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The file name refers to the reference number, the AP42 chapter and section. The file name "ref02_c01s02.pdf" would mean the reference is from AP42 chapter 1 section 2. The reference may be from a previous version of the section and no longer cited. The primary source should always be checked.

Background Report Reference

AP-42 Section Number: 9.5.3

Background Chapter: 4

Reference Number: 1

Title: Emission Testing at the Darlings
Delaware Rendering Plant, Fresno, CA

Prepared by, Genesis Environmental
Services Company

July 1990



DARLINGS DELAWARE COMPANY
8737 KING GEORGE DRIVE, SUITE 200
DALLAS, TEXAS 75235

DARLINGS DELAWARE COMPANY
RENDERING PLANT
FRESNO, CALIFORNIA

EMISSION TESTING
JULY 30 & 31, 1990

PREPARED BY:
GENESIS ENVIRONMENTAL SERVICES COMPANY
1145 WEST COLUMBUS AVENUE
BAKERSFIELD, CALIFORNIA 93301

REPORT # 7777-0190

TEST CONDUCTED BY MICHAEL L. BAKALOR
RESULTS VERIFIED BY MICHAEL L. BAKALOR
OPERATIONS MANAGER

Table of Contents

	Page
Section 1 - Introduction	1
Section 2 - Sampling Procedures	7

Appendix

A-1 Coast to Coast Results
A-2 Chain of Custody
A-3 Raw Data

Introduction

At the request of Mr. Mike Koewler of Darlings Delaware Company, Genesis Environmental Services conducted a series of emission tests at Darlings Delaware's rendering plant, located at 2354 Fruit Avenue, Fresno, California.

The purpose of this testing was to determine if a specific group of compounds were present at various point sources in the plant operation process. The four locations and their descriptions are Scrubber #1, a 75K Environmental Research Corporation wet scrubber, Scrubber #2, a 100K Stordbartz wet scrubber and a Waste Heat Incinerator (inlet and outlet), manufactured by Spencer Boiler Manufactures.

The 1990 Annual Compliance Test was conducted on July 30 & 31, 1990, by Mr. Michael Bakalor, Mr. Patrick Young and Mr. Kevin Orton of Genesis Environmental. Darlings Delaware representative Mr. Mike Koewler was present during the testing.

Table 1-1 is contains a summary of results from Scrubber #1 outlet. Table 1-2 contains a summary of results from Scrubber #2 outlet. Table 1-3 contains a summary of results from the Incinerator outlet. Table 1-4 contains a summary of results from the Incinerator inlet. Figure 1-1 contains calculations used to determine the results. The following is a summary of tests performed at Darlings Delaware.

Test Summary Darlings Delaware July 30 & 31, 1990

<u>Constituent</u>	<u>Quantity</u>	<u>Analytical Method</u>
Trace Organics	Single	EPA TO-14 GC/MS
Formaldehyde	Single	CARB Method 430
Mercaptans	Single	EPA TO-14 GC/MS
Amines	Single	Gastec Detector Tube
Organic Acids	Single	CARB Method 421
C ₂ -C ₁₀ Hydrocarbons	Single	GC/FID

Genesis Environmental performed the sample collection of the above listed constituents. Coast to Coast Analytical Services performed analysis and sample train reagent preparation for the above listed methods.

TABLE 1-1
SUMMARY OF TEST RESULTS
SCRUBBER #1 OUTLET

Trace Organics

Acetone	9.7 ppm
Benzene	< 0.10 ppm
2-Butanone(MEK)	< 0.10 ppm
Chloroethane	< 0.10 ppm
Chloroform	< 0.10 ppm
Chloromethane	< 0.10 ppm
Dichloromethane	< 0.10 ppm
Ethylbenzene	< 0.10 ppm
Toluene	< 0.10 ppm
1,1,1-Trichloroethane	< 0.10 ppm
Trichloroethane(TCE)	< 0.10 ppm
Xylenes	< 0.10 ppm

Organic Acids

Propionic Acid	19.7 ppm
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Hydrocarbons C₂ - C₁₀

Ethane	< 10.0 ppm
Propane	< 10.0 ppm
Butane	< 10.0 ppm
Isobutane	< 10.0 ppm
Pentanes	< 10.0 ppm
Hexanes	< 10.0 ppm
C ₆ H14 Hexanes	< 1.0 ppm
C ₆ H12 Hexanes	< 1.0 ppm
C ₇ H16 Heptanes	< 1.0 ppm
C ₇ H14 Heptanes	< 1.0 ppm
C ₈ H18 Octanes	< 1.0 ppm

Mercaptans

Not Detected

Formaldehydes

< 1.0 ppm

NOTE: All other constituents not listed above are detailed in Appendix A-1, were found to be not detected.

TABLE 1-2
SUMMARY OF TEST RESULTS
SCRUBBER #2 OUTLET

Trace Organics

Acetone	< 0.10 ppm
Benzene	< 0.10 ppm
2-Butanone(MEK)	< 0.10 ppm
Chlorobenzene	< 0.10 ppm
Chloroethane	< 0.10 ppm
Chloroform	< 0.10 ppm
Chloromethane	< 0.10 ppm
Dichloromethane	< 0.10 ppm
Ethylbenzene	< 0.10 ppm
4-Methyl-2-Pentanone(MIBK)	< 0.10 ppm
Steryne	< 0.10 ppm
Toluene	< 0.10 ppm
1,1,1-Trichloroethane	< 0.10 ppm
Xylenes	< 0.10 ppm

Organic Acids

Propionic Acid	11.6 ppm
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Hydrocarbons C₂ - C₁₀

Ethane	< 10.0 ppm
Propane	< 10.0 ppm
Butane	< 10.0 ppm
Isobutane	< 10.0 ppm
Pentanes	< 10.0 ppm
Hexanes	< 10.0 ppm
C ₆ H14 Hexanes	< 1.0 ppm
C ₆ H12 Hexanes	< 1.0 ppm
C ₇ H16 Heptanes	< 1.0 ppm
C ₇ H14 Heptanes	< 1.0 ppm
C ₈ H18 Octanes	< 1.0 ppm

Mercaptans

Not Detected

Formaldehydes

< 1.0 ppm

Amines

Not Detected

NOTE: All other constituents not listed above are detailed in Appendix A-1, were found to be not detected.

TABLE 1-3
SUMMARY OF TEST RESULTS
INCINERATOR OUTLET

Trace Organics

Benzene	0.16 ppm
2-Butanone(MEK)	< 0.10 ppm
Chloroform	< 0.10 ppm
1,2-Dichloroethane	< 0.10 ppm
Ethylbenzene	< 0.10 ppm
Toluene	< 0.10 ppm
Xylenes	< 0.10 ppm

Organic Acids

Propionic Acid	66.8 ppm
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Hydrocarbons C₂ - C₁₀

Ethane	< 10.0 ppm
Propane	< 10.0 ppm
Butane	< 10.0 ppm
Isobutane	< 10.0 ppm
Pentanes	< 10.0 ppm
Hexanes	< 10.0 ppm
C ₆ H14 Hexanes	< 1.0 ppm
C ₈ H12 Hexanes	< 1.0 ppm
C ₇ H16 Heptanes	< 1.0 ppm
C ₇ H14 Heptanes	< 1.0 ppm
C ₈ H18 Octanes	< 1.0 ppm

Mercaptans

Not Detected

Formaldehydes

< 1.0 ppm

Amines

Not Detected

NOTE: All other constituents not listed above are detailed in Appendix A-1, were found to be not detected.

TABLE 1-4
SUMMARY OF TEST RESULTS
INCINERATOR INLET

Trace Organics

Acetone	1.0 ppm
Benzene	< 0.10 ppm
Bromodichloromethane	< 0.10 ppm
Bromoform	< 0.10 ppm
2-Butanone (MEK)	0.19 ppm
Chlorobenzene	< 0.10 ppm
Chloroform	< 0.10 ppm
Dichloromethane	< 0.10 ppm
Ethylbenzene	< 0.10 ppm
Styrene	< 0.10 ppm
1,1,2,2-Tetrachloroethane	< 0.10 ppm
Toluene	< 0.10 ppm
1,1,1-Trichloroethane	< 0.10 ppm
Xylenes	< 0.10 ppm

Organic Acids

Propionic Acid	155.8 ppm
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Hydrocarbons C₂ - C₁₀

Ethane	< 10.0 ppm
Propane	< 10.0 ppm
Butane	< 10.0 ppm
Isobutane	< 10.0 ppm
Pentanes	< 10.0 ppm
Hexanes	< 10.0 ppm
C ₆ H ₁₄ Hexanes	< 1.0 ppm
C ₆ H ₁₂ Hexanes	< 1.0 ppm
C ₇ H ₁₆ Heptanes	< 1.0 ppm
C ₇ H ₁₄ Heptanes	< 1.0 ppm
C ₈ H ₁₈ Octanes	< 1.0 ppm

Mercaptans

Not Detected.

