Department of Toxic Substances Control

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COMPLAINT INVESTIGATION REPORT

LOG NUMBER: 05-0405-0173
SUBJECT OF INVESTIGATION: Zeneca, Inc.
ADDRESS: 1391 South 49th Street, Richmond, CA 94804
TELEPHONE NUMBER: (415) 399-1555
LOCATION OF ACTIVITY: 1391 South 49th Street, CA 94804
MAILING ADRESS: 1800 Concord Pike FOP3, Wilmington, Delaware 19850-5438
ID NUMBER: CAD0009123456
DATE OF INVESTIGATION STARTED: May 19, 2005
DATE OF REPORT: November 13, 2008

NARRATIVE OF FINDINGS

A. STATEMENT OF ALLEGATIONS

Complaint Log No. 05-405-0173, dated April 6, 2005 (See Attachment 1), alleged the unauthorized treatment of contaminated soil at Zeneca. The complaint filed by Ms. Barbara Cook, Branch Chief and Project Manager of the clean-up of Zeneca, former Stauffer Chemical Site stated that a low temperature desorption transportable treatment unit (TTU) operated at the site, to address chlorinated volatile organic carbons (VOCs), primarily perchloroethene (PCE) contaminated soils. The complaint also stated that the TTU operated without an authorization issued by the Department of Toxic Substances Control (DTSC).

In a separate complaint, Complaint Log No. 05-035-0132 (See Attachment 2) dated March 14, 2005, also filed by Ms. Cook, she stated that a potential illegal activity may have taken place during the 2002 field work at the Zeneca and the University of California Richmond Field Station (UCRFS) sites. The complaint also stated that "Zeneca and the University of California, Berkeley (UCB), had cut a

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deal on how the cinder materials found at the UCRFS property would be managed. If the material contained total mercury above 50 mg/kg, UCB would haul it off. If they have less than 50 mg/kg, they mixed it with carbon and disposed it at Zeneca."

B. CHRONOLOGICAL NARRATIVE OF THE FINDINGS

Site Location and History *(information obtained from RWQCB Order No. 01-101, Attachment 4)*

The Zeneca site, formerly owned by Stauffer Chemical Company (Stauffer) is located at 1391 South 49th Street, in Richmond, California (See Attachment 3, Map1, Site Location Map). The site is bounded by industrial areas to the north, east and west, and by open space and Eastern Stege Marsh to the south. The Zeneca site and the adjacent UCRFS site, and portions of the adjacent Eastern and Western Stege Marsh comprise the area designated as the Meade Street Operable Unit (MSOU) [See Attachment 3, Map2, Meade Street Operable Units and Subunits].

Stauffer produced sulfuric acid from approximately 1897 to 1970. The site was used by Stauffer and other facilities to manufacture sulfuric acid, nitric acid, phosphate fertilizer, carbon disulfide, aluminum sulfate, ferric sulfate, titanium trichloride and a number of herbicides, insecticides and fungicides. Several smaller companies occupied parcels at the site prior to and during Stauffer's ownership of the land. Stauffer acquired all of the parcels on which the smaller companies operated by 1949.

From approximately 1919 to 1962, pyrite cinders were deposited on the southern portion of the Plant Area and the unimproved uplands and marsh areas. Pyrite cinders were also deposited in the areas of the adjacent UCRFS site. After 1985, Stauffer was acquired and divested by a number of companies. Zeneca's predecessor company, ICI Americas, acquired the site in 1987. Zeneca is liable for releases originating from the site and its predecessors and is named as the discharger by the Regional Water Quality Control Board, San Francisco Bay Region (RWQCB).

Site Cleanup Order Nos. 01-101 and 01-102 *(Attachment 4)*

On September 19, 2001, the RWQCB, issued Site Cleanup Order No. 01-101 (Order) to Zeneca, Inc. The Order prescribed the Site Cleanup Requirements for Subunit 1 of the MSOU, which consists of the Zeneca site and portion of the adjacent Stege Marsh. The MSOU is the area containing the Zeneca site and the adjacent UCRFS site and

their groundwater pollution plumes. The MSOU consists of Subunit 1, the Zeneca site and the adjacent portion of Eastern Stege Marsh, and Subunit 2, the UCRFS site and an adjacent portion of Western Stege Marsh. Subunit 2 is subdivided into: Subunit 2A, the cinder fill area located in the southeastern portion of the upland area of the site and the eastern portion of the Western Stege Marsh and Subunit 2B, the remainder of the upland portion of the UCRFS site and the western portion of Western Stege Marsh. Order No. 01-101 named Zeneca as the discharger and is wholly responsible for addressing the pollution in Subunit 1 and complying with the Order.

