LFR ENVIRONMENTAL MANAGEMENT & CONSULTING ENGINEERING

March 30, 2007 001-09359-20

RECEIVED APR 1 - 2007

Ms. Barbara Cook, P.E.
Chief, Northern California – Coastal Cleanup
Department of Toxic Substances Control
700 Heinz Avenue, Suite 200
Berkeley, California 94710

Subject: Work Plan for Additional Grab Groundwater Investigation and Piezometer Installation, Campus Bay, Former Zeneca Facility, Richmond, California

Dear Ms. Cook:

LFR Inc. (LFR) has prepared this work plan to describe additional field sampling activities required to comply with comments provided by the Department of Toxic Substances Control (DTSC) for the former Zeneca site, now known as Campus Bay ("the Site"), located at 1391 South 49th Street in Richmond, California. This work plan has been prepared on behalf of Cherokee Simeon Venture I, LLC (CSV), Zeneca Inc., and Bayer CropScience, Inc., collectively known as "the Respondents."

In a comment letter from Barbara Cook of the DTSC to Doug Mosteller of CSV, dated March 14, 2007 ("the DTSC March 2007 letter"; Attachment 1), the DTSC set forth additional field sampling requirements and provided comments on the "Draft Final Remedial Investigation Report for Lot 1 and Lot 2, Campus Bay, 1200 South 47th Street, Richmond, California," prepared by LFR on behalf of the Respondents and dated December 15, 2006 ("the Lots 1 and 2 RI Report"). The DTSC later clarified those requirements in an e-mail correspondence dated March 23, 2007. In addition, in a November 9, 2006 letter from Barbara Cook of the DTSC to Doug Mosteller of CSV ("the DTSC November 2006 letter"; Attachment 2), the DTSC required that six additional soil samples be collected from Lot 3 of the Site for dioxin analysis. The additional field sampling activities set forth herein will be conducted in accordance with the procedures set forth in the following LFR documents previously approved by the DTSC:

- "Revised Quarterly Monitoring, Well Installation/Repair, and Lot 1/Lot 2 Field Sampling and Analysis Plan, Campus Bay Site, Former Zeneca, Inc., Richmond Facility, Richmond, California," dated September 19, 2005 ("the Lots 1 and 2 FSAP");
- "Lot 3 Field Sampling and Analysis Plan, Campus Bay Site, Former Zeneca, Inc., Richmond Facility, Richmond, California," dated November 2, 2005 ("the Lot 3 FSAP");
- "Revised Quality Assurance Project Plan Approval, Former Zeneca Property, Campus Bay Site," dated July 18, 2005; and

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- "Revised Health and Safety Plan, Environmental and Associated Activities, Campus Bay Site, Former Zeneca Inc. Richmond Facility, Richmond, California," dated July 18, 2005.

The additional field sampling activities set forth herein are designed to address specific technical comments identified in Comment 25 of the DTSC March 2007 letter and to address the requirements provided in the DTSC November 2006 letter. The following provides the scope of work and rationale for the additional field sampling required by the DTSC.

Scope of Work and Sampling Rationale

Additional Activities Required by the DTSC March 2007 Letter

Comment 25 of the DTSC March 2007 letter identified seven areas within Lots 1 and 2 where the DTSC requires additional lateral and/or vertical characterization (sub-comments a through g) of groundwater in the shallow (less than 20 feet below ground surface [bgs]) and/or the deep (greater than 20 feet bgs) subsurface intervals. The proposed scope of work is designed to address the DTSC comments to confirm results from previous investigations and to further characterize the lateral and vertical extent of volatile organic compounds (VOCs) in groundwater, primarily trichloroethene (TCE). For certain areas or intervals discussed in Comment 25 and in agreement with the DTSC comment letter, additional lateral and/or vertical characterization will be provided by incorporating existing data from previous investigations, including the DTSC investigation at the Harborfront properties (Weiss Associates for DTSC 2006) and deep groundwater samples collected previously at the Site, in particular within Lot 3. Thus, the proposed scope of additional work consists of the following:

- Collect grab groundwater samples from nine soil borings (Figure 1) to be advanced using direct-push drilling technology. Grab groundwater samples will be submitted to an analytical laboratory and analyzed for VOCs using Environmental Protection Agency (EPA) Method 8260; and
- Install and develop three new piezometers at the approximate locations illustrated on Figure 1 (P-7, P-8, and P-9). The piezometers will be installed into the first water-bearing zone, and grab groundwater samples will be collected from each piezometer for VOC analysis using EPA Method 8260.

The purpose of the soil borings is to further characterize the vertical and/or lateral extent of VOCs detected in groundwater at greater than 20 feet bgs at select locations. In 2006, to assess the extent of VOCs in groundwater at the six potential pilot study locations (LFR 2006), soil borings were advanced using a membrane interface probe (MIP) to characterize the vertical extent of VOCs in groundwater qualitatively. Based on the DTSC March 2007 letter, the DTSC has required that the vertical extent of VOC concentrations in groundwater be characterized quantitatively at seven of these locations using certified laboratory analytical data. Therefore, grab groundwater samples will be collected at approximately 5 feet below the vertical extent of VOCs identified in the MIP logs in

each of these areas to assess the vertical extent of VOC concentrations. In addition, two soil borings will be advanced to further assess the VOC concentrations detected in groundwater at greater than 20 feet bgs in the vicinity of well MW-25.

