in Tables 2 and 3.

TABLE 2 – Enrest 2002 SOIL ANALYTICAL RESULTS

Sample ID	TPH-mo (mg/kg)	TPH-g (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Xylenes (mg/kg)	**VOCs** (mg/kg)
SS-N	3,300	NA	<0.005	0.065	<0.005	<0.015	**(1)**
SS-P/A	NA	NA	<0.005	<0.005	<0.005	<0.015	**(2)**
Source Pt	20,800	NA	<0.005	0.0071	<0.005	<0.015	(3)

Note: NA = Not Analyzed

(1) 0.13 mg/kg 1,2-Dichlorobenzene, 0.025 mg/kg Naphthalene

(2) 0.14 mg/kg 1,2-Dichlorobenzene

(3) Sample contained gasoline constituents

TABLE 3 – Enrest 2002 WATER ANALYTICAL RESULTS

Sample ID	TPH-mo (µg/L)	TPH-g (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Xylenes (µg/L)	**VOCs** (µg/L)
SB-1	<500	NA	NA	NA	NA	NA	NA
SB-2	<500	NA	NA	NA	NA	NA	NA
SB-3	<500	NA	NA	NA	NA	NA	NA
SB-4	<500	NA	<1	<1	<1	<2	ND
SB-5	NA	NA	<1	<1	<1	2	**(1)**
SP-1	77,000	NA	<1	<1	<1	<1	**(2)**
SP-2	74,000	NA	<1	<1	2	3	**(3)**
SP-3	FP	NA	87	94	9	82	**(4)**
Source	NA	NA	<1	<1	1	2	**(5)**

Note: NA = Not Analyzed

(1) 15 µg/l Chloroform

(2) 3 µg/l Chloroform

(3) 375 µg/l Acetone, 6 µg/l 1,2-Dichlorobenzene

(4) 17 µg/l 1,2-Dichlorobenzene, 139 µg/l Naphthalene

(5) 2 µg/l 1,2-Dichlorobenzene, 2 µg/l Naphthalene

In May 2003, ERAS advanced eleven continuously-cored, Geoprobe soil borings to depths of approximately 16 to 20 feet bgs, collected soil and grab groundwater samples, and converted three of the soil borings to temporary piezometers. **Soil samples were analyzed for VOCs**, total

petroleum hydrocarbons as gasoline (TPH-g), total extractable petroleum hydrocarbons (TEPH or TPH), and chromium, copper, and nickel metals. **Grab groundwater samples were analyzed for VOCs**, TPHg, TPH, and chromium, copper, and nickel metals.

Soil sample analysis generally reported minor to elevated TPH concentrations, **varying minor VOC concentrations**, and varying concentrations of chromium, copper, and nickel metals typical of background, naturally-occurring concentrations. **Grab groundwater sample analysis reported** relatively low TPH concentrations in soil borings E-6, E-9, and E-10, **no VOCs above laboratory reporting limits,** and minor to low concentrations of dissolved metals.

Concurrently, ERAS sampled the contents of six subsurface concrete vaults. Vault contents were described as poorly-graded sand. **These soil samples were analyzed for VOCs**, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and TPH. **Laboratory analysis reported that the sandy contents of the concrete vaults contained TPH concentrations only.**

VOCs appear to have been added to the list of constituents of concern in 2003.

Section 2.2 - Verification Site Investigation

In April 2005, Enrest conducted verification site investigation and advanced 15 exploratory soil borings in approved locations primarily around the perimeter of the building. The purpose was to collect representative verification soil and groundwater samples at the perimeter of the property to evaluate the effectiveness of remedial soil excavation performed in September 2003 to January 2004. Soil samples were generally collected at 4 and 9 feet bgs and grab groundwater samples were collected in each soil boring at approximately 15 and 25 feet bgs (with the exception of 25 feet in soil borings B-2 and B-12).

The Enrest April 2005 verification soil sample analytical results for VOCs are summarized in Table 7. For reasons unknown, grab groundwater samples were not analyzed for VOCs.

Enrest also collected two representative soil gas samples for chemical analysis. Sample B-1SV was collected at the north end of the Site adjacent to the "north" excavation and sample B-5SV was collected at the south end of the Site adjacent to the "south" excavation. **Soil gas sample analytical results generally reported various minor VOC constituent concentrations just above their respective laboratory reporting limits.**

None of the reported VOC concentrations reported in the two soil gas samples indicate that a significant source of residual VOCs or TPH with VOC components exist in the subsurface.