The RWQCB Site Clean-up Order 01-102 issued to UCB, owner of UCRFS prescribed the Site Cleanup Requirements for Subunit 2 of the MSOU, which consists of the UCRFS site including a portion of the adjacent Western Stege Marsh. Zeneca and UCB are both named as dischargers in the RWQCB Order, and are both responsible for addressing pollution within Subunit 2A. UCB, the source of pollution within the area of Subunit 2B of MSOU, is the discharger named and is responsible in addressing pollution in Subunit 2B (See Attachment 3, Map 3, Subunits 1,2A and 2B locations and Boundaries.

The RWQCB was the lead regulatory agency overseeing the restoration and clean-up of the entire Zeneca site. However, in November 2004, the regulatory oversight of the Upland area (Lots 1, 2 and 3), was transferred to DTSC. In May 2005, DTSC became the lead regulatory oversight agency for the entirety of the Zeneca and the UCRFS sites.

Purchase of Zeneca Property

On December 31, 2002, the Zeneca property was purchased by Cherokee Simeon Venture (CSV), according to UCB's response of August 2, 2006 (See Attachment 5) to DTSC's July 6, 2006 Information Request Letter (Attachment 6). UCB also stated that specific information related to the sale of the Zeneca property, was not provided. Pertaining to any amendments to the RWQCB Order, UCB, stated that it had not received any amendments to the original RWQCB Order.

In UCB's November 20, 2006 response to DTSC (Attachment 7), UCB stated that CSV's involvement in the remedial activities at the UCRFS site between December 2002 and December 2004 consisted of attendance and participation by staff of de Maximus, who represented both Zeneca and CSV in the weekly construction management meetings run by UCB. UCB's November 2006

response also stated that, since December 2004, UCB's records relating to CSV's involvement are limited to correspondence between DTSC and CSV's counsel and consultants relating to the new DTSC Site Investigation and Remediation for the RFS site.

Remedial Activities at Zeneca Site

PCE Contaminated Soil in POI-2 Area

The source of the PCE in the POI-2 Area was the above-ground storage Tank 150, which was formerly located over or near the POI-2 excavation area, according to Zeneca's August 3, 2005 letter, response 4.b. (See Attachment 12). The tank was reportedly used for the storage of PCE. According to Zeneca's response, PCE may have been released from the tank or during transfers of product to and from the tank. Zeneca's response also stated that approximately 4,920 cubic yards of PCE impacted soils were removed from POI-2. The contaminated soils contained up to 1,700 mg/kg of tetrachloroethene (also known as PERC, perchloroethylene, perchloroethene or tetrachloroethylene). See Attachment 12, response 5.b., Exhibit 6, Table A-4a.

The closure report prepared by The Source Group (TSG) on behalf of Zeneca, described the activities performed during the treatment of soil contaminated with volatile organic compounds (VOCs) including perchloroethylene (perc) and tetrachloroethene, using a low thermal desorption process, as follows.

As part of the remedial program under RWQCB Order No. 01-101, an investigation in the area contaminated with VOCs primarily perchloroethylene was conducted by Levine Fricke on January 18, 2002. During characterization of the soil for waste disposal, it was determined that the toxicity characteristic leaching procedure (TCLP) test results required it to undergo additional treatment as RCRA characteristic hazardous waste. Because of the costs associated with the off-site transportation, disposal and subsequent transportation of lean fill to replace the contaminated soil, on-site low temperature thermal desorption was selected as the best treatment alternative. Zeneca obtained a permit from the Bay Area Air Quality Management District for the excavation and thermal desorption of the VOC contaminated soil.

TSG and Zeneca worked with the thermal contractor, American Remedial Technologies (ART) to determine set up location of the treatment equipment, the routing and placement of the needed utilities and scheduling. Due to delays in the permitting process, project start

up did not take place until June 17, 2002. Because the soil that required treatment was saturated and consisted predominantly of clays, the soil was conditioned with quicklime during excavation activities to reduce the moisture content and increase the treatment efficiencies. The addition of lime lowered the moisture content of the soil which in turn lowered the amount of energy required to thermally desorb the volatile compounds, and it also raised the pH of the soil which reduced the potential of acid gas formation during the thermal process. The report concluded that a total of 4,420 tons of soil were thermally treated and placed on-site. An additional 3,450 tons of soil was disposed off-site at the Kettleman Hills Landfill.

PCE Affected Groundwater

According to Zeneca's response dated August 3, 2005 (See Attachment 12, response 4.c.), 90,000 gallons of PCE affected groundwater was pumped from the POI-2 excavation (See Attachment 12, Exhibit 6, Figures 3 and 7), The groundwater was pumped from the POI-2 excavation pit into lined Surge Pond and then into lined Carbon Column Pond adjacent to the existing groundwater treatment facility on the Zeneca site. The groundwater was then pumped through the twin carbon columns of the treatment system. The treated groundwater was ultimately discharged to the City of Richmond Publicly Owned Treatment Works (POTW).