To better understand groundwater flow directions in the northwestern portion of the Site, three new piezometers will be installed. Two of the piezometers are proposed to be located on the University of California Richmond Field Station (UC Field Station) property, and the third is proposed to be located in Lot 2 near the western site boundary. The piezometers will be constructed with 2-inch-diameter casings and 10-foot-long screens. Soil borings will be advanced to target depths (approximately between 5 and 8 feet below the water table) using 6- or 8-inch-diameter hollow-stem augers using the procedures provided in the Lots 1 and 2 FSAP. The soil borings will be logged under the supervision of a Professional Geologist. The piezometers will be developed prior to use for water level measurements. In addition, grab groundwater samples will be collected from the piezometers to further characterize VOCs detected in groundwater underlying the northwestern portion of the Site. These new piezometers will then be added to the groundwater level monitoring network to assess groundwater elevations and flow directions in the western portion of the Site.

A discussion of the proposed soil boring and piezometer locations, and the rationale of the proposed locations, is presented below. All proposed drilling and sampling locations are shown on Figure 1 and summarized in the sample matrix provided as Table 1. The proposed sampling locations are approximate and may be modified depending on field conditions. The grab groundwater samples collected during this proposed investigation will be submitted to a California certified analytical laboratory for VOC analysis by EPA Test Method 8260.

Lot 1-2 Area

DTSC Specific Comment:

- *Depth < 20 ft. bgs - TCE extends to south into Harborfront area where data from new DTSC wells in area are expected to confirm present delineation that is based on hydropunch-type grab samples.*
- *Depth > 20 ft. bgs - TCE not delineated laterally or vertically. Vertically, MIP results indicate low or no VOCs. Needs to be confirmed by ground water sampling and certified lab results. Laterally, Harborfront data should be incorporated into the analysis.*

Proposed Area-Specific Scope of Work:

- Depth < 20 feet bgs – no additional field activities necessary.
- Depth > 20 feet bgs – collect an additional grab groundwater sample for vertical characterization (proposed as Lot 1-48).

In the Lot 1-2 area, the MIP results from Lot 1-2-MIP-1 indicated low VOC concentrations in the groundwater at a depth below 20 feet bgs. A grab groundwater sample at proposed location Lot 1-48 will be collected from approximately 25 feet bgs to confirm the MIP results and further characterize the vertical extent of TCE. Groundwater quality at a depth greater than 20 feet bgs will be assessed laterally, using the groundwater analytical data collected by the DTSC at the Harborfront properties.

Lot 1-5 Area

DTSC Specific Comment:

- *Depth < 20 ft. bgs - TCE extent to southwest is weakly constrained. But, in that direction, the 2-19 area is down gradient and is well monitored.*

- *Depth > 20 ft. bgs - TCE not delineated laterally (southwest, south) or vertically (also depths not identified for Lot 1-HP-7 or -9, IMMW-15, -16, -17). MIP survey results should be confirmed by ground water sampling and certified lab results.*

Proposed Area-Specific Scope of Work:

- Depth < 20 feet bgs – no additional field activities necessary.
- Depth > 20 feet bgs – collect two additional grab groundwater samples for vertical and lateral (to the southwest) characterization (proposed as Lot 1-46 and Lot 2-47).

Temporary monitoring wells IMW-15, -16, and -17 are screened from approximately 16 to 31 feet bgs, which is the depth range that includes the highest MIP readings. In the Lot 1-5 area, the vertical extent of VOC concentrations underlying the elevated MIP results from Lot 1-5-MIP-5 will be further assessed by a grab groundwater sample collected from approximately 37 feet bgs from proposed location Lot 1-46. TCE in groundwater greater than 20 feet bgs is defined west of the Lot 1-5 location by grab groundwater samples collected from Lot 2-CPT-5 (TCE at a concentration of <0.5 microgram per liter [µg/l] at 34 feet bgs). To the south, VOCs in groundwater greater than 20 feet bgs are characterized by Lot 2-CPT-7 (TCE at a concentration of 1.7 µg/l at approximately 30 feet bgs). To the southwest, the previous grab groundwater sample collected from Lot 2-CPT-6 contained TCE at a concentration of 79 µg/l at approximately 32 feet bgs, which is below the site-specific screening criterion for indoor air for a residential setting (170 µg/l). However, to further assess the extent of TCE in groundwater at a depth greater than 20 feet bgs southwest of Lot 1-5, a grab groundwater sample will be collected from proposed sample location Lot 2-47 at approximately 25 feet bgs. This sample location will also be used to verify the MIP data collected from Lot 2-19-MIP-3.

Lot 1 MW-25 Area

DTSC Specific Comment:

- *Depth < 20 ft. bgs - TCE, PCE lateral and vertical delineation not completed to northwest and west (UC field station).*
- *Depth > 20 ft. bgs - TCE not delineated laterally to southwest and south. The Lot 1-5 Area lies to the south. 1,000 ug/l and 100 ug/l contours appear to extend too far to the north based on posted results but are supported by the MIP data.*
- *Groundwater flow directions should be refined in certain areas where contamination may be migrating onto or off site. For example, the western and northwestern part of the site beyond areas 2-17 and MW-25.* (Provided as General Comment 5 in the DTSC March 2007 letter.)

