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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF CRIMINAL ENFORCEMENT, FORENSICS AND TRAINING
NATIONAL ENFORCEMENT INVESTIGATIONS CENTER
P.O. BOX 25227, DENVER FEDERAL CENTER
DENVER, COLORADO 80225

January 17, 2006

MEMORANDUM

SUBJECT: Transmittal of Final Report – “Multimedia Compliance Investigation: Phase 1”
Chemical Waste Management, Inc.
Kettleman Hills, CA
NEIC Project No.: VP0686

FROM: Diana A. Love, Esq. *Kenyon Dax*
Director, NEIC

TO: Christopher Rollins
Environmental Scientist, Toxics Section
US EPA Region 9

Attached is a report for the subject case. If there are any questions, please contact Don Smith at (303) 462-9111.

Attachment

cc: Gene Lubieniecki, Civil Program Coordinator, NEIC
K.E. Nottingham, Chief, Laboratory Branch, NEIC
Don Smith, Project Leader, NEIC

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement and Compliance Assurance
Office of Criminal Enforcement, Forensics and Training

ENFORCEMENT CONFIDENTIAL

NEIC VP0686E02

MULTIMEDIA COMPLIANCE INVESTIGATION: PHASE 1

Chemical Waste Management, Inc.
Kettleman City, California
NEIC Project No.: VP0686

January 2006

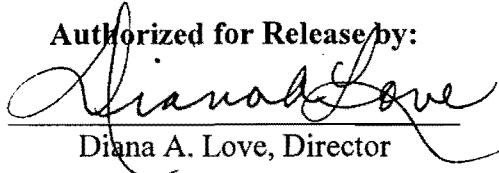
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NATIONAL ENFORCEMENT INVESTIGATIONS CENTER
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The Contents shows all information contained in this report and provides a clear indication of the end of the report.

EXECUTIVE SUMMARY

INTRODUCTION

At the request of U.S. EPA Region 9, the National Enforcement Investigations Center (NEIC) conducted the first phase of a focused multimedia compliance investigation of the Chemical Waste Management, Inc. Kettleman Hills Facility, 35251 Old Skyline Road, Kettleman City, California. The Chemical Waste Management, Inc., Kettleman Hills Facility (CWM-KHF) is located in western Kings County, California, in the Kettleman Hills, which borders the west side of the San Joaquin Valley, approximately 2.6 miles west of the Interstate 5 and State Route 41 intersection. The facility is located at North Latitude 35° 57' 48.78" and West Longitude 120° 00' 21.45". Environmental monitoring, waste treatment, and waste management operations for the facility are regulated by environmental permits and regulations administered by U.S. EPA, the California Environmental Protection Agency Department of Toxic Substances Control (DTSC), and the California Regional Water Quality Control Board, Central Valley Region.

The overall objective of the investigation is to determine compliance with waste management regulations under the Toxic Substances Control Act (TSCA), the Resource Conservation and Recovery Act (RCRA), and the Clean Air Act (CAA) requirements at the facility. The investigation is being conducted in several phases, the first of which was an on-site laboratory audit conducted on August 22 and 23, 2005. The primary objective of the first site visit was to assess laboratory analytical and sample handling practices for consistency with required protocols specified in the facility's federal TSCA permit. During the first site visit, NEIC personnel also performed a reconnaissance of the facility's RCRA hazardous waste, solid waste, and TSCA waste management units; waste acceptance protocols; and waste and environmental data management systems.

SUMMARY OF FINDINGS

This section summarizes the areas of noncompliance and concern from NEIC's review of sampling and analytical records of the facility's groundwater and leachate environmental monitoring activities for PCBs (polychlorinated biphenyls). The areas of noncompliance and areas of concern summarized here are described in detail in the "Toxic Substances Control Act Sampling and Analysis Audit" section of this report.