Formaldehydes

< 1.0 ppm

Amines

29.0 ppm

NOTE: All other constituents not listed above are detailed in Appendix A-1, were found to be not detected.

Figure 1-1

Calculations of Results

$$Vm(Std) = Vm Y \left[\frac{I_{Std}}{T_a} \right] \left[\frac{P_{bar}}{P_{Std}} + \frac{\Delta H}{13.6} \right] = K_1 V_m Y \left[\frac{P_{bar}}{T_a} + \frac{\Delta H}{13.6} \right]$$
$$= K_1 = 17.38 \text{ } ^\circ R/Hg @ 520^\circ R$$

$$\text{Cubic Meters} = Vm(Std) * 0.028317$$

$$\text{PPM v} = \frac{\text{ug/cu. m} * 22.4}{\text{MW}} * .001$$

Formaldehyde Calculation

$$\frac{\text{ug/L} * \text{total volume ml}}{1000} = \text{Total ugs}$$

$$\frac{\text{ugs}}{\text{cu. m}} = \text{ug/cu. m}$$

Organic Acids Calculation

$$\frac{\text{Total mg} * .001}{\text{cu. m}} = \text{ug/cu. m}$$

Section 2.0
Sampling Procedures

Section 2.0

Collection of Samples

Trace Organics, Mercaptans and Hydrocarbons

The sampling protocol used to collect the Tedlar bag samples follow procedures as outlined in CARB method 422 and similar CARB methods. Figure 2-1 contains a picture of the Nutech sample train used and a detailed diagram of that sample train.

The sample train consisted of a rigid vacuum canister, sample pump module, Tygon sample line, a 50 liter Tedlar sample bag and a stainless steel sample probe.

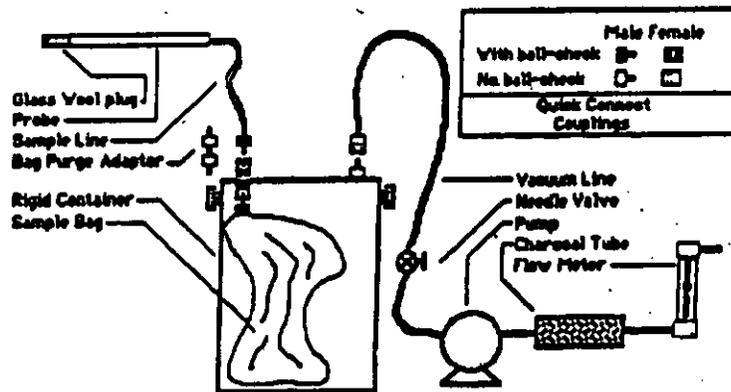
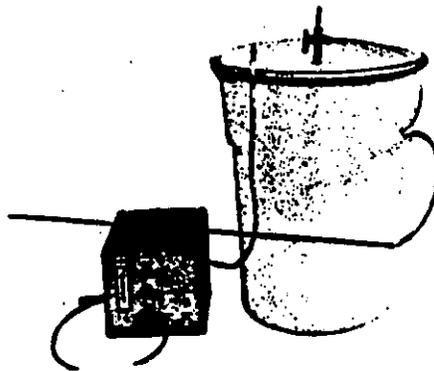
Each sample bag was identified with a lab number at the beginning of each test run. Appendix A-2 contains the chain of custody sheet that all samples were entered onto. Once the sample train was assembled and leak checked, the sample bag was purged with sample and evacuated twice before the actual sample was collected. Sample collection consisted of a thirty minute collection time at a constant sample rate.

The following is a list of procedures followed for each sample run:

1. Stainless steel sample probe cleaned three times with acetone and distilled water and dried with nitrogen.
2. New Tygon sample line used on each test run.
3. New Tedlar sample bag used on each test run.
4. All non-replaceable stainless steel connections cleaned three times with acetone and distilled water.
5. After the sample has been collected the Tedlar sample bag is placed in a black plastic bag to protect from any sunlight.

Figure 2-1
INTEGRATED BAG SAMPLER
 (lung system)

includes probe, polypropylene knock-out impinger, three-way valve, 50 liter vessel fitted with a Tedlar[®] bag, and control console with pump, flowmeter, and control valve.



Appendix A-1
Coast to Coast Results

Coast-to-Coast
Analytical
Services

Coast-to-Coast
Analytical Services, Inc.
141 Suburban Road
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: 0-2824-2
Collected: 07/30/98
Received: 08/01/98
Tested: 08/01/98
Collected by: M. Orton/P. Young

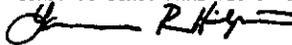
ATTN: Mike Bakalar
Genesis Environmental
1148 W. Columbus Street
Bakersfield, CA 93301

OC/MS AMBIENT AIR ANALYSIS EPA TO-14
Sample Description:
Darlings Delaware-2, Test #6, Scrubber-1,
Outlet #2916, Tedlar Bag, Air

HAZARDOUS SUBSTANCE LIST Compound Analyzed	Detection Limit		Concentration	
	(CAS RN)	ppbv	ug/cu M	ppbv
Acetone	(67641)	2.0	25000.	9700.
Benzene	(71432)	0.2	110.	32.
Bromodichloromethane	(75274)	0.2	not found	not found
Bromomethane	(74839)	0.5	not found	not found
Bromoform	(75252)	0.2	not found	not found
2-Butanone (MEK)	(78933)	0.2	47.	15.
Carbon Disulfide	(75156)	0.5	not found	not found
Carbon Tetrachloride	(56235)	0.2	not found	not found
Chlorobenzene	(108907)	0.2	not found	not found
Chloroethane	(75003)	0.2	15.	5.2
2-Chloroethylvinyl Ether	(118756)	2.0	not found	not found
Chloroform	(67663)	0.2	2.0	0.4
Chloromethane	(187302)	0.2	31.	14.
Dibromochloromethane	(124481)	0.2	not found	not found
1,1-Dichloroethane	(75343)	0.2	not found	not found
1,2-Dichloroethane	(107062)	0.2	not found	not found
1,1-Dichloroethene	(75354)	0.2	not found	not found
c-1,2-Dichloroethene	(156605)	0.2	not found	not found
t-1,2-Dichloroethene	(156605)	0.2	not found	not found
Dichloromethane	(75002)	2.0	24.	0.3
1,2-Dichloropropane	(78875)	0.2	not found	not found
cis-1,3-Dichloropropene	(100010)	0.2	not found	not found
trans-1,3-Dichloropropene	(100010)	0.2	not found	not found
Ethylbenzene	(100041)	0.5	11.	2.3
2-Hexanone	(591786)	0.2	not found	not found
4-Methyl-2-Pentanone (MIBK)	(624839)	0.2	not found	not found
Styrene	(100026)	0.5	not found	not found
1,1,2,2-Tetrachloroethane	(78345)	0.5	not found	not found
Tetrachloroethene (PCE)	(127184)	0.5	not found	not found
Toluene	(108883)	0.5	110.	27.
1,1,1-Trichloroethane (TCA)	(71856)	0.2	5.1	0.9
1,1,2-Trichloroethane	(79005)	0.2	not found	not found
Trichloroethene (TCE)	(79016)	0.2	2.8	0.5
Vinyl Acetate	(108054)	2.0	not found	not found
Vinyl Chloride	(75014)	0.2	not found	not found
Xylenes	(1336207)	0.5	71.	15.

Percent Recovery of Sample-Specific Quality Assurance Spike is: 90.

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES


Laurence R. Hilpert, Ph.D.
Vice President

MSDF1
08/09/98
02824-2.wr1/HSL10
LRH/cr/gd/co

AIR, WATER & HAZARDOUS WASTE LABORATORY (No.151) CERTIFIED by CALIFORNIA DEPT of HEALTH SERVICES

Coast-to-Coast
Analytical
Services

Coast-to-Coast
Analytical Services
141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: 6-2524-14
Collected: 07/28/98 @ 1010
Received: 08/01/98 @ 1030
Tested: As Listed
Collected by: Kevin Orton/Pat Young

ATTN: Mike Bakalar
Genesis Environmental
1145 W. Columbus Street
Bakersfield, CA 93301

Sample Description:
Project: Darlings Delaware-2
2558 Test #4, Scrubber 1
Outlet Impinger, Air
V = 0.265 l

REPORT

CONSTITUENT	CARB METHOD/DATE/ANALYST	DETECTION LIMIT mg (PQL)**	LEVEL FOUND mg
PROPRIONIC ACID	421 08/23/98 ORO	0.5	26.
ISOBUTYRIC ACID	421 08/23/98 ORO	1.	<1.
BUTYRIC ACID	421 08/23/98 ORO	1.	<1.
ISOVALERIC ACID	421 08/23/98 ORO	1.	<1.
VALERIC ACID	421 08/23/98 ORO	2.	<2.