Proposed Area-Specific Scope of Work:

- Depth < 20 feet bgs – collect an additional grab groundwater sample and install a new piezometer on the UC Field Station property for lateral characterization (proposed as P-9).
- Depth > 20 feet bgs – collect six additional grab groundwater samples for lateral and vertical characterization (proposed as Lot 1-40, Lot 1-41, Lot 1-42, Lot 1-43, Lot 1-44, and Lot 1-45)

For groundwater shallower than 20 feet bgs, the hydraulic gradient in the northwestern portion of the Site will be further assessed by installing a piezometer on the UC Berkeley property (P-9; Figure 1). To characterize VOC concentrations in groundwater shallower than 20 feet bgs west of MW-25, a grab groundwater sample will be collected from the piezometer. It is anticipated that the piezometer will be screened in the top 10 feet of the groundwater table (approximately 8 to 18 feet bgs).

For groundwater deeper than 20 feet bgs in the Lot 1 MW-25 area, the vertical extent of VOCs in groundwater was characterized by MIP borings MW-25-MIP-1.-3, -4, and -5. These results will be confirmed with grab groundwater samples collected from proposed locations Lot 1-40, Lot 1-41, Lot 1-42, and Lot 1-43. Based on the MIP results, the grab groundwater sample will be collected from approximately 35 feet bgs. The MIP results at the MW-25 area suggest elevated concentrations of VOCs in groundwater from approximately 20 to 30 feet bgs. Therefore, to further assess TCE in groundwater at the depth interval of 20 feet bgs to 30 feet bgs to the south and southwest of MW-25, a grab groundwater sample will be collected from proposed sample locations Lot 1-44 and Lot 1-45 (grab groundwater samples will be collected from approximately 25 feet bgs).

Lot 2-27 Area

DTSC Specific Comment:

- *Depth < 20 ft. bgs – No Comment*
- *Depth > 20 ft. bgs - TCE not delineated laterally or vertically. Based on the figures, it doesn't appear that deeper samples were collected.*

Proposed Area-Specific Scope of Work:

- Depth < 20 feet bgs – no additional field activities necessary.
- Depth > 20 feet bgs – collect an additional grab groundwater sample for vertical characterization (Lot 2-49).

Analytical data to characterize VOCs in groundwater at a depth of greater than 20 feet bgs have already been collected downgradient from Lot 2-27. These data are presented in the isoconcentration contour maps for VOCs in groundwater at greater than 20 feet bgs, which were provided to the DTSC in the LFR document entitled "Draft Final Remedial Investigation Report, Lot 3, Campus Bay, 1200 South 47th Street, Richmond, California," dated January 31, 2007 ("the Lot 3 RI Report"). These results, as well as the MIP results from Lot 2-27-MIP-4, will be confirmed by a grab groundwater sample collected from approximately 30 feet bgs at proposed location Lot 2-49. The Lots 1 and 2 RI Report will be revised to include these data.

Lot 2 MW-31 and CPT-9

DTSC Specific Comment:

- *Depth < 20 ft. bgs - No comment.*
- *Depth > 20 ft. bgs - TCE not delineated laterally or vertically. Incorporate Harborfront deeper results.*

Proposed Area-Specific Scope of Work:

- Depth < 20 feet bgs – no additional sampling necessary.
- Depth > 20 feet bgs – no additional sampling necessary.

LFR will assess the deeper data collected by the DTSC at the Harborfront properties, which should be sufficient to characterize the extent of TCE in groundwater at a depth greater than 20 feet bgs at Lot 2-CPT-9.

Lot 2-24 and CPT-8

DTSC Specific Comments:

- *Depth < 20 ft. bgs - No Comment*
- *Depth > 20 ft. bgs - TCE, PCE, VC, 1,2-DCA, and benzene not delineated laterally.*

Proposed Area-Specific Scope of Work:

- Depth < 20 feet bgs – no additional field activities necessary.
- Depth > 20 feet bgs – no additional field activities necessary.

Analytical data to characterize VOCs in groundwater at a depth greater than 20 feet bgs have already been collected downgradient from Lot 2-24. These data are presented on the isoconcentration contour maps for VOCs in groundwater at greater than 20 feet bgs, which were provided to the DTSC in the Lot 3 RI Report. The Lots 1 and 2 RI Report will be revised to include these data.

Lot 2-17 and CPT-5

DTSC Specific Comment:

- *Depth < 20 ft. bgs - TCE delineation not completed to west and southwest (UC field station).*
- *Depth > 20 ft. bgs - No Comment*
- *Groundwater flow directions should be refined in certain areas where contamination may be migrating onto or off site. For example, the western and northwestern part of the site beyond areas 2-17 and MW-25.* (Provided as General Comment 5 in the DTSC March 2007 letter.)

Proposed Area-Specific Scope of Work:

- Depth < 20 feet bgs – install one piezometer at the Site and one piezometer at the UC Field Station property for further lateral characterization (proposed as P-8 and P-9, respectively).
- Depth > 20 feet bgs – no additional sampling necessary.