Areas of Noncompliance

1. **40 CFR § 761.75(b)(7)** – *The leachate should be either treated to acceptable limits for discharge in accordance with a State or Federal Permit or disposed of by another State or Federally approved method. Water Analysis shall be conducted as provided in paragraph (b) (6) (iii) of this section.*

The instrument used by CWM-KWF for PCB analyses did not achieve the required detection limit or accuracy to determine whether the concentration of PCBs in samples of leachate that were disposed in the surface impoundments exceeded the appropriate limits. Leachate from the landfill B18 is listed as F039. The wastewater treatment standard for total PCBs in F039 wastes is 0.10 mg/L, as specified in 40 CFR § 268.40. In addition, section C (1) of the 1990 and 1992 Amendment to the Approvals to Operate Landfills B-14, B16, and B19, and the 1992 Amendment adding B-18, requires CWM-KHF to analyze all leachate samples for PCBs. According to the Amendments, CWM-KHF may discharge the liquid to surface impoundments only if the concentration of PCBs is less than or equal to 50 mg/L.

Areas of Concern

- A. The calibration curve used for Aroclor analysis did not meet the acceptance criteria specified in Section 7.5.2 of SW-846 Method 8082. The method requires that the correlation coefficient for a five-point calibration curve be at least 0.99. The sample analyses evaluated were based on a calibration curve with a correlation coefficient of 0.9465. This calibration curve was prepared on September 2, 2004, and has been the only one used by the laboratory for PCB analysis through the date of this inspection, August 23, 2005.
- B. For the analyses performed on February 27, 2005 and April 27, 2005, the laboratory reported a detection limit of 0.0003 milligrams per liter (mg/L). This detection limit is based on the lowest concentration standard in the corresponding calibration curve, 0.025 mg/L. However, the calibration curve that corresponds to these analyses indicates that there was no response for the first three standards of the five-point calibration curve. The lowest concentration standard that shows a response for the Aroclors is the 0.5 mg/L standard. Using the 0.5 mg/L standard as the low standard, the actual detection limit is at least 20 times higher than reported or 0.005 mg/L.
- C. Section 7.6.5 of SW-846 Method 8000 requires that a laboratory establish acceptance limits for retention times for each analyte determined by gas chromatography (GC). The retention times for the five Aroclor peaks of interest shifted by nearly 2 minutes between the analysis of the calibration standards and the samples analyzed on April 27, 2005.
- D. The laboratory did not develop acceptance criteria for surrogate recoveries, as required in Section 8.7 of SW-846.
- E. The laboratory did not evaluate the daily check standard as required in Sections 7.7.3 and 7.6.6 of SW-846 Method 8000. For the results generated on April 17, 2005, the recovery for the daily check sample was 350 percent. SW-850 method 8000 requires that the recovery be with 15 percent of result for the mid-point initial calibration standard.

INSPECTION ACTIVITIES

REGULATORY BACKGROUND

CWM-KHF is a commercial hazardous waste treatment, storage, and disposal facility (TSDF). The facility is currently authorized under State Permit Number 02-SAC-03 to treat, store, and dispose of hazardous wastes, and conduct certain management activities on PCB-bearing wastes. The permit became effective June 16, 2003 and expires on June 16, 2013. The facility also has a permit, issued by the California Integrated Waste Management Board, to receive municipal/solid wastes into the converted landfill, Unit B-19. EPA issued a TSCA permit on June 29, 1981 approving the disposal of non-liquid PCB waste at the facility. The TSCA permit was amended on several occasions, primarily to add landfill cells, and is currently being prepared for reissuance by U.S. EPA Region 9. CWM-KHF conducts the following regulated activities: solar evaporation in three surface impoundments; disposal into two hazardous waste landfills; PCB draining and flushing; PCB disposal and storage; and stabilization, solidification, and storage of bulk and drummed wastes.

Chemical Waste Management (EPA ID number CAT 000 646 117) is classified as an operating TSDF and a large quantity generator. The facility was last inspected by DTSC for RCRA compliance in November 2004. No findings resulted from that inspection. EPA also issued an administrative penalty action under TSCA on May 3, 2005 for failure to monitor three lysimeters for PCBs.