**Practical Quantitation Limit

08/24/98
62524-14.WR1/076
PBI/ko

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES
Mary Havelock
Mary Havelock, Ph.D., President

AIR, WATER & HAZARDOUS WASTE LABORATORY (No.151) CERTIFIED by CALIFORNIA DEPT of HEALTH SERVICES

Coast-to-Coast
Analytical
Services

Coast-to-Coast
Analytical Services
141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 843-2553

Lab Number: 0-2824-13
Collected: 07/30/98 @ 1810
Received: 08/01/98 @ 1030
Tested: As Listed
Collected by: Kevin Orton/Pat Young

ATTN: Mike Bakolor
Genesis Environmental
1145 W. Columbus Street
Bakersfield, CA 93301

Sample Description:
Project: Darlings Delaware-2
2000 Test #A, Scrubber 1
Outlet Line Rinse, Air
V = 5.030 l

REPORT

CONSTITUENT	CARB METHOD/DATE/ANALYST	DETECTION LIMIT ug (POL)**	LEVEL FOUND ug
PROPIONIC ACID	421 08/23/98 ORO SPIKED AT FOUND W/SPIKE PERCENT RECOVERY	0.06	<0.06 3.0 2.8 93.
ISOBUTYRIC ACID	421 08/23/98 ORO SPIKED AT FOUND W/SPIKE PERCENT RECOVERY	0.1	<0.1 3.0 4.2 140.
BUTYRIC ACID	421 08/23/98 ORO SPIKED AT FOUND W/SPIKE PERCENT RECOVERY	0.1	<0.1 3.0 3.0 130.
ISOVALERIC ACID	421 08/23/98 ORO SPIKED AT FOUND W/SPIKE PERCENT RECOVERY	0.1	<0.1 3.0 2.0 97.
VALERIC ACID	421 08/23/98 ORO SPIKED AT FOUND W/SPIKE PERCENT RECOVERY	0.2	<0.2 3.0 3.0 100.

**Practical Quantitation Limit

08/24/98
02824-13.WR1/075
MH/ke

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES
Mary Havlicek
Mary Havlicek, Ph.D., President

AIR, WATER & HAZARDOUS WASTE LABORATORY (No.131) CERTIFIED by CALIFORNIA DEPT of HEALTH SERVICES

Central
Coast
Analytical
Services

Central Coast
Analytical Services
141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: 02824-2
Collected: 07/26/98
Received: 08/01/98
Tested: 08/02/98
Collected by: Orton/Young

Genesis Environmental
1145 W. Columbus Street
Bakersfield, CA 93301

Sample Description:
Project : Darlings Delware-2
Test # 5 Scrubber-1 Outlet #2818

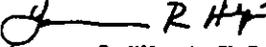
REPORT

METHANE AND C2 - C8 TESTED BY GC/FID

CONSTITUENT	DETECTION LIMIT (ppmv)	LEVEL FOUND (ppmv)
METHANE	20.	80.
ETHANE	10.	<10.
PROPANE	10.	<10.
BUTANE	10.	<10.
ISOBUTANE	10.	<10.
PENTANES	10.	<10.
HEXANES	10.	<10.

FID
08/04/98
028242CH.MR1/fg14
LRH/gd/gd

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES


Laurence R. Hilpert, Ph.D.
Vice President

AIR, WATER & HAZARDOUS WASTE LABORATORY (No. 988131) CERTIFIED by CALIFORNIA DEPT of HEALTH SERVICES

Coast-to-
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Services

Coast-to-Coast
Analytical Services
141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: 0-2824-2
Collected: 07/30/88
Received: 08/01/88
Tested: 08/01/88
Collected by: M. Orton/P. Young

SUPPLEMENTARY REPORT FOR AIR ANALYSIS

ATTN: Mike Sakalor
Genesis Environmental
1145 W. Columbus Street
Bakersfield, CA 93301

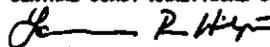
SAMPLE DESCRIPTION:

Darlings Delaware-2, Test #6, Scrubber-1,
Outlet #2010, Tedlar Bag, Air

CONSTITUENT	APPROXIMATE LEVEL ug/cu m
C6 H14 HEXANES	346.
C6 H12 HEXENES	99.
C7 H16 HEPTANES	728.
C7 H14 HEPTENES	236.
C8 H18 OCTANES	286.

MSD#1
08/10/88
02824-2a.wr1/SUP201
LRH/gd/co

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES


Laurence R. Hilpert, Ph.D.
Vice President

Coast-to-Coast
Analytical
Services

Coast-to-Coast
Analytical Services, Inc.
141 Suburban Road
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: G-2024-1
Collected: 07/05/00
Received: 08/01/00
Tested: 08/01/00
Collected by: M. Orton/P. Young

ATTN: Mike Bakalar
Genesis Environmental
1148 W. Columbus Street
Bakersfield, CA 93301

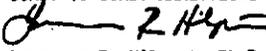
GC/MS AMBIENT AIR ANALYSIS EPA TO-14
Sample Description:
Darlings Delaware-2, Test #6, Scrubber-2,
Outlet #2609, Tedlar Bag, Air

HAZARDOUS SUBSTANCE LIST Compound Analyzed	Detection Limit		Concentration	
	(CAS RN)	ppbv	ug/cu M	ppbv
Acetone	(67641)	2.0	22.	8.5
Benzene	(71432)	0.2	130.	37.
Bromodichloromethane	(75274)	0.2	not found	not found
Bromomethane	(74839)	0.5	not found	not found
Bromoform	(75252)	0.2	not found	not found
2-Butanone (MEK)	(78033)	0.2	23.	7.2
Carbon Disulfide	(75150)	0.5	not found	not found
Carbon Tetrachloride	(56235)	0.2	not found	not found
Chlorobenzene	(108907)	0.2	3.3	0.7
Chloroethane	(75005)	0.2	7.7	2.7
2-Chloroethylvinyl Ether	(110750)	2.0	not found	not found
Chloroform	(67663)	0.2	11.	2.1
Chloromethane	(107502)	0.2	21.	9.3
Dibromochloromethane	(124401)	0.2	not found	not found
1,1-Dichloroethane	(75343)	0.2	not found	not found
1,2-Dichloroethane	(107002)	0.2	not found	not found
1,1-Dichloroethene	(75354)	0.2	not found	not found
c-1,2-Dichloroethene	(158605)	0.2	not found	not found
t-1,2-Dichloroethene	(158605)	0.2	not found	not found
Dichloromethane	(75002)	2.0	26.	6.9
1,2-Dichloropropane	(78075)	0.2	not found	not found
cis-1,3-Dichloropropene	(10061015)	0.2	not found	not found
trans-1,3-Dichloropropene	(10061026)	0.2	not found	not found
Ethylbenzene	(1000414)	0.5	29.	6.1
2-Hexanone	(591780)	0.2	not found	not found
4-Methyl-2-Pentanone (MIBK)	(624830)	0.2	6.0	1.3
Styrene	(1000420)	0.5	3.0	0.8
1,1,2,2-Tetrachloroethane	(79345)	0.5	not found	not found
Tetrachloroethene (PCE)	(127184)	0.5	not found	not found
Toluene	(108883)	0.5	340.	83.
1,1,1-Trichloroethane (TCA)	(71550)	0.2	4.1	0.7
1,1,2-Trichloroethane	(79000)	0.2	not found	not found
Trichloroethene (TCE)	(79010)	0.2	not found	not found
Vinyl Acetate	(108054)	2.0	not found	not found
Vinyl Chloride	(75014)	0.2	not found	not found
Xylenes	(1330207)	0.5	220.	46.

Percent Recovery of Sample-Specific Quality Assurance Spike is: 126.

MSDP1
08/09/00
G2024-1.wr1/MSL10
LRH/gd/gd/co

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES


Laurence R. Hilpert, Ph.D.
Vice President

AIR, WATER & HAZARDOUS WASTE LABORATORY (No.131) CERTIFIED by CALIFORNIA DEPT of HEALTH SERVICES

Coast-to-Coast
Analytical
Services

Coast-to-Coast
Analytical Services
141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 543-2563

Lab Number: 0-2824-15 & 16
Collected: 07/30/98 @ 1600
Received: 08/01/98 @ 1930
Tested: As Listed
Collected by: Kevin Orton/Pat Young

ATTN: Mike Sokalar
Genesis Environmental
1145 W. Columbus Street
Bakersfield, CA 93301

Sample Description:

Project: Darlings Delaware-2
2507 & 2511 Test #3, Scrubber 2
Outlet Line Rinse & Impinger, Air
V = 0.275 l, Composite

REPORT

CONSTITUENT	CARB. METHOD/DATE/ANALYST	DETECTION LIMIT mg (POL)**	LEVEL FOUND mg
PROPRIONIC ACID	421 08/23/98 ORO	0.5	17.
ISOBUTYRIC ACID	421 08/23/98 ORO	1.	<1.
BUTYRIC ACID	421 08/23/98 ORO	1.	<1.
ISOVALERIC ACID	421 08/23/98 ORO	1.	<1.
VALERIC ACID	421 08/23/98 ORO	2.	<2.