The proposed location of new piezometer P-7 is approximately 60 feet west of the Lot 2-17 grab groundwater sample location and approximately 150 feet west of Lot 2-CPT-5. The grab groundwater sample collected from P-7 will help characterize the lateral extent of TCE in groundwater shallower than 20 feet bgs to the west-southwest of Lot 2-17. It is anticipated that P-7 will be installed approximately 8 feet into the groundwater table (screened from approximately 8 to 18 feet bgs). The proposed location of new piezometer P-8 is on the UC Field Station property and approximately 350 and 400 feet west-northwest of Lot 2-17 and Lot 2-CPT-5, respectively. It is

anticipated that P-8 will be installed approximately 8 feet into the groundwater table (screened from approximately 8 to 18 feet bgs). The grab groundwater sample from P-8 will be assessed to characterize VOCs in shallow groundwater west of Lot 2-27 and UCB-4. The depth to groundwater data collected from the two piezometers will be assessed in conjunction with the depth to groundwater measured at piezometer P-9 (see MW-25 discussion), and from monitoring wells MW-25, MW-26, and MW-27, to evaluate groundwater flow direction along the western property boundary.

Additional Activities Required by the DTSC November 2006 Letter

To address the requirements provided by the DTSC November 2006 letter regarding dioxins, LFR will collect soil samples from six additional locations within Lot 3 of the Site (Figure 1). The six soil samples will be collected from approximately 1.5 feet bgs using a hand auger at the approximate locations identified on Figure 1. Soil samples will be placed in amber glass containers and submitted to a California certified laboratory for dioxin analysis by EPA Test Method 8290.

Waste Management

Waste management will be conducted in accordance with the procedures specified within the Lots 1 and 2 FSAP.

Reporting

The analytical data collected to address Comment 25 in the DTSC March 2007 letter will be presented in the final Lots 1 and 2 RI Report. The text, tables, and figures will be revised to incorporate the additional data. The analytical data for the additional soil samples to be collected within Lot 3 for dioxin analysis in accordance with the DTSC November 2006 letter will be presented in the Human Health Risk Assessment to be submitted at a later date.

LFR has tentatively scheduled the above scope of work for the week of April 9, 2007. Completion of these field sampling activities by that time is contingent upon reaching an agreement on site access between the Respondents and the Regents of the University of California. If you have any questions regarding the information provided above, please do not hesitate to call either of the undersigned at (510) 652-4500.

Sincerely,

Andrew M. Romolo, P.G. (8110)
Senior Geologist

William L. Carson. P.E. (C60735)
Principal Engineer

LFR

Attachments

Updated Table 1: Sample Matrix
Figure 1: Proposed Locations
Attachment 1: DTSC March 14, 2007 Letter
Attachment 2: DTSC November 9, 2006 Letter

Distribution List

Ms. Lynn Nakashima, DTSC
Mr. Doug Mosteller, Cherokee Investment Partners
Ms. Susan Cronk, Simeon Commercial Properties
Mr. Brian Spiller, Zeneca Inc.
Ms. Michelle King, EKI
Mr. Bill Marsh, Esq.
Mr. Bill Wick, Esq.
Mr. Nicholas Targ, Esq.
Ms. Tracy Barreau, DHS

References

LFR. 2006. Draft Final Remedial Investigation Report Lot 1 and Lot 2, Campus Bay, 1200 South 47th Street, Richmond, California. December 15.

Weiss Associates for DTSC. 2006. Soil and Groundwater Sampling and Analysis Report for Harborfront Tract Site, Richmond, California. October 5.

ATTACHMENT 1

DTSC March 14, 2007 Letter

Linda S. Adams
Secretary for
Environmental Protection

Department of Toxic Substances Control

Maureen F. Gorsen, Director
700 Heinz Avenue
Berkeley, California 94710-2721

Arnold Schwarzenegger
Governor

March 14,2007

Mr. Doug Mosteller
Cherokee Simeon Venture I, LLC
4600 S. Ulster Street, Suite 500
Denver, Colorado 80237

Dear Mr. Mosteller:

The Department of Toxic Substance Control (DTSC) received the draft Remedial Investigation Report for Lots 1 and 2 for the Zeneca/Former Stauffer Chemical Site locate in Richmond, California. The report, dated December 15, 2006 was prepared by LFR on behalf of Cherokee Simeon Ventures I, LLC, Zeneca Inc., and Bayer CropScience Inc. DTSC has reviewed the report and has the following comments, which incorporates comments from our Geological Services Branch. Comments from DTSC's Human and Ecological Risk Division (HERD) are included as an attachment to this letter. DTSC also received recommendations from the Richmond Southeast Shoreline Community Advisory Group, Toxics Committee for our consideration. We have incorporated those comments that were applicable to this report.

General Comments:

1. The report should include a section that discusses the QA/QC evaluation that was conducted on the data collected.

2. Please include a section that discusses deviations from the approved Field Sampling and Analysis Plan.

3. The report needs to contain a figure showing the locations of the 2006 samples as well as the "in-place" samples.

4. The "tree" surface soil samples collected from the planter areas along Meade Street need to be discussed in the text and included on the figures as appropriate.