TABLE 7 – Enrest 2005 SOIL ANALYTICAL RESULTS – Volatile Halocarbons

Sample ID	Depth (Feet)	**VHCs (mg/kg)**
B-1	4	**ND**
B-1	9	**0.005 1,3,5-Trimethylbenzene, 0.014 Naphthalene**
B-2	4	**ND**
B-4	9	**ND**
B-5	4	**ND**
B-5	9	**ND**
B-10	4	**ND**
B-10	9	**ND**

Notes: ND = no constituents detected above laboratory reporting limits
VHC = volatile halocarbons (VOCs)

Section 3.1 - Remedial Soil Removal

In September 2003 to January 2004, ERAS oversaw remedial soil excavation designed to remove soil containing TPH-ho above 500 mg/kg. Soil was removed in three locations. Approximately 845 cubic yards of soil were removed from the "north" excavation, approximately 1,950 cubic yards of soil were removed from the "middle" excavation, and approximately 407 cubic yards of soil were removed from the "south" excavation, for a total of approximately 3,202 cubic yards (4,800 tons). Following remedial soil excavation, confirmation sidewall and excavation bottom soil samples were collected and analyzed for TPH-ho **and select confirmation soil samples were collected and analyzed for VOCs.** Confirmation sidewall and excavation bottom soil sample analytical results are summarized in Table 11.

ACC was not able to determine why specific confirmation soil samples were analyzed for VOCs and other soil samples were not. We should assume that soil samples with the highest PID readings or soil samples with field indications of impact (odor, staining) were chosen.

Section 3.2 - Confirmation Sampling

North Excavation

Naphthalene was reported in two of two analyzed soil samples at 0.093 and 0.099 mg/kg and 1,2-Dichlorobenezene was reported in two of two analyzed soil samples at 0.022 and 0.032 mg/kg.

Middle Excavation

Methylene Chloride was reported in one of two analyzed soil samples at 0.130 mg/kg, 0.670 mg/kg 1,2-Dichlorobenezene was reported in one of two analyzed soil samples, and 0.082 mg/kg 1,4-Dichlorbenezene was reported in one of two analyzed soil samples.

South Excavation

No VOCs were reported in the two analyzed soil samples.

During remedial soil excavation, petroleum hydrocarbons were the primary constituent of concern in the subsurface and TPH was the constituent used to evaluate the effectiveness of remedial soil excavation. One can speculate that since TPH was the primary "yardstick," VOC analysis was deemed secondary, and VOC analyses were not subsequently ordered when low TPH analytical results were reported.

Section 5.0 - CONCLUSIONS

Based on previous subsurface investigation findings, representative soil and grab groundwater sample analytical results, field observations, and remedial source removal activities performed, ACC presents or concurs with the following conclusions regarding subsurface conditions at the site:

- Approximately 3,202 cubic yards of soil (178 truckloads) were transported to and disposed at Forward Landfill under acceptance number 3786 and soil containing TPH-ho,mo above 500 mg/kg has been effectively removed in areas proposed for residential development;

- The primary suspect source of petroleum hydrocarbons in the subsurface were the identified waste percolation wells installed to approximately 7 feet bgs, so confirmation sidewall soil samples collected at 7 to 9 feet bgs and excavation bottom soil samples collected at 8 to 10 feet bgs are highly representative of soil conditions following remedial activities;

- Confirmation soil sampling performed by ERAS in the three remedial soil excavations generally indicated that remedial soil removal was highly effective at removing residual petroleum hydrocarbon–impacted soil and eliminating potential sources of impact to shallow groundwater;

- Verification soil sampling performed by Enrest in April 2005 indicated that residual petroleum hydrocarbons (primarily hydraulic oil-range TPH) in soil are generally low to nondetect and well below the cleanup goal concentration of 500 mg/kg, **and indicate that no significant residual source of TPH or VOCs are present in the subsurface with two noted exceptions**; **The exceptions were elevated TPH.**

- Verification grab groundwater sampling performed by Enrest in April 2005 indicated residual TPH concentrations in groundwater are generally below laboratory reporting limits with the exception of groundwater near soil borings B-4 and B-18, and further indicate that no significant residual source of TPH is present in the subsurface;

- **Verification soil gas sampling performed by Enrest in April 2005 indicated that residual VOC concentrations in soil gas are generally low and well below applicable ESLs, and further indicate that no significant residual source of VOCs is present in the subsurface;**

- Tier 1 risk evaluation is acceptable and no further subsurface investigation is warranted; and