ON-SITE INSPECTION SUMMARY

Overview

NEIC conducted an on-site inspection of the CWM-KHF facility on August 22 and 23, 2005. Personnel from the U.S. EPA Region 9 and California DTSC also participated in the inspection. Credentials were presented to Mr. Paul Turek, the CWM-KHF Environmental Manager. The NEIC team met with CWM-KHF management personnel including Bob Henry, the CWM-KHF Director of Operations, who described facility operations including waste acceptance, processing, and disposal. The discussion also included a review of the CWM-KHF groundwater program, leachate sampling and analysis, and waste tracking. Following the initial meeting, NEIC conducted a facility tour which included the PCB storage area, surface impoundments, landfill B-18, and the Final Stabilization Unit (FSU). After the general tour, NEIC conducted a review of waste management records, including waste transfer logs, manifests, the Waste Analysis Plan, and TSCA monthly monitoring reports. The NEIC team also visited leachate and storm water collection points where sampling, required under the TSCA permit, had been recently performed. During the inspection,

leachate sampling was not performed by CWM-KHF. To evaluate sampling protocols, NEIC conducted interviews with Mr. Jim Sook, CWM-KHF Technical Manager and Mr. Paul Turek. Follow-up phone discussions were also conducted with Mr. Sook and Mr. Turek to gather more details on TSCA required sampling.

During the inspection, an audit of the PCB analytical process was conducted. This was accomplished by visiting the CWM-KHF on-site laboratory and conducting interviews with Mr. Sook and CWM-KHF laboratory personnel.

NEIC personnel also conducted a reconnaissance visit to obtain a general overview of the facility waste management units, their regulatory status, and waste acceptance and management systems including sampling and analysis. This was accomplished by reviewing documents such as laboratory standard operating procedures, laboratory analytical reports, and Quality Assurance Plans related to non-TSCA sampling and analysis. The information gathered during the reconnaissance visit is being used to design additional compliance evaluation visits to the facility. The NEIC inspection team also conducted a review of TSCA groundwater monitoring data supplied by the company. Upon completion of the on-site inspection, the NEIC inspection team briefed US EPA Region 9 and DTSC representatives regarding preliminary areas of concern. An exit conference was held with the company after the inspection to discuss NEIC's preliminary findings.

Toxic Substances Control Act Sampling and Analysis Audit

As required by 40 CFR § 761.75 and Appendix C of the 1990 Amendment to the Approvals to Operate Landfills B-14, B-16, and B-19, and the 1992 Approval adding B-18, issued by U.S. EPA Region 9, leachate from the leachate collection and removal system (LCRS) must be monitored monthly for the quantity and physiochemical characteristics of leachate produced. The leachate is required to be either treated to acceptable limits for discharge in accordance with a state or federal permit, or disposed of by a state or federally approved method. Before leachate from landfill B-18 or B-19 can be transferred to one of the surface impoundments, it is tested for PCB concentration and a number of screening parameters such as pH, ignitability, sulfide, cyanide, and an oxidizer screen.

Sampling and analysis for PCBs is also required for groundwater monitoring wells installed at a TSCA-permitted landfill. 40 CFR § 761.75(b)(6)(iii), and the TSCA permit require that at a minimum, all samples from such wells be analyzed for the following parameters.

- PCBs
- pH
- Specific conductance

- Chlorinated organics

Leachate Analysis

The 1990 Amendment to the Approvals to Operate Landfills B-14, B-16, and B-19, and the 1992 Amendment adding B-18, issued by U.S. EPA Region 9, granted a limited waiver to CWM-KHF to allow the substitution of RCRA SW-846 Methods 8240, 8270, 8080, 9060, 9050, and other methods as required, for the 40 CFR Part 136 methods that are specified in 40 CFR 761.75(b)(6)(iii). Attachment C of the amendment also requires sampling and analysis of leachate, run-on, and accumulated precipitation removed from landfill B-19 and landfill B-16. The same section of the amendment requires that CWM-KHF obtain at least three samples of leachate from the bottom, middle, and top third of all tanks, containers, or vacuum truck and analyze each sample for PCBs. If the concentration of PCBs in all three samples is less than 50 mg/L, the contents of the tanks may be discharged to one of the surface impoundments.

According to Paul Turek, CWM-KHF Environmental Manager, the greatest volume of leachate accumulates after periods of heavy rain, usually December through February. After searching their meteorological data for such a period of high precipitation, CWM-KHF personnel provided the NEIC inspection team with results of sampling performed in the spring of 2005. To evaluate the process, the NEIC inspection team members, Don Smith and Christine Alvarez, visited the sampling locations and the CWM-KHF analytical laboratory on Wednesday, August 24, 2005. NEIC photographs of the laboratory and sampling locations are included in Appendices A and B respectively. Compliance with the permit requirements for sampling and analysis of the leachate was examined by evaluating the handling of samples taken on February 16, 2005 and April 27, 2005. These two sets of samples, taken from the leachate collection system for PCB analysis, were from tanks containing leachate from landfills B-18 and B-19. After analysis, the leachate from these tanks was transferred to the surface impoundments, P-9 and P-16. According to Mr. Turek, the samples were taken using a stainless steel bomb from the top, middle, and bottom sections of the leachate storage tanks.