5. Groundwater flow directions should be refined in certain areas where contamination may be migrating onto or off site. For example, the western and northwestern part of the site beyond areas 2-17 and MW-25.

7. Page 4, Section 1.3, Site History and Previous Use: A site map should be provided indicating the location of the historic operations that are described in this section as well as operations that were previously discussed in the Current Conditions Reports.

8. Page 10, Section 2.4, Other Analysis, Cyanide Analysis for Soils, and Table 1, page 7: It appears from historic maps provided in the Current Conditions Report (Lot 3, Figure 4a) that Building 56 was located where sample Lot 2-19 was collected, not sample Lot 2-18. Lot 2-18 appears to have been collected to the northwest of Building 56, in an area where super phosphate was manufactured. Please verify the building locations and revise the text and table as necessary.

9. Page 20, Section 4.1, Potentially Exposed Populations: It is unclear why the future groundskeeperlmaintenance worker was identified as a potentially exposed population, but is not considered in this report. Please explain.

10. Page 25, Section 4.4, Groundwater, last paragraph: The discussion contained in this paragraph regarding exposure to ecological receptors would be more appropriately addressed in the Lot 3 Remedial Investigation Report. Therefore, this paragraph should be revised to more accurately reflect how ecological receptors will be considered.

11. Page 33, Second line: Replace "cadmium and lead" with "cadmium and thallium".

12. Page 34, Section 5.1.2, Metals, Lot 2- 2 to 5 ft, Cadmium: The reference to background cadmium concentrations needs to be revised from Section 4.1 to 4.3. In addition, the background value presented in Section 4.3 was 2.4 mglkg, not 3 mglkg. Please revise this section.

13. Page 35, Section 5.1.3, Pesticides in Soil: Table 1 indicates that Lot 1-6-1.0 and MW-25-1.5-2 contained proprietary pesticides above residential screening values. This section states that proprietary pesticides were not detected above screening criteria. Please resolve this discrepancy.

14. Page 36, Pesticides in Soil, Lot 1-0 to 2 ft: The pesticide data base for soils should be reviewed and the text should note when specific chemical detection limits exceeded screening criteria. For example, delta-hexachlorocyclohexane, toxaphene and heptachlor epoxide detection limits exceeded screening values in some samples.

15. Page 45, Section 5.1.8, pH of Soil, Lot 1 Soil and Lot 2 Soil – This section should also include a brief discussion of samples containing elevated pH levels.

16. Page 46, Comparison of Groundwater Data to Screening Criteria: Seven VOCs were detected in ground water at concentrations greater than MCLs. These are TCE, PCE, carbon tetrachloride, 1,1-DCE, cis-1,2-DCE, vinyl chloride and chloroform. Based on the table of contents, maps were not prepared to illustrate the detection and extent of carbon tetrachloride, 1,1-DCE, cis-1,2-DCE, and chloroform. The distributions of these contaminants and delineation relative to screening criteria should be demonstrated using maps and cross sections.

17. Page 50, Section 5.2.1, VOCs, Lot 1- Lower-Horizon and Deeper Groundwater:
    a. The number of grab groundwater samples identified in the table appears to be 11 samples, while the text states that 15 samples were collected for analysis. In addition, the sample identification number used in the text (Lot 1-CPT-47) is not included in the table. Please clarify.
    b. Page 51, Trichloroethene: The sample identification numbers in this paragraph (e.g. Lot 1-5-HP-5, Lot 1-5-HP-9) do not match the sample numbers found in Figures 25b and 28b. The designation "5" is not present in the figures. Please revise the figure or text.

18. Page 54, Lot 2-Upper Horizon: 1,2-Dichloroethane: Please revise Figure 28a as it identifies the concentration of 1,2-DCA for IMW-7 as 1,200 ugll rather than 12,000 ug/l as identified in the text and table.

19. Page 56, Lot 2 – Upper Horizon, 1,2-Dichloropropane: Sample Lot 2-27-HP-4 is not included on Table 12B. The text should be revised to reference Table 129, not 229, and sample Lot 2-27-HP-4 should be replaced with the correct sample identification number (Lot 2-27-HP-11?).

20. For the eastern parts of Lots 1 and 2, the figures illustrating contaminant concentrations in ground water at depths greater than 20 feet bgs should be amended to incorporate Harborfront 20-to-24 feet bgs data. Those Harborfront concentrations were often significantly higher than data from co-located 8-to-16 feet bgs results.[1] The shallower Harborfront data are used in the Report on maps of ground water contamination at depths less than 20 feet bgs.

21. Figure 2: Please include the locations of the Lot-I-Tree samples.

22. Table 12B: Figure 26A indicates that the PCE concentration for Lot 2-23 was 29 ug/l, while Table 12B identifies the value as <1.7 ugll. Please revise the table or figure.

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[1] Significantly higher = 2x, typically greater. 10 of 29 deeper results significantly higher, 03 of 29 shallow results significantly higher.