**Practical Quantitation Limit

08/24/98
02824-15.WR1/075
MH/ke

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES
Mary Novicek
Mary Novicek, Ph.D., President

AIR, WATER & HAZARDOUS WASTE LABORATORY (No.131) CERTIFIED by CALIFORNIA DEPT of HEALTH SERVICES

Central
Coast
Analytical
Services

Central Coast
Analytical Services
141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: G2824-1
Collected: 07/30/88
Received: 08/01/88
Tested: 08/02/88
Collected by: Orton/Yoong

Sample Description:

Genesis Environmental
1145 W. Columbus Street
Bakersfield, CA 93301

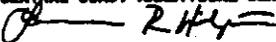
Project : Darlings Delware-2
Test # 5 Scrubber-2 Outlet #2800

REPORT

METHANE AND C2 - C8 TESTED BY GC/FID

CONSTITUENT	DETECTION LIMIT (ppmv)	LEVEL FOUND (ppmv)
METHANE	25.	68.
ETHANE	15.	<15.
PROPANE	15.	<15.
BUTANE	15.	<15.
ISOBUTANE	15.	<15.
PENTANES	15.	<15.
HEXANES	15.	<15.

FID
08/06/88
G28241CH.WR1/fg14
LRH/gd/gd

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES

Laurence R. Hilpert, Ph.D.
Vice President

AIR, WATER & HAZARDOUS WASTE LABORATORY (No. 998151) CERTIFIED by CALIFORNIA DEPT of HEALTH SERVICES

Coast-to-Coast
Analytical
Services

Coast-to-Coast
Analytical Services
141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: 0-2824-1
Collected: 07/30/98
Received: 08/01/98
Tested: 08/01/98
Collected by: M. Orton/P. Young

SUPPLEMENTARY REPORT FOR AIR ANALYSIS

ATTN: Mike Bekalar
Genesis Environmental
1145 W. Columbus Street
Bakersfield, CA 93301

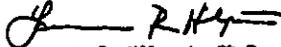
SAMPLE DESCRIPTION:

Darlings Delaware-2, Test #8, Scrubber-2,
Outlet #2889, Tedlar Bag, Air

CONSTITUENT	APPROXIMATE LEVEL ug/cu m
C7 H18 HEPTANES	588.
C7 H14 HEPTENES	118.
C8 H18 OCTANES	718.
C8 H16 OCTENES	118.
C9 H20 NONANES	78.
C9 H12 C3-ALKYL BENZENES	88.

MSDP1
08/19/98
02824-1s.wr1/SUP&P1
LRN/gd/co

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES


Laurence R. Hilpert, Ph.D.
Vice President

Coast-to-Coast
Analytical
Services

Coast-to-Coast
Analytical Services, Inc.
141 Suburban Road
San Luis Obispo, California 93481
(805) 543-2553

Lab Number: G-2824-4
Collected: 87/31/88
Received: 88/01/88
Tested: 88/01/88
Collected by: M. Orton/P. Young

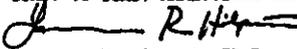
ATTN: Mike Bekalor
Geneale Environmental
1148 W. Columbus Street
Bakersfield, CA 93301

GC/MS AMBIENT AIR ANALYSIS EPA TO-14
Sample Description:
Darlings Delaware-2, Test #12, Incinerator
Outlet #2921, Tedlor Bag, Air

HAZARDOUS SUBSTANCE LIST Compound Analyzed	Detection Limit		Concentration	
	(CAS RN)	ppbv	ug/cu M	ppbv
Acetone	(67841)	10.	not found	not found
Benzene	(71432)	1.0	540.	180.
Bromodichloromethane	(75274)	1.0	not found	not found
Bromomethane	(74839)	2.0	not found	not found
Bromoform	(75282)	1.0	not found	not found
2-Butanone (MEK)	(78933)	1.0	10.	5.0
Carbon Disulfide	(75150)	2.0	not found	not found
Carbon Tetrachloride	(88235)	5.0	not found	not found
Chlorobenzene	(108907)	1.0	not found	not found
Chloroethane	(75003)	1.0	not found	not found
2-Chloroethylvinyl Ether	(110758)	10.	not found	not found
Chloroform	(67683)	1.0	5.0	1.0
Chloromethane	(107022)	1.0	not found	not found
Dibromochloromethane	(124481)	1.0	not found	not found
1,1-Dichloroethane	(75343)	1.0	not found	not found
1,2-Dichloroethane	(107062)	1.0	5.1	1.2
1,1-Dichloroethene	(75354)	1.0	not found	not found
c-1,2-Dichloroethene	(156005)	1.0	not found	not found
t-1,2-Dichloroethene	(156005)	1.0	not found	not found
Dichloromethane	(75002)	10.	not found	not found
1,2-Dichloropropane	(78875)	1.0	not found	not found
cis-1,3-Dichloropropene	(10001010)	1.0	not found	not found
trans-1,3-Dichloropropene	(10001020)	1.0	not found	not found
Ethylbenzene	(100414)	1.0	21.	4.4
2-Hexanone	(591786)	1.0	not found	not found
4-Methyl-2-Pentanone (MIBK)	(824039)	1.0	not found	not found
Styrene	(100425)	2.0	not found	not found
1,1,2,2-Tetrachloroethane	(79345)	5.0	not found	not found
Tetrachloroethene (PCE)	(127184)	2.0	not found	not found
Toluene	(108883)	1.0	350.	85.
1,1,1-Trichloroethane (TCA)	(71556)	1.0	not found	not found
1,1,2-Trichloroethane	(79005)	1.0	not found	not found
Trichloroethene (TCE)	(79016)	1.0	not found	not found
Vinyl Acetate	(108054)	10.	not found	not found
Vinyl Chloride	(75014)	1.0	not found	not found
Xylenes	(133607)	1.0	100.	32.

Percent Recovery of Sample-Specific Quality Assurance Spike is: 98.

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES


Laurence R. Hilpert, Ph.D.
Vice President

MSDP1
88/10/88
G2824-4.wr1/MSL11
LRH/ec/gd/co

Coast-to-Coast
Analytical
Services

Coast-to-Coast
Analytical Services
141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 543-2883

Lab Number: G-2824-17 & 18
Collected: 07/31/86
Received: 08/01/86 @ 1530
Tested: As Listed
Collected by: Kevin Orton/Pat Young

ATTN: Mike Bekler
Genesis Environmental
1148 W. Columbus Street
Bakersfield, CA 93301

Sample Description:

Project: Darlings Delaware-2
2916 & 2917 Test #9, Inc
Outlet Line Rinse & Impinger, Air
V = 5.316 l, Composite

REPORT

CONSTITUENT	CARB METHOD/DATE/ANALYST	DETECTION LIMIT mg (PGL)**	LEVEL FOUND mg
PROPIONIC ACID	421 08/23/86 ORO	0.5	02.
ISOBUTYRIC ACID	421 08/23/86 ORO	1.	<1.
BUTYRIC ACID	421 08/23/86 ORO	1.	14.
ISOVALERIC ACID	421 08/23/86 ORO	1.	<1.
VALERIC ACID	421 08/23/86 ORO	2.	<2.

**Practical Quantitation Limit

08/24/86
G2824-17.WR1/876
MH/ke

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES
Mary Novlicek
Mary Novlicek, Ph.D., President

AIR, WATER & HAZARDOUS WASTE LABORATORY (No.131) CERTIFIED by CALIFORNIA DEPT of HEALTH SERVICES

Central
Coast
Analytical
Services

Central Coast
Analytical Services
141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 943-2663

Lab Number: 02824-4
Collected: 07/30/98
Received: 08/01/98
Tested: 08/02/98
Collected by: Orton/Yoang

Sample Description:

Genesis Environmental
1148 W. Columbus Street
Bakersfield, CA 93301

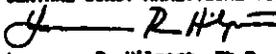
Project: Darlings Delware-2
Test # 12 Incinerator Outlet #2821

REPORT

METHANE AND C2 - C6 TESTED BY GC/FID

CONSTITUENT	DETECTION LIMIT (ppmv)	LEVEL FOUND (ppmv)
METHANE	20.	40.
ETHANE	10.	<10.
PROPANE	10.	<10.
BUTANE	10.	<10.
ISOBUTANE	10.	<10.
PENTANES	10.	<10.
HEXANES	10.	<10.