Summary of Remedial Activities At UCRFS

Phase 1 Remedial Activities

The Phase 1 Remedial Activities conducted by UCB's construction contractor Geo-Con, from September to December 2002, included excavation and remediation of the upland portion of Subunit 1 and portions of Subunit 2A (See Attachment 8). Approximately 36,700 in-situ cubic yards of materials were removed from Areas 1, 2, 3 and 4 of Subunit 2A. Of this total, approximately 1,700 cubic yards were treated by Geo-Con at UCRFS with 5% powdered activated carbon for mercury stabilization, with limestone to stabilize cinder-related metals, then placed and capped at Subunit 1, Zeneca site. For a summary of the general description of the Phase 1 Remediation activities, see Section 3.0, of Attachment 8, Implementation Report, Phase 1-Subunit 2A, Meade Street Operable Unit, University of California, Berkeley.

Phase 2 Remedial Activities

The Phase 2 Remedial Activities conducted by UCB's construction contractor Envirocon, from August 2003 to February 2004, included

excavation and remediation of the remaining upland marsh portions of Subnit 2B (M3 and M1A) (Attachment 9). Approximately 38,200 in-situ cubic yards of materials were excavated by Envirocon from Areas 2, 4, M3 and M1A. Approximately 6,000 cubic yards of pyrite cinders (designated by UC as Type A) were treated by Envirocon with limestone to stabilize cinder-related metals and placed and capped at Subunit 1, Zeneca Site. Approximately 11,900 cubic yards of cinders (designated Type B materials from Area 4) were treated by Envirocon with 5% powdered activated carbon for mercury stabilization, treated with limestone of cement kiln dust (CKD) to stabilize cinder-related metals placed and capped at Subunit 1, Zeneca Site. The rest of the excavated materials were treated at UCRFS and disposed offsite as non-RCRA hazardous wastes and/or non-hazardous wastes. For a summary of the general description of the Phase 2 Remediation activities, see Section 3.0 of Attachment 9, Implementation Report, Phase 2- Subunit 2A & 2B, Meade Street Operable Unit, University of California, Berkeley.

Complaint Investigation of Complaint Log No. 05-0405-0173

Upon becoming aware that unauthorized treatment and disposal of hazardous wastes may have taken place during the remedial activities at the UCRFS and the Zeneca sites, DTSC sent information request letters to Zeneca to determine if the remedial activities were being conducted in accordance with California's hazardous waste laws and regulations. The information request letters to Zeneca were sent on July 1, 2005, July 19, 2005, July 6, 2006 and October 25, 2006 (See Attachment 10). Separate letters were sent to UCB and a separate investigation was conducted for the UCRFS complaint, Log No. **05-0305-0132**. Separate letters were also sent to CSV on July 6 and October 25, 2006 (See Attachment 11).

On behalf of Zeneca, the law office of John D. Edgcomb (JDE) provided responses to the information requested by DTSC on August 3, 2005, August 11, 2006, and November 20, 2006 (See Attachment 12).

On behalf of UCB, 4LEAF, Inc. (4LEAF), UCB's consultant provided responses to the information requested by DTSC on June 30, 2005 (See Attachment 16), November 4 (See Attachment 15), and 28, 2005, January 13, 2006 (See Attachment 14), February 8, 2006, August 2 and November 20, 2006 (Attachment 7). In addition to the above submittals, DTSC reviewed the Phase 1, 2, and 3, Implementation Reports and other applicable documents, such as the Remedial Design Details Reports and Addendums.

DTSC also met briefly with UCB representatives and 4LEAF, when UCB delivered its January 13, 2006 response to DTSC. During the meeting UCB stated that all remedial activities at the UCRFS site were approved by the RWQCB. Copies of the RWQCB letters dated September 12, 2003 and September 9, 2004 were provided to DTSC (See Attachment 13).

C. VIOLATIONS

Based on a review of the Zeneca and UCB submittals to DTSC's information request letters, and other materials available to DTSC, the following violations of hazardous waste laws and regulations were noted:

Class I Violations

Storage and/or Acceptance of Hazardous Waste Without a Permit or Authorization

1. Zeneca violated Health and Safety Code (HSC) section 25201 (a) in that Zeneca received and/or accepted hazardous waste without a permit or authorization from the DTSC, to wit:

   On or about October 13, 2002, Zeneca accepted from UCRFS approximately 2,046 cubic yards of vegetation waste containing soluble arsenic at a concentration of 10 mg/L. The STLC for arsenic is 5 mg/L.

   The vegetation wastes were excavated from marsh Areas 2 and 3 during phase 1 activities at UCRFS, and sent to Zeneca for stockpiling and storage in subunit 1. The stockpiled vegetation wastes were then returned to UCRFS on October 27 and 29, 2003 (See Violation 4).

