March 8, 2012

Ms. Barbara Cook, P.E.
Acting Assistant Deputy Director, Cleanup Program
Site Mitigation Branch
Department of Toxic Substances Control
700 Heinz Avenue, Suite 200
Berkeley, California

Attention: Lynn Nakashima
Sent via: email

Subject: Response to Department of Toxic Substances Control Comments Regarding the "Field Sampling Work Plan to conduct additional groundwater investigations within and in the vicinity of the BAPB at the University of California Richmond Field Station, Richmond, California"

Dear Ms. Cook:

Terraphase Engineering Inc. (Terraphase) has prepared this letter on behalf of Zeneca Inc., to respond to the comments provided by the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) in its February 22, 2012 letter regarding the February 1, 2012 Terraphase document, "Field Sampling Work Plan to conduct additional groundwater investigations within and in the vicinity of the BAPB at the University of California Richmond Field Station, Richmond, California" ("the Work Plan"). The DTSC comments are provided below followed by the response to each comment.

Response to DTSC February 22, 2012 Comment Letter

DTSC Comment #1

"The wells are proposed to be constructed such that the screened intervals are centered within the vertical extent of the BAPB material at each location. Ensure that the screens are centered within the saturated vertical extent of the BAPB material."

Response

It is intended for the monitoring well screen intervals to be centered within the saturated vertical extent of the BAPB material. However, to monitor the geochemical conditions within the BAPB material, the screen interval will not be installed below the vertical extent of the BAPB material. Therefore, if groundwater elevations are low relative to the vertical extent of the BAPB material, the top of the screen interval may be set in an unsaturated zone.

DTSC Comment #2

"Ensure that well samples and grab groundwater samples are collected using low flow (minimal drawdown) methods."

Response

As stated in the Work Plan, the groundwater samples collected from the BAPB monitoring wells will be collected using low flow sampling procedures. However, it is not feasible to collect grab groundwater samples using low flow sampling procedures. As described in the Work Plan, a temporary casing with a 5 foot length of 0.010 slotted screen will be installed in the soil borings advanced to collect grab groundwater samples. Grab groundwater samples will be collected using a peristaltic pump and disposable tubing. However, low flow procedures require depth to groundwater measurements to establish the water level during sampling and adequate flow conditions to monitor specific geochemical parameters. Therefore, low flow procedures are more typical for collecting groundwater samples from properly developed monitoring wells. As specified in the Work Plan, the grab groundwater samples will be collected following the procedures described in the DTSC approved Lot 3 FSRAP.

DTSC Comment #3

"Provide a table identifying well and grab sample numbers and depths, analytical methods, sample volumes, containers, filtration, preservatives and other handling details."

Response

To address this comment, Terraphase has prepared Table 1, attached to this letter. In addition, Figure 2 of the Work Plan has been updated to include sample identification for the proposed grab groundwater sample soil borings and BAPB monitoring wells.

If you have any questions with regard to the response to the DTSC comments discussed in this letter, please do not hesitate to give me a call at (510) 326-1473.

Sincerely,

For Terraphase Engineering Inc.

Andrew Romolo, P.G. (8110)
Vice President and Principal Geologist

Attachments:
Attachment 1: Table 1, Sample Matrix, UC RFS BAPB Investigation, Richmond California
Attachment 2: Figure 2, UCRFS BAPB, Additional Investigation (REV 1.0)

cc:
Mr. Bill Marsh, Esq., Edgcomb Law Group
Lynn Nakashima, DTSC
Brian A. Spiller, Zeneca Inc.
Karl Hans, UC
Anthony O. Garvin, Esq., UC Counsel
Jenifer Beatty, Arcadis-US

Table 1
Sample Matrix
UC RFS BAPB Investigation

						Field Filtered								
Well/Soil Boring	**Sample Type**	**Approximate Screen Intervals (feet below ground surface)***	**Water Levels**	**Physical Parameters (DO, ORP, pH, SC, Temp, Turb.)**	**VOCs [EPA Test Method 8260]**	**Title 22 Metals** [EPA Test Method 6010, EPA Test Method 7470A for mercury]	**Ferrous Iron [Standard Method 3500 FeB]**	**Dissolved Sulfide [Standard Method 4500S2-D; Lab bottles to contain zinc acetate]**	**Alkalinity [Standard Method 2320B]**	**Chloride [EPA Test Method 300.0]**	**Sulfate [EPA Test Method 300.0]**	**TDS [Standard Method 2540C]**	**TSS [Standard Method 2540D]**	**TOC [Standard Method 5310C]**
MW-39	Groundwater	4-9	X	X	X	X	X	X	X	X	X	X	X	X
MW-40	Groundwater	7-12	X	X	X	X	X	X	X	X	X	X	X	X
MW-41	Groundwater	7-12	X	X	X	X	X	X	X	X	X	X	X	X
RFS-BAPB-GGW-1	Grab Groundwater	10-15			X	X								
		20-25			X	X								
		30-35			X	X								
RFS-BAPB-GGW-2	Grab Groundwater	10-15			X	X								
		20-25			X	X								
		30-35			X	X								
RFS-BAPB-GGW-3	Grab Groundwater	10-15			X	X								
		20-25			X	X								
		30-35			X	X								
RFS-BAPB-GGW-4	Grab Groundwater	10-15			X	X								
		20-25			X	X								
		30-35			X	X								
RFS-BAPB-GGW-5	Grab Groundwater	10-15			X	X								
		20-25			X	X								
		30-35			X	X								
RFS-BAPB-GGW-6	Grab Groundwater	10-15			X	X								
		20-25			X	X								
		30-35			X	X								
RFS-BAPB-GGW-7	Grab Groundwater	10-15			X	X								
		20-25			X	X								
		30-35			X	X								

Table 1
Sample Matrix
UC RFS BAPB Investigation

Notes

VOCs = Volatile organic compounds

Title 22 Metals = antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, molybdenum, nickel, selenium, silver, thallium, vanadium, and zinc

TDS = Total dissolved solids

TSS = Total suspended solids

* = Screen intervals for monitoring wells are based on lithologic logs provided in the March 11, 2011 Arcadis document, "Transmittal of Groundwater Data Collected in Select Areas at the University of California Richmond Field Station, Richmond California."