- Remedial soil excavation performed at the Site has removed the majority of soil containing TPH-ho above 500 mg/kg in proposed residential areas. Residual TPH concentrations in soil and groundwater should naturally degrade in a reasonable timeframe due to natural attenuation processes present in the subsurface. **Residual VOCs will also naturally attenuate but at a slower rate.**

Discussion of VOCs

Reported VOC concentrations in soil were generally minor and the majority of the reported VOCs were below their applicable ESL according to RWQCB Table A for a residential scenario. Reported 1,2-Dichlorobenzene ranged from 0.022 to 0.67 mg/kg (residential ESL is 1.1 mg/kg), 1,4- Dichlorobenzene was reported once at 0.082 mg/kg (residential ESL is 0.046 mg/kg), Naphthalene ranged from 0.025 to 0.099 mg/kg (residential ESL is 0.46 mg/kg), 1,3,5-Trimethylbenzene was reported once at 0.005 mg/kg, and Methylene Chloride was reported once at 0.130 mg/kg (residential ESL is 0.077 mg/kg).

Reported VOC concentrations in groundwater were also relatively minor and the majority of the reported VOCs in groundwater were below their applicable ESL according to RWQCB Table B. Reported 1,2-Dichlorobenzene ranged from 2 to 17 µg/l (groundwater ESL is 14 µg/l), Chloroform was reported twice at 3 and 15 µg/l (groundwater ESL is 330 µg/l), Naphthalene was reported twice at 2 and 139 µg/l (groundwater ESL is 24 µg/l), and Acetone was reported once at 375 µg/l (groundwater ESL is 1,500 µg/l).

The distribution and occurrence of reported VOC concentrations in soil and groundwater suggest that minor VOC concentrations were present in various petroleum hydrocarbon compounds and oils used at the facility such as quenching oils, lubricating oils, etc. A significant or consistent source of VOC compounds is not supported by the analytical results from 72 analyzed soil samples, 24 analyzed groundwater samples, and two analyzed soil gas samples. Seven out of eight verification soil samples collected by Enrest in April 2005 did not contain any reportable VOCs. While additional verification grab groundwater samples would have been preferred, the lack of this data does not present a significant data gap as previously reported residual VOC concentrations in soil and groundwater have been relatively low.

Additional Arguments Supporting Closure

Remedial soil excavation is considered successful based on the reported TPH in confirmation sidewall soil samples. VOC removal should be considered equally successful since VOC use in itself at the former Precision Cast steel foundry and heat-treating operation is unlikely. Relatively minor VOC concentrations in groundwater samples and soil gas samples reinforce the conclusion

that there are no significant residual VOC sources in soil. A limited Tier 1 human health risk evaluation demonstrates that very few residual VOC concentrations exceed their respective ESLs in RWQCB Tables A and B for soil and groundwater respectively, and VOC-impacted soil and groundwater is limited in degree and extent primarily due to fine-grain soils present at the Site to 10 feet bgs and completed soil remediation at the Site.

It is reasonable to infer that the pathways or conduits that allowed TPH to impact the subsurface were the same for VOCs. The **highlighted** VOC data summarized in this addendum demonstrates that identified subsurface impacts are relatively minor in both soil and groundwater across much of the Site. ACC understands that Enrest failed to analyze grab groundwater samples for VOCs when it conducted verification site investigation in April 2005, and reporting limits were somewhat high for TEPH-range petroleum hydrocarbons in groundwater. However, this missing data does not represent a significant data gap and the general lack of gasoline-range petroleum hydrocarbons (with an adequate reporting limit) indicates the general absence of significant TPH impacts in groundwater. Sufficient soil, groundwater, and soil gas data has been obtained onsite to demonstrate that the Site has been adequately remediated and residential use is appropriate with no further investigation.

Previous Site Use

According to a January 4, 2001 *Phase I Environmental Site Assessment* Report prepared by Lumina Technologies, the property was developed with the current building in 1946. Based on site history and interviews with former owners, ACC understands the area of the property in the south corner, southeast of Enrest soil borings B5 and B11, has always been a paved parking lot and storage area. No subsurface impacts from historical site use are suspected in this area.

On behalf of Rush Property Group, LLC, ACC recommends that ACHCSA evaluate the case for full regulatory closure with no further action.

If you have any questions, please contact me at (510) 638-8400, extension 109 or email me at ddement@accenv.com.

Respectfully,

David DeMent, PG, REA II
Division Manager / Senior Geologist