   According to UCB's January 13, 2006 letter to DTSC, Zeneca's consultant collected a screening sample of the vegetative material excavated from marsh Areas 2 and 3 at the beginning of Phase 1 activities prior to it's delivery to the Zeneca site (Attachment 14). The result of the sample screening is shown in the table below.

Sample ID	Pre-Treatment Analytical Results of Vegetation Waste (mg/kg)
	Arsenic 5 mg/l, STLC*
Veg. Marsh Phase I Comp	10 mg/l**
**STLC = Soluble Threshold Limit Concentration* ***If soluble concentration is ≥ STLC, then the material is considered to be a hazardous waste*	

Evidence: See Attachment 14, Response to DTSC's Request for Information, Phase II and III Remedial Activities for Subunits 2A and 2B, Meade Street Operable Unit Richmond Field Station, Richmond, California, dated January 13, 2006, Response no. 2, Table D-1.

Witnesses: Eric Brocales and Luz Castillo

Corrective Action

Although no further action is required regarding this violation, please be advised that in the future, Zeneca must ensure that storage and/or acceptance of hazardous waste from off-site would require a permit or other grant of authorization from DTSC.

Treatment of Hazardous Waste Without a Permit

2. Zeneca violated Health and Safety Code (HSC) section 25201 (a) in that Zeneca treated hazardous waste without a permit or authorization from DTSC, to wit:

a. On or about September 18, through November 4, 2002, Zeneca treated with 7.5% limestone in Subunit 1, approximately 12,140 cubic yards of excavated cinders and sediment originating from UCRFS Areas 1 and 4, containing mercury at a concentration of 32 mg/kg (described by UC as less than 50 mg/kg mercury), copper from 7,800 mg/kg to 20,000 mg/kg and zinc from 7,100 to 22,000 mg/kg. The Total Threshold Limit Concentration (TTLC's) for mercury, copper and zinc are 20 mg/kg, 2,500 mg/kg and 5,000 mg/kg respectively.

According to UCB's June 30, 2005 submittal (Attachment 16 Response no.1), pre-treatment analytical results for the mercury-

affected cinders and sediment in Area 1 and Area 4 consisted of site characterization sampling performed prior to development of the remedial design details (RDDR) addendum (URS 2002a). A summary of the analytical results is shown in the table below.

Sample Location	**Pre-treatment Analytical Results (mg/kg),** See Tables 1 and 4 (Attachment A)		
	Mercury (20 /kg)*	Copper (2,500 mg/kg)*	Zinc (5,000 mg/kg)*
2AU-17-13	1	7,800 **	22,000 **
B-3 (8.5' depth)	1.3	20,000 **	7,900 **
B-5 (4' depth)	10	9,300 **	
B-5 (8' depth)	32 **	17,000 **	
B-6 (8.5' depth)	32 **		7,100 **

*( )= Total Threshold limit Concentration, TTLC
** Concentration >=TTLC is considered hazardous waste

The treated cinders and sediment were placed in the Mixed Cinder Placement Area on Lot 3 of Subunit 1 (See Attachment 12, Exhibit 4, Figure 6). Random pH testing was the analysis performed on the limestone treated cinders and sediment (See Attachment 12).

Evidence: Attachment 16, Response to DTSC's Request For Information, Phase 1 Implementation Report, Subunit 2A, Meade Street Operable Unit Richmond Field station, Richmond, California, dated June 30, 2005; See Response no. 3 and Tables 1 and 4 (Attachment A); (See Attachment 12, August 3, 2005, response 1.a.).

Witnesses: Luz Castillo and Eric Brocales

b. On or about November 15, 16, 25 and 26, 2002, Zeneca treated with crushed limestone on Subunit 1, 122 truckloads (approximately 1,700 cubic yards) of powdered activated carbon treated excavated cinders and sediment originating from UCRFS. The treated excavated cinders and sediment from UCRFS contained mercury at concentrations of 24 mg/kg and 28 mg/kg. The TTLCs for mercury is 20 mg/kg.

According to UCB's June 30, 2005 letter (See Attachment 16), response 1.a., seven post-treatment samples were collected and submitted for analysis for total mercury. Dissolved mercury

concentration in the leachate from the treated soil samples was also requested for analysis. The results showed that mercury levels in the leachate ranged from 0.00024 to 0.00168, which were below Zeneca's acceptance criteria of 0.25 µg/l. See table below.