During the laboratory inspection, the NEIC inspection team interviewed Phil Acosta, the CWM-KHF Lab/Receiving Supervisor and Dan Larkin, Chemist. Mr. Larkin described the process for receiving and logging samples requiring PCB analysis at the CWM-KHF. The NEIC inspection team was also provided with copies of the CWM-KHF Standard Division Practice (SDP) documents used to train laboratory personnel on analytical procedures, including PCB analysis. These documents were reviewed for consistency with SW-846 Methods 3510, 8000, and 8082.

Immediately after sampling, the samples of leachate are delivered to the laboratory by a sampling technician. Aqueous samples requiring PCB analysis are taken in three, 1-liter, amber, glass jars. When the samples arrive, a laboratory technician or chemist signs the waste transfer log to indicate receipt of the samples. After receipt, relevant sample information, such as the date sampled, laboratory identification, waste manifest number, and waste profile identification, is entered into an internal tracking spreadsheet.

After receipt and log-in, the samples are transferred to the extraction lab. There, they are extracted with methylene chloride using a separatory funnel. Two surrogates, tetrachloro-m-xylene and decachlorobiphenyl, at 0.25 mg/L in acetone, are added to the samples prior to extraction. Matrix spike/matrix spike duplicates of Aroclor 1254, at 2.5 mg/L in acetone, are also added to two, 1,000- gram portions of the samples. A method blank and a method quality control (QC) sample of Aroclor 1254, at 5.0 mg/L, are extracted with each batch of samples. The methylene chloride extracts are dried and exchanged to hexane during concentration to a volume of 10 milliliters. This result is an overall concentration factor of 100X. At this point, the samples are ready for gas chromatographic analysis for PCBs.

The sample extracts are transferred from the extraction laboratory to the GC laboratory for analysis with a dual column, Agilent 6890 GC equipped with an electron capture detector (ECD). The GC/ECD is calibrated using a mixture of Aroclors analyzed at five concentration levels following SW-846 method 8082. According to records provided by CWM-KHF personnel, this instrument was calibrated for Aroclors on September 2, 2004 using a mixture of Aroclor 1016 and Aroclor 1260. The correlation coefficient for this calibration curve was 0.9465. The method requires that the correlation coefficient for the five-point calibration curve be at least 0.99 [**Area of Concern (AOC) A**]. The same calibration curve indicates that there was no response for the first three standards of the five-point calibration curve. The lowest concentration standard that shows a response for the Aroclors is the 0.5 mg/L standard. Since the laboratory based their detection limit on the concentration of the lowest point in the calibration curve, the actual detection limit is at least 20 times higher than reported or 0.005 mg/L instead of 0.0003 mg/L [**AOC B**].

Comparison of the chromatographs for the calibration standards and the analysis conducted on April 27, 2005 indicate a shift in the retention time of nearly 2 minutes. Section 7.6.5 of SW-846 Method 8000 requires that a laboratory establish acceptance limits for the retention times for each analyte. At the time of analysis, CWM-KHF personnel had not developed these acceptance limits and, therefore, could not know whether the 2-minute shift was acceptable [**AOC C**]. Section 8.6 of SW-846 method 8000 requires the laboratory to establish acceptance limits for surrogate recoveries

and that the sample results be evaluated and re-analyzed if necessary. CWM-KHF laboratory personnel document the surrogate recovery but do not evaluate the recovery against known acceptance limits [AOC D].

In order to demonstrate a calibration relationship comparable to the initial calibration, a 0.5 mg/L Aroclor standard is analyzed prior to each run. The acceptance criteria specified in Section 7.7 of SW-846 Method 8000 for initial calibration verification is that the calibration check must be within 15 percent of the initial calibration result. If the result is outside this range, a new calibration curve should be prepared. The CWM-KHF laboratory has established acceptance criteria based upon ± 15 percent of the total peak area of the 0.5 mg/L initial calibration standard. For the analyses performed on April 27, 2005, the total peak area for the 0.5 mg/L standard was 350 percent higher than the acceptance limit [AOC E]. CWM-KHF personnel explained that re-analysis of the samples was not necessary since Aroclors were not detected in the samples during this run. This assessment is based on their assumption that the high results from the initial calibration verification standard demonstrated that an analyte would have been detected, if present.