Sample Containers and Preservatives

VOCs - 3 voa's preserved with HCL

Title 22 Metals - 250ml poly preserved with HNO3

Ferrous Iron - 100ml poly preserved with HCL

Dissolved Sullfide - 100ml poly with NaOH

Alkalinity - 250ml poly. No preservative

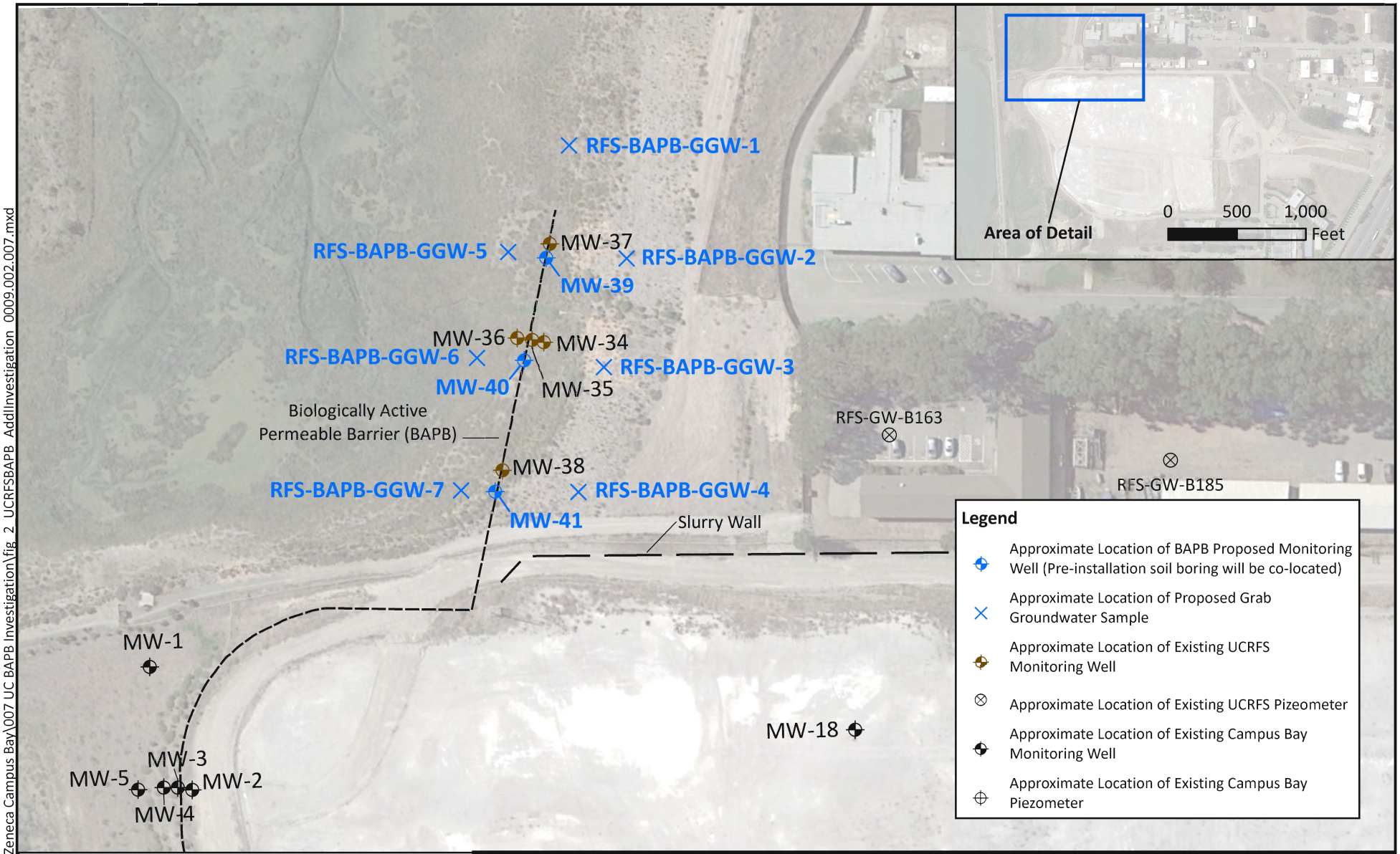
Chloride - 250ml ploy. No preservative

Sulfate - 250ml poly. No preservative

TDS - 250ml poly. No preservative

TSS - 250ml poly. No preservative

TOC - 250ml glass H2SO4



N

0 50 100 150 200 Feet

1 Inch = 100 Feet

SAFETY FIRST

terraphase engineering

CLIENT:	Zeneca, Inc.
PROJECT:	Campus Bay Richmond, CA
PROJECT NUMBER:	0009.002.007

UCRFS BAPB Additional Investigation

FIGURE 2 (REV 1.0)

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