Sample ID	Powdered Activated Carbon Treated Sample Results in mg/kg from UCRFS	
	Mercury (20 mg/kg)*	Dissolved Mercury Concentration in leachate (µg/l)
Treated Hg-1	12	0.00085
Treated Hg-2	9.6	0.00032
Treated Hg-3	28**	0.00044
Treated Hg-4	8.3	0.00032
Treated Hg-5	13	0.00168
Treated Hg-6	14	0.00033
Treated Hg-7	24**	0.00024

** ( ) = Total Threshold Limit Concentration, TTLC*
*** Concentration ≥ TTLC is considered hazardous waste*

After treatment with crushed limestone, the excavated cinders and sediment were placed into Subunit 1, Lot 3, CCR (Attachment 12, Exhibit 4, Figure 6). The cinders and sediment treated with limestone on Subunit 1 were not analyzed for hazardous waste criteria. Only pH testing was performed.

Evidence: Attachment 16, Response to DTSC's Request For Information, Phase 1 Implementation Report, Subunit 2A, Meade Street Operable Unit Richmond Field Station, Richmond, California, dated June 30, 2005; See response no. 1.a., and Table 1; Attachment 12, Exhibit 4, Figure 6.

Witnesses: Luz Castillo and Eric Brocales

c. On or about June 17, 2002 through August 4, 2002, Zeneca treated via thermal desorption using a Transportable Treatment Unit (TTU), 2,760 cubic yards of excavated perchloroethylene (PCE)-contaminated soil from POI-2 Area. The PCE-contaminated soil (U228) was excavated from the southwest corner of the site, named POI-2. Analytical results indicated that PCE was present in the soil at a level up to 1,700 mg/kg ((See Attachment 12, Response 5.b, Exhibit 5, and Table A-4a).

According to JDE's submittal dated August 3, 2005, PCE may have been released during transfer of product to and from tank or from the above ground storage Tank 150, which was formerly located above or near the POI-2 excavation area (See Attachment 12), response 4.b.). PCE is a Resource Conservation Recovery Act (RCRA) listed hazardous waste and is assigned an EPA waste code U228. Pursuant to California Code of Regulations, title 22, section 66261.30 (a), a waste is a RCRA hazardous waste if it is listed in article 4 of Division 4.5 of Title 22, unless it has been excluded from this list pursuant to section 66261.101.

Evidence: Attachment 12, August 3, 2006 Response to DTSC's Request for Information, response no. 4.b. , Table A-4a, page 15.

Witness: Eric Brocales

d. On or about July 2001 through October 2002, Zeneca treated through onsite carbon columns, approximately 90,000 gallons of PCE-contaminated groundwater (U228) pumped from POI-2 excavation. Analytical results of the samples collected from the groundwater showed the presence of PCE at concentrations ranging from 0.041 mg/l to 46 mg/l. (See Attachment 12, Table A-4b, Exhibit 5). The treated groundwater (U228) was discharged to the Richmond Publicly Owned Treatment Works (POTW).

   According to Zeneca's submittal dated August 3, 2005 (See Attachment 12. Response 4.d.), the groundwater was pumped from the POI-2 excavation pit into the lined Surge Pond and then into the lined Carbon Column Pond adjacent to the existing groundwater treatment facility on the former Zeneca site. The groundwater was then pumped through the twin carbon columns of the treatment system. The treated groundwater was then discharged into the Upper Lagoon, from which it would gravity feed to the Lower Lagoon. Ultimately, the groundwater would be pumped from the Lower Lagoon to the City of Richmond Publicly Owned Treatment Works.

   Evidence: Attachment 12, Responses 4.d. , Exhibit 5, Table A-4b.
   Witness: Eric Brocales

Corrective Action for violations a. b., c., and d.

Although no further action is required regarding this violation, please be advised that any future acceptance and/or treatment of hazardous

waste would require a permit or other grant of authorization from DTSC.

Disposal of Hazardous Waste at an Unauthorized Point

3. Zeneca violated Health and Safety Code, section 25189.2 (c) in that Zeneca disposed of hazardous waste at a point not authorized by DTSC, to wit:

   a. [Upon further consideration of the facts and circumstances surrounding this count in the Summary of Violations, DTSC will not pursue this alleged violation]

      On or about September 18, through November 4, 2002, approximately 12,140 cubic yards of excavated cinders and sediment originating from UCRFS Areas 1 and 4, containing mercury at a concentration of 32 mg/kg (described by UC as less than 50 mg/kg mercury, copper from 7,800 mg/kg to 20,000 mg/kg and zinc from 7,100 to 22,000 mg/kg were disposed of and capped into Subunit 1 (also see Violation 2a). The TTLCs for mercury, copper and zinc are 20 mg/kg, 2,500 mg/kg and 5,000 mg/kg respectively.

   b. [Upon further consideration of the facts and circumstances surrounding this count in the Summary of Violations, DTSC will not pursue this alleged violation]

      On or about November 15, 16, 25, and 26, 2002 approximately 122 truckloads of excavated cinders and sediment from UCRFS were received and treated by Zeneca and placed in the southwestern portion of the cinder placement zone on Lot 3 of Subunit 1.

   c. [Upon further consideration of the facts and circumstances surrounding this count in the Summary of Violations, DTSC will not pursue this alleged violation.]