Groundwater Analysis

Samples from the groundwater monitoring wells are collected by a sampling technician and shipped to an off-site laboratory. Recently, these samples have been shipped to Severn Trent Laboratory (STL) in Arvada, Colorado. These samples are analyzed by STL for a number of parameters in addition to those required under TSCA. The results are then sent to a contractor, Geomatrix in Fresno, California. Geomatrix summarizes the quality control issues associated with each analysis and writes a report for CWM-KHF. During the site visit, CWM-KHF personnel provided the NEIC inspection team with electronic copies of both the STL reports and the Geomatrix groundwater report. The NEIC inspection team was also provided with a database containing all groundwater monitoring results generated since 1985. This database was queried for recent detections of Aroclors in the groundwater monitoring wells. Using this subset of analyses, the associated laboratory reports for these TSCA compliance samples were examined for compliance with EPA SW-846 Method 8082.

The laboratory reports issued by STL contain a summary of quality control issues associated with each batch of groundwater samples analyzed. These summaries include evaluations of sample shipping and holding times, plus QC parameters such as matrix spike/matrix spike duplicate recoveries and precision, method blank results, and laboratory control sample (LCS) recoveries. NEIC's review of these results and QC summaries indicate that the quality control measures being performed by STL, Arvada are adequate to demonstrate that acceptable analytical precision, bias, and

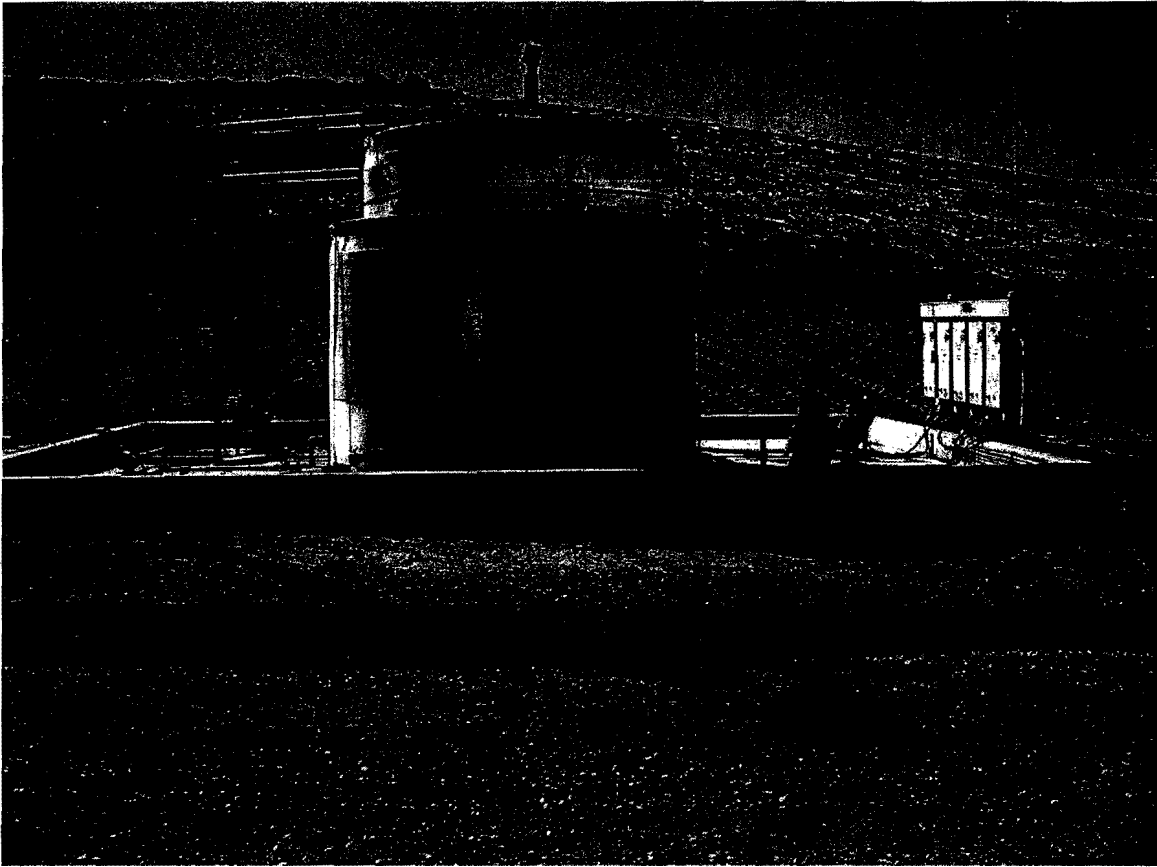
detection limits are being attained to support the analytical requirements of the CWM-KHF TSCA permit and TSCA regulation.