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES


Laurence R. Hilpert, Ph.D.
Vice President

FID
08/08/98
02824ACH.WR1/fg14
LRH/gd/gd

AIR, WATER & HAZARDOUS WASTE LABORATORY (No. 964151) CERTIFIED by CALIFORNIA DEPT of HEALTH SERVICES

Coast-to-Coast
Analytical
Services

Coast-to-Coast
Analytical Services
141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: G-2824-4
Collected: 07/31/88
Received: 08/01/88
Tested: 08/01/88
Collected by: M. Orton/P. Young

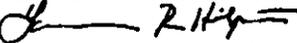
SUPPLEMENTARY REPORT FOR AIR ANALYSIS

ATTN: Mike Bahalar
Genesis Environmental
1145 W. Columbus Street
Bakersfield, CA 93301

SAMPLE DESCRIPTION:
Darlings Delaware-2, Test #12, Incinerator
Outlet #2921, Tedlar Bag, Air

CONSTITUENT	APPROXIMATE LEVEL ug/cu m
C6 H14 HEXANES	720.
C6 H12 HEXENES	410.
CYCLOHEXANE	100.
C7 H16 HEPTANES	2000.
C7 H14 HEPTENES	540.
C8 H18 OCTANES	800.

MSDP1
08/08/88
G2824-As.w-1/SUP201
LRH/gd/co

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES

Laurence R. Hilpert, Ph.D.
Vice President

Coast-to-Coast
Analytical
Services

Coast-to-Coast
Analytical Services, Inc.
141 Suburban Road
San Luis Obispo, California 93401
(805) 943-2563

Lab Number: C-2824-3
Collected: 07/31/98
Received: 08/01/98
Tested: 08/01/98
Collected by: M. Orton/P. Young

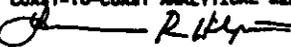
ATTN: Mike Bahlor
Genesis Environmental
1148 W. Columbus Street
Bakersfield, CA 93301

OC/MS AMBIENT AIR ANALYSIS EPA TO-14
Sample Description:
Darlings Delaware-2, Test #18, Incinerator
Inlet #2918, Tedlar Bag, Air

HAZARDOUS SUBSTANCE LIST Compound Analyzed	Detection Limit		Concentration	
	(CAS RN)	ppbv	ug/cu M	ppbv
Acetone	(67641)	1.0	2600.	1000.
Benzene	(71432)	0.1	130.	37.
Bromodichloromethane	(75274)	0.1	6.0	0.9
Bromomethane	(74839)	0.2	not found	not found
Bromoform	(75252)	0.1	2.0	0.2
2-Butanone (MEK)	(78033)	0.1	610.	100.
Carbon Disulfide	(75156)	0.2	not found	not found
Carbon Tetrachloride	(56235)	0.5	not found	not found
Chlorobenzene	(106967)	0.1	2.0	0.5
Chloroethane	(75003)	0.1	not found	not found
2-Chloroethylvinyl Ether	(110750)	1.0	not found	not found
Chloroform	(67683)	0.1	0.1	1.0
Chloromethane	(107302)	0.1	70.	33.
Dibromochloromethane	(124481)	0.1	not found	not found
1,1-Dichloroethane	(75343)	0.1	not found	not found
1,2-Dichloroethane	(107062)	0.1	not found	not found
1,1-Dichloroethene	(75354)	0.1	not found	not found
c-1,2-Dichloroethene	(156005)	0.1	not found	not found
t-1,2-Dichloroethene	(156005)	0.1	not found	not found
Dichloromethane	(75002)	1.0	20.	6.0
1,2-Dichloropropane	(78075)	0.1	not found	not found
cis-1,3-Dichloropropene	(10001015)	0.1	not found	not found
trans-1,3-Dichloropropene	(10001020)	0.1	not found	not found
Ethylbenzene	(100414)	0.1	12.	2.5
2-Hexanone	(501700)	0.1	not found	not found
4-Methyl-2-Pentanone (MIBK)	(624030)	0.1	not found	not found
Styrene	(100425)	0.2	7.0	1.7
1,1,2,2-Tetrachloroethane	(79340)	0.5	4.0	0.6
Tetrachloroethene (PCE)	(127184)	0.2	not found	not found
Toluene	(108003)	0.1	320.	70.
1,1,1-Trichloroethane (TCA)	(71550)	0.1	0.3	1.4
1,1,2-Trichloroethane	(79005)	0.1	not found	not found
Trichloroethene (TCE)	(79010)	0.1	not found	not found
Vinyl Acetate	(100054)	1.0	not found	not found
Vinyl Chloride	(75014)	0.1	not found	not found
Xylenes	(1330207)	0.1	71.	15.

Percent Recovery of Sample-Specific Quality Assurance Spike is: 102.

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES


Laurence R. Hilpert, Ph.D.
Vice President

MSD#1
08/10/98
02824-3.w1/MSL11
LRH/or/gd/co

Coast-to-Coast
Analytical
Services

Coast-to-Coast
Analytical Services
141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 843-2863

Lab Number: C-2824-18 & 25
Collected: 8/31/98
Received: 98/9/98 @ 1838
Tested: As Listed
Collected by: Kevin Orton/Pat Young

ATTN: Mike Bohaler
Genesis Environmental
1148 W. Columbus Street
Bakersfield, CA 93301

Sample Description:

Project: Darlings Delaware-2
2910 & 2925 Test #11, Inlet
Line Nines & Outlet Impinger,
Air, V = 5.298 l, Composite

REPORT

CONSTITUENT	CARB	METHOD/DATE/ANALYST	DETECTION LIMIT mg (POL)**	LEVEL FOUND mg
PROPIONIC ACID	421	98/23/98 ORO	5.5	228.
ISOBUTYRIC ACID	421	98/23/98 ORO	1.	<1.
BUTYRIC ACID	421	98/23/98 ORO	1.	<1.
ISOVALERIC ACID	421	98/23/98 ORO	1.	<1.
VALERIC ACID	421	98/23/98 ORO	2.	<2.

**Practical Quantitation Limit

98/24/98
C2824-18.WR1/978
MH/ks

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES
Mary McVilack
Mary McVilack, Ph.D., President

AIR, WATER & HAZARDOUS WASTE LABORATORY (No.131) CERTIFIED by CALIFORNIA DEPT of HEALTH SERVICES

Central
Coast
Analytical
Services

Central Coast
Analytical Services
141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: 02824-3
Collected: 07/30/88
Received: 08/01/88
Tested: 08/02/88
Collected by: Orton/Yoong

Genesis Environmental
1145 W. Columbus Street
Bakersfield, CA 93301

Sample Description:
Project : Darlings Delaware-2
Test # 18 Incinerator Inlet #2818

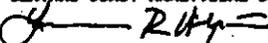
REPORT

METHANE AND C2 - C6 TESTED BY GC/FID

CONSTITUENT	DETECTION LIMIT (ppmv)	LEVEL FOUND (ppmv)
METHANE	20.	72.
ETHANE	10.	<10.
PROPANE	10.	<10.
BUTANE	10.	<10.
ISOBUTANE	10.	<10.
PENTANES	10.	<10.
HEXANES	10.	<10.

FID
08/06/88
02824SCH.WR1/rq14
LRH/gd/gd

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES


Laurence R. Hilpert, Ph.D.
Vice President

AIR, WATER & HAZARDOUS WASTE LABORATORY (No. 998131) CERTIFIED by CALIFORNIA DEPT of HEALTH SERVICES

Coast-to-Coast
Analytical
Services

Coast-to-Coast
Analytical Services
141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 843-2553

Lab Number: C-2824-3
Collected: 07/31/98
Received: 08/01/98
Tested: 08/01/98
Collected by: M. Orton/P. Young

SUPPLEMENTARY REPORT FOR AIR ANALYSIS

ATTN: Mike Bokalar
Genesis Environmental
1148 W. Columbus Street
Bakersfield, CA 93301

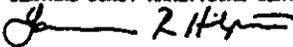
SAMPLE DESCRIPTION:

Darlings Delaware-2, Test #18, Incinerator
Inlet #2818, Tedlar Bag, Air

CONSTITUENT	APPROXIMATE LEVEL ug/cu m
C5 H12 PENTANES	186.
C6 H14 HEXANES	488.
C6 H12 HEXENES	188.
C7 H16 HEPTANES	858.
C7 H14 HEPTENES	368.
C8 H18 OCTANES	128.