      On or about October 11, 18, 23, 25, 28, 31, 2002, November 1 through 3, 2002 and December 5 through 6, 2002, Zeneca received from UCRFS 842 truckloads and 66 truckloads of treated soft marsh cinders and sediment for placement into Subunit 1.

d. [Upon further consideration of the facts and circumstances surrounding this count in the Summary of Violations, DTSC will not pursue this alleged violation.]

On or about between September 11 and 16, and on October 1, and 2, and on October 21, 22, and 25, 2003, Zeneca received from UCRFS, a total of 681 truckloads of treated "Type A materials" (6,274 cubic yards before treatment) for placement into Subunit 1.

e. [Upon further consideration of the facts and circumstances surrounding this count in the Summary of Violations, DTSC will not pursue this alleged violation.]

On or before September 8 to September 10, 2003, Zeneca received from UCRFS, a total of 109 truckloads of treated "UC Berkeley Type A materials" (1,496 cubic yards before treatment as described by UCRFS as containing less than 50 mg/kg of mercury) for placement into Subunit 1.

f. On or about September 23 through October 25, 2003, Zeneca received from UCRFS, a total of 1,115 truckloads (11,987 cubic yards before treatment as described by UCRFS as containing mercury in concentrations greater 50 mg/kg and less than 260 mg/kg) of treated "Type B materials" for placement into Subunit 1.

Analytical results of post-treatment sampling for the Type B materials showed total mercury concentrations from 20 mg/kg to 110 mg/kg, as shown in the table below.

Sample ID (Treated Type B Materials)	**Treated Type A, UC Berkeley Type A, and Type B Analytical Results** See Attachment I, Table 2 (Appendix A)	
	TTLC, Mercury (20 mg/kg)*	
Area 4 Treated Samples	Total Mercury Concentration (mg/kg)	Leachable Mercury Concentration (µg/l)
Treated Hg-092203-2, Area 4 Treated Soil Sample #1	84 **	0.054
Treated Hg-092203-3, Area 4 Treated soil Sample #2	110 **	<0.030
Treated Hg-092403, Area 4 Treated Soil Screening Sample	70 **	No leachate sample
Treated Hg-092603, Area 4 Treated	66 **	

Soil Sample #3		
Treated Hg leachate-092703		<0.20
Treated Hg-100303, Area 4, Treated Soil Sample #4	28 **	
Treated Hg leachate-100403		<0.20
Area 2 Treated Samples	Total Mercury Concentration (mg/kg)	Leachable Mercury Concentration (µg/l)
Treated Hg-100603-1, Area 2 Treated Soil Sample #1	29 **	
Hg leachate -100603-1		<0.20
Treated Hg-100603-2, Area 2 Treated Soil Sample #2	28 **	
Hg leachate-1006-03-2		<0.20
Treated Hg-100603-3, Area 2 Treated Soil Sample #3	23 **	
Treated Hg leachate-100803		<0.20
Treated Hg-100803, Area 2 Treated Soil Sample #4	28 **	
Treated Hg leachate-100903		<0.20
Treated Hg-101403, Area 2 Treated Soil Sample #5	41 **	
Treated Hg leachate-101503		<0.20
Treated Hg-101603, Area 2 Treated Soil Sample #6	20 **	
Treated Hg leachate-101703		<0.20
Treated Hg-101803, Area 2 Treated Soil Sample #7	21 **	
Treated Hg leachate-101903		<0.20
Treated Hg- 4.3%AC-1-2403, Area 2, 4.3% PAC Treated Soil Sample #9	30 **	
Treated Hg- 4.3%AC-leachate-102503		<0.20

*( )= Total Threshold limit Concentration, TTLC
** Concentration >=TTLC, is considered hazardous waste

Evidence: Attachment 15, Response to DTSC's Request For Information, Letter Dated September 26, 2005, Regarding the Phase 2 and 3 Activities for Subunits 2A and 2B, Phase 1 Implementation Report, Subunit 2A, Meade Street Operable Unit Richmond Field station, Richmond, California, dated November 4, 2005, Response 2.2 to 2.2.5., and Table 2 (Appendix A).

Witnesses: Eric Brocales and Luz Castillo

Corrective Action

Within 15 days of receipt of this report, Zeneca shall contact the DTSC Northern California Cleanup Operations Coastal Branch, to initiate and establish a schedule to remove the contaminated cinders and otherwise restore the Subunit 1 areas at Zeneca, where the treated contaminated cinders were disposed of.