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APPENDIX A
PHOTOGRAPHS OF THE CWM LABORATORY
(2 pages)



Photograph of the CWM Agilent 6890 Gas Chromatograph



Leachate collection point for landfill B-18

APPENDIX B

CWM CALIBRATION DATA FROM SEPTEMBER 4, 2004
AND DAILY CHECK STANDARD FROM APRIL 27, 2005
(2 pages)

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VPO686

5 POINT CALIBRATION

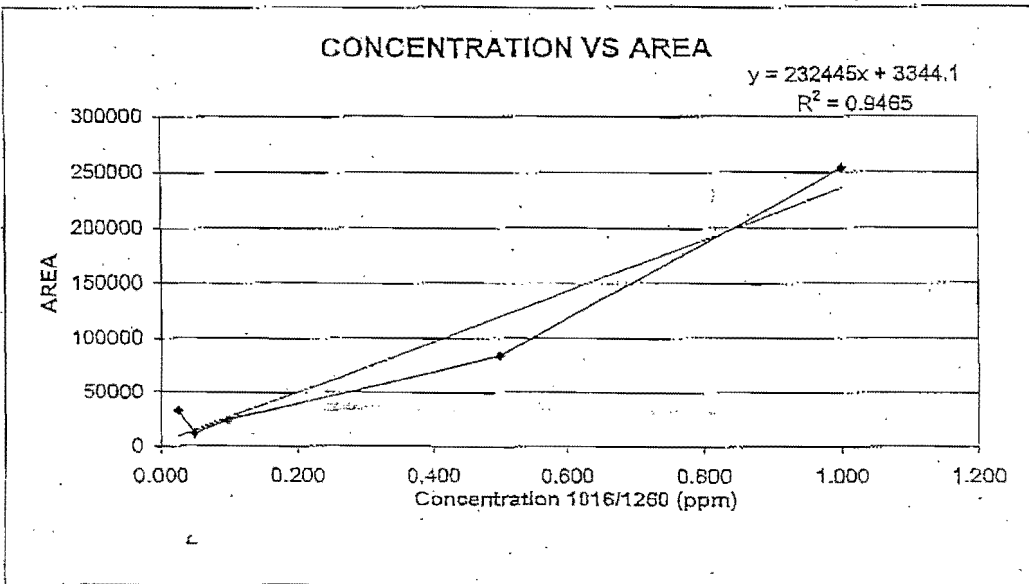
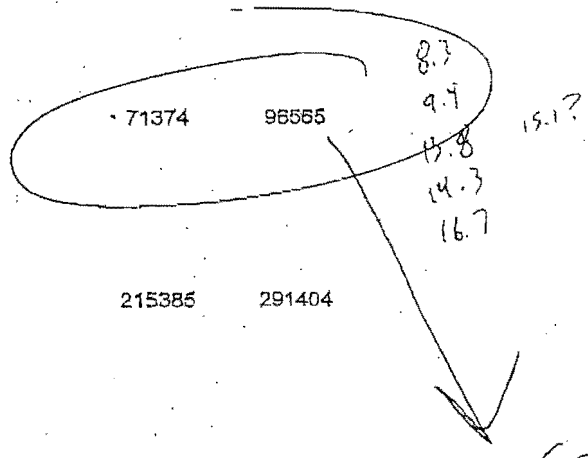
INSTRUMENT: HEWLETT PACKARD 6890 COLUMN A