23. Figure 21: The data boxes for Lot 1-2A, -2B, -2C are formatted incorrectly and should be corrected.

24. Figure 23: This figure should indicate the PCB concentrations for MW-25.

25. Figures 25a through 37b illustrate concentrations of selected contaminants in shallow and deeper ground water (less than 20 feet bgs or greater than 20 feet bgs).The following data gaps relating to delineation of contaminants are apparent based on review of the figures. It is noted that additional available data such as MIP (membrane interface probe) survey results have been evaluated into preparation of the figures but are not indicated on same. These MIP data often significantly influence interpretation of extents of contamination.

    a. Lot 1-2 Area

    Depth < 20 ft. bgs - TCE extends to south into Harborfront area where data from new DTSC wells in area are expected to confirm present delineation that is based on hydropunch-type grab samples.

    Depth > 20 ft. bgs - TCE not delineated laterally or vertically. Vertically, MIP results indicate low or no VOCs. Needs to be confirmed by ground water sampling and certified lab results. Laterally, Harborfront data should be incorporated into the analysis.

    b. Lot 1-5 Area

    Depth < 20 ft. bgs - TCE extent to southwest is weakly constrained. But, in that direction, the 2-19 area is down gradient and is well monitored.

    Depth > 20 ft. bgs - TCE not delineated laterally (southwest, south) or vertically (also depths not identified for Lot 1-HP-7 or -9, IMMW-15, -16, -17). MIP survey results should be confirmed by ground water sampling and certified lab results.

    c. Lot 1 MW-25 Area

    Depth < 20 ft. bgs - TCE, PCE lateral and vertical delineation not completed to northwest and west (UC field station).

    Depth > 20 ft. bgs - TCE not delineated laterally to southwest and south. The Lot 1-5 Area lies to the south. 1,000 ug/l and 100 ug/l contours appear to extend too far to the north based on posted results but are supported by the MIP data.

    d. Lot 2-27 Area

Depth < 20 ft. bgs – No Comment

Depth > 20 ft. bgs - TCE not delineated laterally or vertically. Based on the figures, it doesn't appear that deeper samples were collected.

e. Lot 2 MW-31 and CPT-9

Depth < 20 ft. bgs - No Comment

Depth > 20 ft. bgs - TCE not delineated laterally or vertically. Incorporate Harborfront deeper results.

f. Lot-2-24 and CPT-8

Depth < 20 ft. bgs - No Comment

Depth > 20 ft. bgs - TCE, PCE, VC, 1,2-DCA, and benzene not delineated laterally.

g. Lot 2-17 and CPT-5

Depth < 20 ft. bgs - TCE delineation not completed to west and southwest (UC field station).

Depth > 20 ft. bgs - No Comment

The distribution of these contaminants and delineation relative to screening criteria should be demonstrated using maps and cross sections.

26. Figure 37b, Concentrations of Mercury in Groundwater >20 feet bgs – The reporting limit is indicated to be 20 ug/l which is higher than all screening criteria. This appears to be a typo and should be corrected.

27. Figure 40: Revise the legend to indicate the 1000 ug/L contour line.

28. Figure 42a illustrates concentrations of benzene detected in soil gas in June 2005 to May 2006. The concentration contour near SG-11 (1277 ug/m^3) and SG-15 (5750 ug/m^3) should be 1000 ug/m^3 rather than 10 ug/m^3. This appears to be a typo and should be corrected.

29. Appendix C, Boring Logs:

a. Please indicate on the boring logs the groundwater collection depth.
b. Boring Log for Lot 1-5 Step – Please indicate the location of this boring on the appropriate figure(s).

30. Appendix C-4, CPT/MIP Logs: Please include the identification number used on the figures for the logs contained in this appendix.

31. Appendix D-5: The cover sheet for this appendix is labeled "Letter to DTSC Transmitting Results of Soil-Gas Investigations Conducted Near Building 240". The subject of the attached letter however is the results of soil gas sampling from SGT-24, SGT-25 and SGT-26, which were collected from the northwest portion of the site. The text on page 68 (Section 5.3) references both the Building 240 and SGT-24, -25 and -26 sampling events. Please include the Building 240 soil gas data and revise the Appendix D-5 cover sheet and Table of Contents to include both sampling events.

If you have any questions regarding this letter, please call Lynn Nakashima of my staff at (510) 540-3839.

Sincerely,

Barbara J. Cook, P.E., Chief
Northern California – Coastal Cleanup
Operations Branch

cc: Mr. Mark Vest
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Dr. Kimi Klein
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Governor

MEMORANDUM

TO: Lynn Nakashima
Site Mitigation and Brownfields Reuse Program
700 Heinz Avenue, Suite 200
Berkeley, CA 90630

FROM: Kimiko Klein, Ph.D. Kimiko Klein
Staff Toxicologist
Human and Ecological Risk Division (HERD)

DATE: January 18, 2007

SUBJECT: Draft Final Remedial Investigation Report Lot 1 and Lot 2, Campus Bay
ZENECA/FORMER STAUFFER CHEMICAL SITE, RICHMOND
PCA11050 Site Code: 201621-00; 201622-00

Background

This 86-acre property was formerly the site of the manufacture of sulfuric acid, super phosphate fertilizer, and pesticides. A research and development facility was also located on this site. The site has been divided into three separate lots for site investigation purposes. Lot 1 is the furthest upland from the San Francisco Bay, and the buildings on the lot are currently in use for commercial purposes. Many former structures on Lot 2 could have released hazardous chemicals to the environment including: the super phosphate manufacturing plant, phosphorus plant, thermal oxidizer, cooling towers, pilot pesticide plants, hazardous waste storage units, and the chemical and industrial drain systems and sump area(s). Large areas of Lot 2 have been excavated to approximately five feet below ground surface to remove cinders generated from many years of sulfuric acid production and to remove soils contaminated with arsenic, benzene, DDT, and toluene. The Human and Ecological Risk Division (HERD) has been requested to provide technical support and has previously commented on the current conditions reports for both Lot 1 and Lot 2 (memoranda dated July 20, 2005, and July 29, 2005). In order to address data gaps identified in those reports, supplemental site investigation was carried out under the oversight of the Department of Toxic Substances Control (DTSC).