Shipment of Hazardous Waste to an Unpermitted Facility

4. Zeneca violated Health and Safety Code Section 25189.2 (b) in that Zeneca shipped hazardous waste to UCRFS, a facility not permitted or authorized receive hazardous waste which is a violation of Health and Safety Code Section 25189.5(c), to wit:

   On or about October 27 and 29, 2003, Zeneca shipped back to UCRFS approximately 2,046 cubic yards of vegetation containing soluble arsenic at a concentration of 10 mg/L. The Soluble Threshold Limit Concentration for arsenic is 5 mg/L.

   According to UCB's January 13, 2006 letter, (See Attachment 14, response no.2.), Zeneca's consultant collected a screening sample of the vegetative material that was excavated from marsh Areas 2 and 3 at the beginning of Phase 1. Pre-treatment analytical result showed soluble concentration of mercury at 10 mg/l. See Attachment 14, Table D-1 (Attachment D).

   [Note: the above vegetation wastes were excavated from UCRFS marsh areas 2 and 3 (See Map 2 for location of Areas 2 and 3), during Phase 1 activities and were received by Zeneca for stockpiling in Subunit 1 on October 13, 2002. (See Violation1).

   Evidence: Response to DTSC's Request For Information, Phase 2 and 3 Remedial Activities for Subunits 2A and 2B, Meade Street Operable Unit Richmond Field Station, Richmond, California, dated November 4, 2005, Section 2.5.3 (See Attachment 15); Attachment 14, Response to DTSC's Request For Information, Phase 2 and 3 Remedial Activities for Subunits 2A and 2B, Meade Street Operable Unit Richmond Field Station, Richmond, California, dated January 13, 2006, Response no.2, Table D-1.

Witnesses: Eric Brocales and Luz Castillo

Corrective Action

Although no further action is required regarding this violation, Zeneca must ensure that in the future any hazardous wastes shall only be shipped to a permitted or otherwise authorized hazardous waste treatment, storage, and/or disposal facility.

Failure to Properly Characterize the Wastes

5. Zeneca violated California Code of Regulations, title 22, section 66262.11 in that Zeneca failed to properly characterize 4, 920 cubic yards of PCE-contaminated soil, cinders and sediment, excavated from the southwest corner of the site, named POI-2, to wit:

On or about August 7-9, 2002, 2,160 cubic yards of PCE-contaminated soil, a RCRA hazardous waste, EPA waste U228, was shipped to Kettleman Hills as non-RCRA hazardous waste (See Attachment 12, JDE Response 5.d.).

Evidence: Attachment 17 or 12, JDE Response 5.d.
Witness: Eric Brocales

Corrective Action

Although no further action is required regarding this violation, Zeneca must ensure that in the future any hazardous wastes shall be properly characterized prior to shipment and/or storage, treatment and disposal.

Transferring Custody of Hazardous Waste to an Unregistered Hazardous Waste Transporter

6. Zeneca violated California Health and Safety Code, 25163 (a) (1) in that Zeneca transferred custody of a hazardous waste to a transporter who does not hold a valid registration issued by DTSC, to wit:

a. On or about August 8, 2002, Zeneca transferred custody of non-RCRA Hazardous Waste to Marchbanks Trucking on manifest 21629015. Marchbanks Trucking did not hold a current transporter registration on August 8, 2002.

b. On or about August 7, 2002, Zeneca transferred custody of non-RCRA Hazardous Waste Solid to Marchbanks Trucking on manifest

21677129. Marchbanks Trucking did not hold a current transporter registration on August 8, 2002.

Evidence: Attachment 18, Manifest nos. 21629015 and 21677129, Declaration from Carl Josephson
Witness: Carl Josephson

Corrective Action

Although no further action is required regarding this violation, Zeneca must ensure that in the future all transfers of hazardous waste must be to hazardous waste transporters holding valid registration with DTSC.

Failure to Submit Manifests Within 30 Days to the Department for Wastes Transported Off-Site Within California

7. Zeneca violated California Code of Regulations, title 22, section 66262.23 (a)(4) in that Zeneca failed to submit to DTSC within 30 days of each shipment of hazardous waste, a legible copy of each manifest used, to wit:

a. On or about August 7, 2002, Zeneca transferred custody of non-RCRA hazardous waste soil contaminated with trace metals and pesticide to Marchbanks Trucking on Manifest No. 21677219. Manifest No. 21677219 is not in the Hazardous Waste Tracking System.

b. On or about August 8, 2002 Zeneca transferred custody of non-RCRA hazardous waste soil contaminated with trace metals and pesticide to Marchbanks Trucking on Manifest No. 21629015. Manifest No. 21629015 is not in the Hazardous Waste Tracking System.

Evidence: Attachment 18, Manifest nos. 21629015 and 21677129, Declaration from Carl Josephson

Witness: Carl Josephson

Corrective Action

Effective immediately, Zeneca shall submit to the DTSC a legible copy of Manifest No. 21677219 and 21629015. In addition, Zeneca shall ensure that in the future legible copies of all manifests used for wastes transported off-site within California are submitted to DTSC within 30 days.