MSD#1
08/02/98
02824-3s.wr1/SUP#1
LRH/gd/co

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES


Laurence R. Hilpert, Ph.D.
Vice President

AIR, WATER & HAZARDOUS WASTE LABORATORY (No. 131) CERTIFIED by CALIFORNIA DEPT OF HEALTH SERVICES

Coast-to-Coast
Analytical
Services

Coast-to-Coast
Analytical Services
141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 943-2553

Lab Number: As Listed
Collected: 07/30 - 31/98
Received: 08/01/98
Tested: 08/10 & 17/98
Collected by: MO/PY

ATTN: M. Sakalar
Genesis Environmental
1145 W. Columbus Street
Bakersfield, CA 93301

Sample Description:
Darlings Delaware-2, Impingers
and Line Rinses, As Listed

REPORT

LAB NUMBER	SAMPLE DESCRIPTION	LEVEL FOUND
		FORMALDEHYDE (ug/L)
		CARB 430
		50
		08/15 & 16/98 DEF
0-2824-5	#2001, Test #1, Scrubber #1 Outlet, Line Rinse, Volume = 52 ml	<50
0-2824-6	#2002, Test #1, Scrubber #1 Outlet, Impinger Contents, Volume = 267 ml	<50
0-2824-7	#2003, Test #2, Scrubber #2 Outlet, Line Rinse, Volume = 46 ml	80
0-2824-8	#2004, Test #2, Scrubber #2 Outlet, Impinger Contents, Volume = 244 ml	70
0-2824-9	#2012, Test #7, Inc. Outlet, Line Rinse, Volume = 88 ml	80
0-2824-10	#2013, Test #7, Inc. Outlet, Impinger Contents, Volume = 250 ml	80
0-2824-11	#2014, Test #8, Inc. Inlet, Line Rinse, Volume = 52 ml	110
0-2824-12	#2015, Test #8, Inc. Inlet, Impinger Contents, Volume = 238 ml	70
QL-08150	Method Blank	<50
QS-08150	SPIKED AT FOUND WITH PERCENT RECOVERY	1400 1000 71

**Practical Quantitation Limit

HPLC/08-10-00
02824F.WR1/FORM1
MM/ss

Respectfully submitted,
Mary Navlicek
Mary Navlicek, Ph.D., President

AIR, WATER & HAZARDOUS WASTE LABORATORY (No. 998151) CERTIFIED by CALIFORNIA DEPT OF HEALTH SERVICE:

Coast-to-Coast
Analytical
Services

Coast-to-Coast
Analytical Services
141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(885) 843-2553

Lab Number: As Listed
Collected: As Listed
Received: 06/01/98
Tested: 06/01/98
Collected by: M. Orton/P. Young

SUPPLEMENTARY REPORT FOR GC/MS AMBIENT AIR ANALYSIS

ATTN: Mike Bakalar
Genesis Environmental
1145 West Columbus Street
Bakersfield, CA 93301

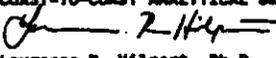
Sample Description:
Darlings Delaware-2, Tedlar
Bags, Air Samples As Listed

LAB NUMBER	SAMPLE DESCRIPTION	LEVEL FOUND ug/cu m		
		METHYL MERCAPTAN	ETHYL MERCAPTAN	PROPYL MERCAPTAN
EPA METHOD-----		TO-14	TO-14	TO-14
DETECTION LIMIT(PQL)*-----		100.	100.	100.
DATE/ANALYST-----		08-01-98/GSD	08-01-98/GSD	08-01-98/GSD
0-2824-1	Test #5, Scrubber-2, Outlet #2000, Collected: 07/30/98	<100.	<100.	<100.
0-2824-2	Test #6, Scrubber-1, Outlet #2010 Collected: 07/30/98	<100.	<100.	<100.
0-2824-3	Test #10, Incinerator, Inlet #2018 Collected: 07/31/98	<100.	<100.	<100.
0-2824-4	Test #12, Incinerator, Outlet #2021 Collected: 07/31/98	<100.	<100.	<100.

*Practical Quantitation Limit

MSDP:
09/16/98
G2824ms.wr1/SUPS#2
LRH/gd/co

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES


Laurence R. Hilpert, Ph.D.
Vice President

Coast-to-Coast
Analytical
Services

Coast-to-Coast
Analytical Services, Inc.
141 Suburban Road
San Luis Obispo, California 93401
(805) 543-2583

Lab Number: B-88618-2
Collected:
Received:
Tested: 08/01/98
Collected by:

SUBMITTED BY:
CCAS

GC/MS AMBIENT AIR ANALYSIS EPA TO-14
Sample Description:
ZERO AIR BLANK

HAZARDOUS SUBSTANCE LIST Compound Analyzed	Detection Limit		Concentration	
	(CAS RN)	ppbv	ug/cu M	ppbv
Acetone	(67641)	1.0	not found	not found
Benzene	(71432)	0.1	not found	not found
Bromodichloromethane	(75274)	0.1	not found	not found
Bromomethane	(74839)	0.2	not found	not found
Bromoform	(75252)	0.1	not found	not found
2-Butanone (MEK)	(78933)	0.1	not found	not found
Carbon Disulfide	(75156)	0.2	not found	not found
Carbon Tetrachloride	(68235)	0.1	not found	not found
Chlorobenzene	(108997)	0.1	not found	not found
Chloroethane	(75003)	0.1	not found	not found
2-Chloroethylvinyl Ether	(119758)	1.0	not found	not found
Chloroform	(67663)	0.1	not found	not found
Chloromethane	(107382)	0.1	not found	not found
Oibromochloromethane	(124481)	0.1	not found	not found
1,1-Dichloroethane	(75343)	0.1	not found	not found
1,2-Dichloroethane	(107082)	0.1	not found	not found
1,1-Dichloroethene	(75354)	0.1	not found	not found
c-1,2-Dichloroethene	(156685)	0.1	not found	not found
t-1,2-Dichloroethene	(156685)	0.1	not found	not found
Dichloromethane	(75002)	1.0	not found	not found
1,2-Dichloropropane	(78875)	0.1	not found	not found
cis-1,3-Dichloropropene	(10661815)	0.1	not found	not found
trans-1,3-Dichloropropene	(10661826)	0.1	not found	not found
Ethylbenzene	(100414)	0.2	not found	not found
2-Hexanone	(591784)	0.1	not found	not found
4-Methyl-2-Pentanone (MIBK)	(824839)	0.1	not found	not found
Styrene	(106425)	0.2	not found	not found
1,1,2,2-Tetrachloroethane	(78345)	0.2	not found	not found
Tetrachloroethene (PCE)	(127184)	0.2	not found	not found
Toluene	(108883)	0.2	not found	not found
1,1,1-Trichloroethane (TCA)	(71858)	0.1	not found	not found
1,1,2-Trichloroethane	(79885)	0.1	not found	not found
Trichloroethene (TCE)	(79018)	0.1	not found	not found
Vinyl Acetate	(108854)	1.0	not found	not found
Vinyl Chloride	(75014)	0.1	not found	not found
Xylenes	(1336267)	0.2	not found	not found

Percent Recovery of Sample-Specific Quality Assurance Spike is: 98.

MSDF1
08/08/98
B-88618-2.w1/FFS4
LRH/ec/gd/oo

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES

Maury Kaulbach for
Lawrence R. Hilpert, Ph.D.
Vice President

AIR, WATER & HAZARDOUS WASTE LABORATORY (No.131) CERTIFIED by CALIFORNIA DEPT OF HEALTH SERVICES

Coast-to-Coast
Analytical
Services

Coast-to-Coast
Analytical Services
141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 843-2653

Lab Number: 882398
Collected:
Received: 88/01/98 @ 1038
Tested: As Listed
Collected by: Kevin Orton/Pat Young

ATTN: Mike Bakalar
Genesis Environmental
1148 W. Columbus Street
Bakersfield, CA 93301

Sample Description:
Project: Darlings Delaware-2
Reagent Blank

REPORT

CONSTITUENT	CARB METHOD/DATE/ANALYST	DETECTION LIMIT ug/l (PQL)**	LEVEL FOUND ug/l
PROPIONIC ACID	421 88/23/98 ORO	2.	<2.
ISOBUTYRIC ACID	421 88/23/98 ORO	5.	<5.
BUTYRIC ACID	421 88/23/98 ORO	5.	<5.
ISOVALERIC ACID	421 88/23/98 ORO	5.	<5.
VALERIC ACID	421 88/23/98 ORO	15.	<15.

**Practical Quantitation Limit

88/24/98
882398.WR1/875
Mh/ka

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES
Mary Navickas
Mary Navickas, Ph.D., President

AIR, WATER & HAZARDOUS WASTE LABORATORY (No.131) CERTIFIED by CALIFORNIA DEPT of HEALTH SERVICES

Coast-to-Coast
Analytical
Services

Coast-to-Coast
Analytical Services
141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: CS-8882#C
Collected:
Received:
Tested: 08/02/99
Collected by:

Sample Description:

CCAS

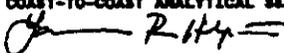
SPIKE

REPORT

METHANE AND C2 - C6 TESTED BY GC/FID

CONSTITUENT	DETECTION LIMIT (ppmv)	LEVEL FOUND (ppmv)	TRUE VALUE (ppmv)	PERCENT RECOVERY
METHANE	20.	1020.	1010.	101.
ETHANE	10.	990.	1000.	99.
PROPANE	10.	1000.	1000.	100.
BUTANE	10.	990.	1000.	99.
PENTANES	10.	1010.	1020.	101.
HEXANES	10.	1000.	1000.	100.