Document Reviewed

The HERD reviewed a document entitled "Draft Final Remedial Investigation Report Lot 1 and Lot 2, Campus Bay, 1200 South 47th Street, Richmond, California", dated December 15, 2006, and prepared by Levine-Fricke (LFR) for Cherokee Simeon Venture I, LLC, Zeneca Inc., and Bayer CropScience Inc.. The HERD received this document on December 15, 2006.

General Comments

This remedial investigation report represents an addendum to the current conditions reports for Lot 1 and Lot 2. Much of the data in this report have been previously presented to the DTSC in meetings or in letter reports. The HERD read the entire document but focused its review on those sections related to health risk assessment, such as the development and selection of screening criteria used in this report and the estimation of local metals background concentrations.

The screening criteria for vapors intruding from soil or groundwater are taken from the Lot 1 polychlorinated biphenyl (PCB)/volatile organic compound (VOC) draft removal action work plan (RAW) (EKI, September 29, 2006) which has been submitted to and previously reviewed by the DTSC. The screening criteria for soil matrix are either California Human Health Screening Levels (CHHSLs) or U.S. Environmental Protection Agency (US EPA) Preliminary Remediation Goals (PRGs). For arsenic and cadmium, estimates of local background concentrations are used as comparators. The ecological screening criteria for groundwater were developed by multiplying the National Ambient Water Quality Criteria (NAWQC) or aquatic organism consumption criteria by a factor of 10. The HERD assumes that these screening criteria were used only to compare against measured concentrations and will not be used to exclude any detected chemicals from evaluation in the forthcoming health risk assessment.

The HERD has the following specific comments.

Specific Comments

1. Page 18 Section 3.2 Site Hydrogeology – Lower-Horizon Hydrogeology: From the description given in the text, all wells screened in the lower horizon have been destroyed. Please revise this section to enumerate the current monitoring wells that are screened in the lower horizon.

2. Page 22 Section 4.3 Soil, and Table 4A Soil Screening Evaluation Lots 1 and 2: If a CHHSL or US EPA PRG did not exist for a specific chemical, a screening criterion was calculated or the screening criterion of a surrogate chemical was used as the comparator for soil matrix concentrations. A) The calculations for chemicals that do not have a CHHSL or a PRG should be included in this report and described in the

text. B) The criteria for choosing a surrogate chemical for a listed chemical should be presented in this report.

3. Page 23 Section 4.3 Soil – Arsenic, and Appendix D-6 Supporting Documents for Screening Criteria Development: All the arsenic and cadmium data collected on Lots 1 and Lot 2 were statistically evaluated, and site-specific background concentrations for arsenic and cadmium were determined using DTSC policy guidance (*Selecting Inorganic Constituents as Chemicals of Potential Concern at Risk Assessments at Hazardous Waste Sites and Permitted Facilities*, February 1997). The text states that the 95th percentile background arsenic concentration from 96 sample results is 18.7 mg/kg. In contrast, the DTSC determined at the site adjacent to the Campus Bay/Zeneca property that the 95th upper tolerance limit on the 95th percentile background arsenic concentration from 64 sample results is 8.9 mg/kg. A) Although the probability plots for both arsenic and cadmium are submitted in Appendix D-6, none of the statistical spreadsheets have been included. Please submit all statistical spreadsheets for review. B) A 95th percentile concentration for arsenic of 18.7 mg/kg was calculated from a pared-down data set. Using the same data set, calculate the arithmetic mean and 95% upper confidence level (UCL) on the mean. Show that this pared-down data set represents a single population. Provide the spreadsheets. C) The entire arsenic data set should be evaluated to determine whether more than two populations exist. All subsets so identified should be tested to determine their distribution and then the appropriate statistics performed. All these evaluations should be submitted to the DTSC for review.

4. Page 30 Section 5.1.2 Metals in Soil: A) LOT 1 – Metals Summary: There is a comment question in the first paragraph that should be deleted. B) LOT 1 0 to 2 ft – Lead, and Table 4A Soil Screening Evaluation Lots 1 and 2. The industrial CHHSL for lead of 3,500 mg/kg should not be used as the screening criterion. The US EPA industrial PRG of 800 mg/kg should be used instead, as this concentration is protective of the adult female worker of child-bearing age by considering the health of an unborn fetus.

5. Page 33 Section 5.1.2 Metals in Soil – LOT 2 – 2 to 5 ft: In the second paragraph of this section, the arsenic background concentration is given as 10 mg/kg, whereas, it is given as 18.7 mg/kg elsewhere. The text should be clarified or corrected.