Failure to Make a Hazardous Waste Determination

8. Zeneca violated California Code of Regulations, title 22, section 66262.11 in that Zeneca failed to conduct the required hazardous waste determination on the following treated wastes prior to placement in Subunit 1, to wit:

a. On or about September 18, through November 4, 2002, approximately 12,140 cubic yards of cinders and sediment that were treated with limestone at Zeneca, were not analyzed for total and/or soluble mercury, copper and zinc, prior to placement in Subunit 1. Based on Zeneca's August 3, 2005 letter, response 1.a., Pan testing and random pH testing were conducted on the treated materials. No other chemical analysis was performed.

Evidence: Attachment 12, August 3, 2005 letter, response 1.a.

Witnesses: Eric Brocales and Luz Castillo

b. On or about November 15, 16, 25, and 26, 2002 approximately 122 truckloads of powdered activated carbon treated cinders and sediment from UCRFS and further treated with limestone at Zeneca, were not analyzed for total and/or soluble mercury prior to placement into Subunit 1. Based on Zeneca's August 3, 2005 letter, response 3.a., Pan testing and random pH testing were conducted on the treated materials.

Evidence: Attachment 12, August 3, 2005 letter, response 3.a.

Witnesses: Eric Brocales and Luz Castillo

c. On or about October 11, 18, 23, 25, 28, 31, 2002, November 1 through 3, 2002 and December 5 through 6, 2002, 842 and 66 truckloads of treated soft marsh cinders and sediment from UCRFS, were not analyzed by Zeneca for total and/or soluble mercury, arsenic, copper, zinc and lead, prior to placement into Subunit 1. Based on Zeneca's August 3, 2005 letter, response 2.a., only pH testing was conducted on the materials.

Evidence: Attachment 12, August 3, 2005 letter, response 2.a.

Witnesses: Eric Brocales and Luz Castillo

d. On or about between September 11 and 16, and on October 1, and 2, and on October 21, 22, and 25, 2003, a total of 681 truckloads of treated "Type A materials" from UCRFS, were not analyzed by

Zeneca for total mercury and/or soluble mercury, arsenic, cadmium, copper, and zinc, prior to placement into Subunit 1. Based on UCB's letter dated November 4, 2005, response 2.1.3, only pH levels were tested prior to shipment and placement into Subunit 1.

Evidence: Attachment 15, UCB' s letter dated November 5, 2004, response 2.1.3., and Table 1 (Appendix A)

Witnesses: Eric Brocales and Luz Castillo

e. On or before September 8 to September 10, 2003, a total of 109 truckloads of treated "UC Berkeley Type A materials" from UCRFS, were not analyzed by Zeneca for total and/or soluble mercury prior to placement into Subunit 1. Based on UCB's letter dated November 4, 2005, response 2.1.3, only pH levels were tested prior to shipment and placement into Subunit 1.

Evidence: Attachment 15, UCB' s letter dated November 5, 2004, response 2.1.3., and Table 1 (Appendix A)

Witnesses: Eric Brocales and Luz Castillo

Corrective Action

Zeneca shall coordinate with the DTSC Northern California Clean-up Operations Coastal Branch, to determine the appropriate sampling and analysis methods required for the removal and/or restoration actions for the Subunit 1 areas.

D. ATTACHMENTS[1]

1. Complaint Log No. 05-0405-0173
2. Complaint Log No. 05-035-0132
3. Maps of Zeneca, Site Location and MSOUs
4. Site Cleanup Order Nos. 01-101 and 01-102
5. UCB Response Letter to DTSC dated August 2, 2006
6. DTSC Information Request Letter dated July 6, 2006 to UCB
7. UCB Response Letter to DTSC dated November 20, 2006
8. Phase I Implementation Report
9. Phase II Implementation Report
10. DTSC Information Request Letters to Zeneca dated July 1, 2005, July 19, 2005, July 6, 2006 and October 25, 2006
11. DTSC Information Request Letters to CSV dated July 6, 2006 and October 25, 2006

[1] Due to the volume of documents submitted to DTSC, only records referenced in the investigation report are included in Attachments 5, 7, 8, 9, 12, 14, 15, and 16.

12. John Edgcomb Response Letters to DTSC dated August 3, 2005, August 11, 2006 and November 20, 2006
13. RWQCB Letters dated September 12, 2003 and September 9, 2004 provided to DTSC by UCB
14. Response to DTSC dated January 13, 2006
15. Response to DTSC dated November 4, 2005
16. Response to DTSC dated June 30, 2005
17. Summary of Violations
18. Declaration from Carl Josephson

E. SIGNATURES

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