DATE: 09/02/04

ANALYST: TL

AROCOR 1016/1260

STD CONC.	PEAK RT	AREA	RF	AVG CF	LCL (-15%)	UCL (+15%)	%RSD
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	7.781	2498	99929				
	12.476	5542	221664				
	12.980	11483	459321				
	15.654	11120	444805				
	SUM=	32654	1306153				
0.05	6.438	1508	30154		10051	13598	
	7.778	2992	59845				
	12.472	1820	36404				
	12.975	2585	51694				
	15.643	2919	58386				
	SUM=	11824	236483				
0.10	6.434	3240	32402		20591	27859	
	7.776	6563	65629				
	12.469	3366	33662				
	12.971	4214	42140				
	15.640	6842	68417				
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0.50	6.434	10515	21031		71374	96565	
	7.774	21525	43050				
	12.468	11389	22778				
	12.970	13719	27439				
	15.628	26820	53641				
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1.00	6.433	33781	33781		215385	291404	
	7.772	67712	67712				
	12.467	34736	34736				
	12.968	37511	37511				
	15.635	79655	79655				
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Control
limits
area sum
+/- 15%

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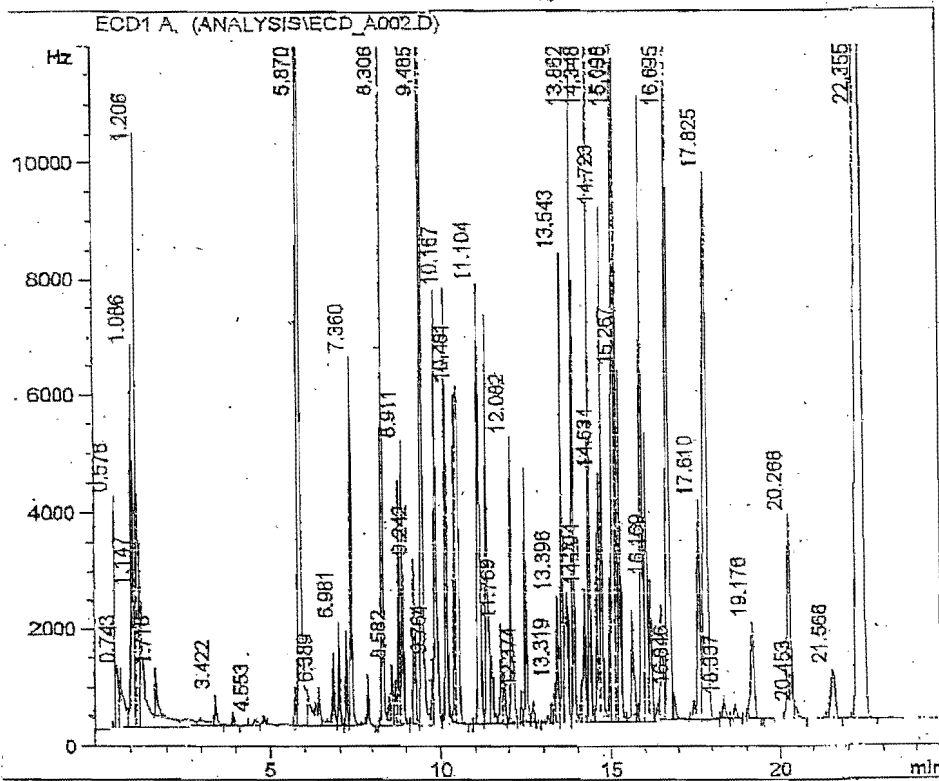
sample Name: CV

1

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Injection Date : 4/27/2005 10:37:04 AM Seq Line : 2
 Sample Name CV Vial No. : 2
 Sample Info : Inj. No. : 1
 Inj. Vol. : 2 ul
 Dilution : 1

Acq. Method : 8082.M
 Analysis Method : C:\HPCHEM\1\METHODS\8082.M
 Last Changed : Fri, 15. Apr. 2005, 11:09:08 am



Report Style: KHF_LAB Report

Aroclor Name: 1616-1260

Concentration: 0.50 mg/kg

Surrogate Recovery: N/A

Analyst: D1 4/27/05

TA = 338014

RT [min]	Sig	Type	Area
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0.743	ECD1 A	WV	8527.065
1.086	ECD1 A	WV	23044.740
1.147	ECD1 A	WV	6261.199
1.206	ECD1 A	WV	23354.963
1.285	ECD1 A	VB	34910.938
1.713	ECD1 A	WV	3882.022