6. Page 45 Section 5.2 Groundwater Investigation Results: A summary of the supplemental groundwater investigation is given in this section. The text should be revised to provide the number of locations from which groundwater samples were taken in the upper horizon and in the lower horizon. The descriptions in this section indicate a limited characterization of the lower horizon.

7. Page 74 Section 7.0 Recommendations: A subsection should be added describing the data sets and the proposed statistical approach for developing the environmental media concentrations from these compiled data set(s) that will be used in the health risk assessment.

8. Updated Table 1 Lot 1 and Lot 2 Data Gap Sample Matrix – Screening Criteria Comparison: The footnotes to this table have been cut off and thus are incomplete. Please correct and reprint.

9. Table 4B Groundwater Screening Evaluation Lots 1 & 2, and Section 9 References: The full references for the NAWQC and human consumption of aquatic organisms are missing from the footnotes to this table. Include these citations on this table as well as in the list of references.

10. Table 23A Screening of VOCs in Upper Horizon Groundwater .... : Add the units of concentration to the table.

11. Figure 2 Site Plan with Soil, Groundwater, and Soil Gas Sampling Locations December 2005 through October 2006: From the title of this figure, the sample locations shown are only those locations sampled from December 2005. A figure should be added to this report that includes these sample locations and any previous sample locations that represent current conditions. Such a figure should show that the entire areas of Lot 1 and 2 have been adequately characterized with respect to soil matrix and soil vapor. The HERD assumes that all data representing current conditions at the site, not only the data collected in 2006, will be included in the final data set evaluated in the forthcoming health risk assessment.

12. Figure 14 VOC Detections in Soil Samples Lots 1 and 2 December 2005 to October 2006: This figure shows the locations of concentrations of specific VOCs detected in soil. The figure should be revised to include all sample locations where VOCs were analyzed for but not detected.

13. Figure 21 Mercury Concentrations in Soil Samples Lots 1 and 2 December 2005 to October 2006: Locations for sample numbers Lot 1-2A, Lot 1-2C, and Lot 1-2B are missing. There are no data in the boxes at those locations. Correct the figure.

14. Figure 22 Pesticide Concentrations in Soil Above Screening Criteria Lot 1 and 2 December 2005 to October 2006: This figure shows the locations and concentrations of specific pesticides detected above their screening criteria. The figure should be revised to indicate all sample locations where pesticides were analyzed for but either detected at concentrations below their screening criteria or not detected.

15. Figure 25 Concentrations of Trichloroethene (µg/l) in Groundwater > 20 Feet bgs December 2005 through October 2006: The symbol for "HP" sample locations should be added to the legend.

Conclusions

The conclusion of this remedial investigation report is that the soil and soil gas in the sub-surface have been adequately characterized, and the data are sufficient for health risk assessment purposes. This conclusion must be supported by a figure, as described in Specific Comment 11, showing the locations of all samples depicting current conditions for Lots 1 and 2. This figure should be accompanied by a list of citation(s) where other data describing current conditions are located. The HERD defers to other DTSC staff with respect to the adequacy of groundwater characterization underlying Lots 1 and 2. There are other, mostly editorial, deficiencies discussed in the specific comments that must be addressed as well, before the HERD can find this report acceptable.

If you have any further questions, please contact me at (510) 540-3762, (916) 255-6643, or via electronic mail at kklein @dtsc.ca.gov.

Kimiko Klein for

Reviewed by: David L. Berry, Ph.D.
Senior Toxicologist
Human and Ecological Risk Division

ATTACHMENT 2

DTSC November 9, 2006 Letter

Linda S. Adams
Secretary for
Environmental Protection

Department of Toxic Substances Control

Maureen F. Gorsen, Director
700 Heinz Avenue
Berkeley, California 94710-2721

Arnold Schwarzenegger
Governor

November 9, 2006

Mr. Doug Mosteller
Cherokee Simeon Venture I, LLC
4600 S. Ulster Street, Suite 500
Denver, Colorado 80237

Dear Mr. Mosteller:

The Department of Toxic Substances Control (DTSC) received the sampling and analytical data for the dioxin and furan testing at the Zeneca/Former Stauffer Chemical Site located in Richmond, California. The information was transmitted in two letters dated September 1 and October 6, 2006 prepared by LFR, Inc. on behalf of the Site Responsible Parties. After review of the September 1, 2006 letter, DTSC requested that the data be graphed to represent the percent fraction of each congener detected. DTSC conducted a preliminary risk screening calculation on the data provided and determined that based on the dioxin toxicity equivalency concentrations (TEQ) the risk is equivalent to a maximum of 3×10^{-6}, which is within the acceptable risk range established by the U.S. Environmental Protection Agency. Based upon the data collected to date, the potential risks posed by the dioxins will need to be incorporated into the site risk assessment. However, the sample size collected (4 samples) within Lot 3 represents an insufficient data set for risk assessment purposes, and therefore, six additional samples collected at the same depth (1.5 feet below ground surface) need to be collected.

If you have any questions regarding this letter, please contact Lynn Nakashima of my staff at (510) 540-3839.

Sincerely,

Barbara J. Cook, P.E., Chief
Northern California – Coastal Cleanup
Operations Branch

cc: Mr. Mark Vest
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