FID
08/02/99
CS8728#CH.WR1/FG#13
LRH/gd/gd

Respectfully submitted,
COAST-TO-COAST ANALYTICAL SERVICES

Laurence R. Hilpert, Ph.D.
Vice President

Appendix A-2
Chain of Custody

**Genesis Environmental Services
Chain Of Custody**

LAB #	Sample I.D.	Sample BAG PURGE	Sample Collected BY	Date & Time Taken	Sample Delivered To Lab	Analysis Received
	DARLINGS 7-30-90					
2001	TEST #1, SCRUBBER #1 OUTLET FORM: 480	LINE #1 RINSE	P.V.	7-30-90 15:00	8-1-90 m. Sakalor	
2002	TEST #1, SCRUBBER #1 OUTLET FORM: 480	CONTENTS	P.V. MB	7-30-90 15:00	8-1-90 MB	
2003	TEST #2, SCRUBBER #2 OUTLET FORM: 480	LINE #1 RINSE	K.O.	7-30-90 15:00	8-1-90 MB	
2004	TEST #2, SCRUBBER #2 OUTLET FORM: 480	CONTENTS	K.O. MB	7-30-90 15:00	8-1-90 MB	
2005	TEST #4, SCRUBBER #1 OUTLET FORM: 480	LINE RINSE	P.V. MB	7-30-90 16:10	8-1-90 MB	
2006	TEST #4, SCRUBBER #1 OUTLET FORM: 480	CONTENTS	P.V. MB	7-30-90 16:10	8-1-90 MB	
2007	TEST #4, SCRUBBER #2 OUTLET FORM: 480	LINE RINSE	P.V. MB	7-30-90 16:08	8-1-90 MB	
2008	TEST #4, SCRUBBER #2 OUTLET FORM: 480 VOC ORGANIC	CONTENTS	P.V. MB	7-30-90 16:08	8-1-90 MB	
2009	SEE PAGE #1	MB	K.O.	7-30-90	8-1-90 MB	
2010	SEE PAGE #1	MB	MB	7-30-90	8-1-90 MB	
2011	TEST #3 - SCRUBBER #2 OUTLET - ORGANIC	CONTENTS	MB	7-30-90 16:08	8-1-90 MB	
2012	TEST #1, INC. OUT FORMAL	LINE RINSE	MB	7-31-90 @ 10:18	8-1-90 MB	
2013	TEST #1, INC. OUT FORMAL	CONTENTS	MB	7-31-90 @ 10:18	8-1-90 MB	
2014	TEST #1, INC. OUT FORMAL	LINE RINSE	MB	7-31-90 @ 10:18	8-1-90 MB	
2015	TEST #1, INC. OUT FORMAL	CONTENTS	MB	7-31-90 @ 10:18	8-1-90 MB	
2016	TEST #9, INC. OUT ORGANIC ACID	LINE RINSE	MB	7-31-90 @ 14:33	8-1-90 MB	
2017	TEST #9, INC. OUT ORGANIC ACID	CONTENTS	MB	7-31-90 @ 14:33	8-1-90 MB	
2018	SEE PAGE #1	MB	MB	7-31-90	8-1-90 MB	
2019	TEST #11 - INC. ORGANIC INLET	LINE RINSE	MB	7-31-90 @ 14:32	8-1-90 MB	

rec'd by *Setha Kuehbach* 8-1-90 1030. rec'd intact & all

**Genesis Environmental Services
Chain Of Custody**

LAB #	Sample I.D.	Sample BAG PURGE	Sample Collected BY	Date & Time Taken	Sample Delivered To Lab	Analysis Received
2020	WASTEWATER INLET ORGANIC ACIDS	IMP CONCENTS	R.O.	7-31-20 14:32	8-1-20 MO	
✓ 2021	SEE PAGE #1	MSD	MSD	7-31-20	8-1-20 MSD	
2022						
2023						

Appendix A-3

Raw Data



1140 W. COLUMBUS - MARIETTA, GA 30067

Formaldehyde

Company Orion Tobacco
 Date 7/30/2001
 Operator AV
 Test # DNDW STRUBBLES #1
 Stack Diameter NR
 Barometer 29.40

Meter Box # CB1001
 Meter Delta H 1.50
 Y Factor 1.001
 Pitot Coef. NA
 Probe Length 3'

Nozzle I.D. ---
 Nozzle Diam. .187
 Leak Rate .0005
 Liner Material SS
 Filter # 0

LAB #
 2001

2002

Traverse Point Number	Time	Sample Time & Min.	Dry Gas Meter CF	AP - Pts to Hg	All Diff. Pres. to Hg	Stack Temp. °F	Stack Pres. to Hg	Dry Gas Meter		Imp. Temp. °F	Gas Temp. °F	Probe Temp. °F	Vel. in. / hr
								Inlet	Outlet				
	1500	0	100.141		1.5			99	97				2.0
		2.5	101.158		.5			99	97				
		5	101.228		.5			100	97				
		7.5	1.389		.5			100	98				
		10	1.637		.5			101	98				
		12.5	1.923		.5			101	98				
		15	2.225		.5			101	98				
		17.5	2.540		.5			101	99				
		20	2.850		.5			102	99				
		22.5	3.157		.5			102	99				
		25	3.475		.5			101	99				
		27.5	3.798		.5			102	99				
		30	4.123		.5								

Vm(std) = 2.72

Total ug of Formaldehyde = 15.631 ugs



1145 W. COLUMBUS • BAKERSFIELD, CA 93311

Organic acids

Scrubber #1
 Company Portway Petroleum
 Date 7/30/80
 Operator PMY
 Test # 4
 Stack Diameter
 Barometer 29.4

Meter Box # CR1001 Nozzle I.D. NA
 Meter Delta H. 1.50 Nozzle Diam. 1.87
 Y Factor 0.99 Leak Rate 102/200
 Pitot Coeff. N/A Liner Material SS
 Probe Length 3' Filter # NA

Lab #3
 W-2005 HL2006

Traverse Point Number	Time	Sample Time Min.	Dry Gas Meter CF	AP Picos to Mg	All Gases. Pres. to Mg	Stack Temp. °F	Stack Pres. to. Mg	Dry Gas Meter		Inlet Temp. °F	Outlet Temp. °F	Probe Temp. °F	Vol. in. Mg
								Inlet	Outlet				
	16:10	0	4.216			76°		100	99				4.0
		2.5	5.328					101	100				
		5	6.338					101	100				
		7.5	7.578					101	100				
		10	8.900					101	100				
		12.5	10.242					103	101				
		15	11.588					103	101				
		17.5	12.933					103	101				
		20	14.279					103	101				
		22.5	15.623					104	102				
		25	16.977					103	101				
		27.5	18.320					104	101				
		30	19.674					104	101				
			15.458										

Vm(std) = 14.11



1140 N. COLUMBUS - BAKERSFIELD, CA 93311

SCRUBBER # 2

Formaldehyde

Company Amway-L&L
 Date 7-30-95
 Operator R. Neal
 Test # 12
 Stack Diameter N/A
 Barometer 29.40

Meter Box # CB1002
 Meter Delta H 1.20
 Y Factor (1.00)
 Pitot Coefc. 0.9
 Probe Length 4.25

Nozzle I.D. N/A
 Nozzle Diam. .87
 Leak Rate 0.00150
 Liner Material
 Filter # 0

LABS

2003

2004

Traverse Point Number	Time	Sample Time Min.	Dry Gas Meter CF	ΔP Pitot in. H ₂ O	Air Dens. in. H ₂ O	Stack Temp. °F	Stack Pres. in. H ₂ O	Dry Gas Meter		Imp. Temp. °F	Surf. Temp. °F	Probe Temp. °F	Vel. ft./min
								Temp. by Inlet	Temp. by Outlet				
1-3	4:56	0	098893	0	0.03	0	0	101°	101°	94°	0	0	1.0
	5:01	2.5	091126					103°	100°	80°			1.0
		5.0	091238					104°	100°	71°			1.0
		7.5	091492					104°	100°	64°			1.0
		10.0	091645					105°	100°	61°			1.0
		12.5	091808					106°	101°	60°			1.0
		15.0	091965					106°	101°	60°			1.0
		17.5	092150					105°	101°	61°			1.0
		20.0	092316					106°	101°	61°			1.0
		22.5	092410					106°	101°	61°			1.0
		25.0	092659					106°	102°	62°			1.0
		27.5	092841					109°	102°	61°			1.0
	4:28	30.0	093019										

Vm(std) = 1.96

Total ugs of Formaldehyde = 20.76



1145 W. COLUMBUS - BAKERSFIELD, CA 93311

organic acids

Company Delta
 Date 7-31-10
 Operator W. D. ...
 Test # 3
 Stack Diameter N/A
 Barometer 29.4

Meter Box # PA-1002
 Meter Delta H 1.5
 Y Factor 1.001
 Pitot Coef. 0
 Probe Length 43.5

Nozzle I.D. 0
 Nozzle Diam. 1.87
 Leak Rate 0.04/10.0"
 Liner Material 0
 Filter # 0

2007 NOV 08 2011

Scrubber # 2 outlet

Traverse Point Number	Time	Sample Time Min.	Dry Gas Meter CF	ΔP Pitot in. Hg	ΔP Diff. in. Hg	Stack Temp. °F	Stack Pres. in. Hg	Dry Gas Meter		Imp. Temp. °F	Sec. Temp. °F	Probe Temp. °F	Sec. in. Hg
								Temp. by Inlet	Temp. by Outlet				
1-3	16:08	0	144.110	0	0.60			104°	105°	94°			30"
	5:01	2.5	116.229		1.55			107°	103°	58°			36"
		5.0	107.458		0.90			109°	103°	66°			40"
		5.5	109.710					108°	103°	65°			40"
		10.0	102.141					109°	103°	61°			40"
		11.5	111.513					109°	103°	61°			40"
		15.0	103.003					109°	103°	61°			40"
		18.5	104.440					109°	103°	62°			40"
		20.0	105.845					108°	103°	61°			40"
		22.5	107.332					108°	103°	62°			40"
		25.0	108.818					108°	103°	63°			40"
		27.5	110.223					109°	103°	63°			40"
	16:35	37.0	111.624										

Vm(std) = 15.64

WPH

Outlet

Incinerator Stack

Company Duchas
Date 7/24/09
Operator RY
Test # 1
Stack Diameter N/A
Barometer 29.4



1145 W. COLUMBUS - BAKERSFIELD, CA 93311

Formaldehyde

Meter Box # CB001
Meter Delta 1.90
Y Factor 1.999
Pitot Coef. NA
Probe Length 5'

Nozzle I.D. NA
Nozzle Diam. .187
Leak Rate 201.5
Liner Material SS
Filter # NA

LAB # 2012 # 2013

Traverse Point Number	Time	Sample Time & No.	Dry Bulb Temp. °F	Wet Bulb Temp. °F	Stack Temp. °F	Stack Pres. in. Hg	Dry Gas Meter		Imp. Count of	Imp. Temp. °F	Probe Temp. °F	Vol. in. Hg
							Temp. by Inlet	Temp. by Outlet				
	10:14	0	20.200				97	92				3.0
		2.5	21.463				98	95				
		5	22.555				100	96				
		7.5	23.679	AV. 23.670			100	96				
		10	24.773				102	95				
		12.5	25.885				104	96				
		15	27.063				104	96				
		17.5	28.108				104	96				
		20	29.007				104	97				
		22.5	30.402				105	98				
		25	31.462				105	98				
		27.5	32.565				106	99				
		30	33.490				106	99				
		32.5	34.780				107	99				
		35	35.888				108	102				
		37.5	36.990				108	101				
		40	38.103				109	102				

Vm(std) = 16.6

Total ugs of Formaldehyde = 25.44

Organic Acids



THE W. COLUMBUS - BAKERSFIELD, CA 93311

Incinerator
3726

Organic Acids

Company Dac/Inc
 Date 7/31/90
 Operator P.V.
 Test # 9
 Stack Diameter 2' x 4'
 Barometer 29.40

Meter Box # CB1001
 Meter Delta H
 Y Factor 0.99
 Pitot Coeff. N/A
 Probe Length 3'

Nozzle I.D. NA
 Nozzle Diam. .187
 Leak Rate 0.0000
 Liner Material SS
 Filter # N/A

Lab # 3 M' 2016 N' 2017

Transfer Pitot Number	Time	Sample Time Min.	Dry Gas Flow CF	ΔP Pitot in. H ₂ O	ΔP DIFF. Pres. in. H ₂ O	Stack Temp. °F	Stack Pres. in. H ₂ O	Dry Gas Flow		Imp. Temp. °F	Gas Temp. °F	Probe Temp. °F	Vel. in. /hr
								Temp. °F Inlet	Temp. °F Outlet				
N/A	1433		38.259	N/A		585°		120	117	60°	N/A	N/A	5.0
		2.5	38.500					120	117	60			5.0
		5	40.645					121	117	60			5.0
		7.5	42.070					122	117	60			5.0
		10	43.671					123	117	60			5.0
		12.5	45.265					122	118	60			5.0
		15	46.303					125	119	61			5.0
		17.5	47.635					125	119	61			5.0
		20	48.942					125	119	61			5.0
		22.5	50.272					128	119	62			5.0
		25	51.570					125	120	62			5.0
		27.5	52.887					126	120	62			5.0
		30	54.138					126	120	62			5.0
			15839										

Vm(std) = 14.27



7145 W. COLUMBIA - BACKSFIELD, CA 95019

Incinerator Inlet

Formaldehyde

Company Special - Delta
 Date 4-30-95
 Operator L. DeWitt
 Test # 8
 Stack Diameter N/A
 Barometer 29.40

Meter Box # CB1002
 Meter Delta H 1.2
 Y Factor 1.001
 Pitot Coef. 0.85
 Probe Length 8.5.5

Nozzle I.D. 0
 Nozzle Diam. .187
 Leak Rate 0.0130
 Liner Material 2
 Filter # 0

LAB # B1 2014

I. 2015

Boiler Inlet

Traverse Point Number	Time	Sample Time Min.	Dry Gas Flow CF	AP Pitot to Hgt	Air Dens. Prc. to Hgt	Stack Temp. °F	Stack Pres. to Hgt	Dry Gas Meter		Inp. Temp. °F	Out Temp. °F	Probe Temp. °F	Wc. to Hgt
								Inlet Temp. °F	Outlet Temp. °F				
	15:30	0	111.744	0	1.89		0	94°	93°	92°	0	20°	
		2.5	112.535		1.40		0	95°	95°	95°	0	20°	
		5	113.925		1.40			96°	96°	95°		20°	
		10	115.116					97°	95°	95°		20°	
		15	116.180					98°	96°	95°		20°	
		15.0	117.283					99°	96°	95°		20°	
		17.5	118.316					99°	97°	96°		20°	
		20.0	119.558					100°	97°	96°		20°	
		22.5	120.650					100°	98°	96°		20°	
		25.0	121.822					101°	98°	96°		20°	
		27.5	122.801					101°	99°	96°		20°	
		30.0	123.863										

Vm(std) = 11.50

Total ugs of Formaldehyde = 22.38



1145 W. COLUMBUS • BAKERSFIELD, CA 93311

ORGANIC ACIDS

Company NOVINE-DETA
 Date 7-31-90
 Operator WILLIAMS
 Test # 11
 Stack Diameter 24"
 Barometer 29.40

Meter Box # CB100
 Meter Delta H 1.2
 Y Factor 1.001
 Pitot Coef. 0
 Probe Length 11.5

Nozzle I.D. 0
 Nozzle Diam. .25
 Leak Rate .005011"
 Liner Material 0
 Filter # 2

LAB#s 2019 2020

INTEGRATOR TABLE

Traverse Point Number	Time	Sample Time & Min.	Dry Gas Meter CF	ΔP Pitot in. H ₂ O	Air Diff. Pres. in. H ₂ O	Stack Temp. °F	Stack Pres. in. H ₂ O	Dry Gas Meter		Imp. Temp. °F	Box Temp. °F	Probe Temp. °F	Vac. in. Hg
								Temp. °F Inlet	Temp. °F Outlet				
	14:52	0	121.945	0	0.40		0	111.0°	110.5°	67°	0	0	9.0°
	SAF	2.5	126.135		0.60			112°	110°	67°			9.0°
		5.0	127.833					113°	110°	67°			9.0°
		7.5	129.417					113°	110°	67°			9.0°
		10.0	130.719					113°	110°	67°			9.0°
		12.5	132.113					113°	110°	67°			9.0°
		15.0	133.398					113°	110°	67°			9.0°
		17.5	134.624					113°	110°	67°			9.0°
		20.0	135.957					113°	110°	67°			9.0°
		22.5	137.238					113°	110°	67°			9.0°
		25.0	138.530					113°	110°	67°			9.0°
		27.5	139.871					113°	110°	67°			9.0°
		30.0	141.168					113°	110°	67°			9.0°
	END		146.57										

Vm(std) = 15.08